



**OCCUPATIONAL FRAMEWORK**

**SECTION D: ELECTRICITY, GAS, STEAM AND AIR  
CONDITIONING SUPPLY**

**DIVISION 35: ELECTRICITY, GAS, STEAM AND AIR  
CONDITIONING SUPPLY**

Department of Skills Development  
Ministry of Human Resources, Malaysia

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## **ABSTRACT**

Occupational Framework (OF) is the outcome of an analysis conducted to identify the work scope of occupational areas with regard to competency. It is used to analyse skilled manpower competency requirements for the industry. The OF aims to provide an overall view of the industry's Occupational Structure (OS) and identify skills in demand, critical job titles and Occupational Descriptions (OD) that could assist in comprehend further the job requirements of the various occupations in the industry. Department of Skills Development (DSD) is the custodian of this document, whereby the OF is able to identify the suitable occupational areas that either require the development of skills training programmes or the review and enhancement of existing skills training programmes. The OF for electricity, steam, gas and air conditioning supply is based on the 2-digit Malaysia Standard Industrial Classification (MSIC) 2008 under Section D – Electricity, Steam, Gas and Air Conditioning Supply, Division 35 – Electricity, Steam, Gas and Air Conditioning Supply. This document is divided into several chapters. Chapter 1 includes the objectives, scope and justification of the OF development for the electricity, gas, steam and air conditioning supply. Chapter 2 includes the industry overview, highlighting the definition and scope of the industry, stakeholders, legislation, initiatives and the industry's market intelligence. Chapter 3 explains the methodology used in the OF development such as qualitative analysis through brainstorming discussion sessions. Chapter 4 discusses the findings from the focus group discussions that will be translated into the Occupational Structure, Occupational Descriptions, jobs in demand, competencies in demand and emerging skills. Lastly, Chapter 5 concludes with the total number of job areas identified - 155 job areas consisting 884 job titles with 139 job titles identified as critical job titles and 144 job titles which are relevant to IR4.0 and recommended the National Occupational Skills Standard (NOSS) or National Competency Standard (NCS) to be developed based on the jobs in demand identified in this OF and the skills in demand plus emerging skills that should be included in the NOSS and skills training curriculum under DSD.

## ABSTRAK

Kerangka Pekerjaan (OF – *Occupational Framework*) ialah hasil analisis yang dijalankan dalam mengenal pasti skop kerja bidang kerja dari segi kompetensi. Ia digunakan untuk menganalisis keperluan kecekapan tenaga kerja mahir untuk industri. OF bertujuan memberikan pandangan keseluruhan mengenai Struktur Pekerjaan (OS – *Occupational Structure*) industri dan mengenal pasti kemahiran yang diperlukan, jawatan pekerjaan kritikal dan Deskripsi Pekerjaan (OD – *Occupational Descriptions*) yang akan membantu dalam memahami lagi keperluan kerja pelbagai pekerjaan dalam industri. Jabatan Pembangunan Kemahiran (JPK) ialah jabatan yang bertanggungjawab dalam membangunkan dokumen ini yang OF mengenal pasti bidang pekerjaan yang sesuai sama ada memerlukan pembangunan program latihan kemahiran atau kajian semula dan peningkatan program latihan kemahiran yang sedia ada. Aktiviti Pembinaan Khas adalah berdasarkan Klasifikasi Perindustrian Piawaian Malaysia (MSIC – *Malaysia Standard Industrial Classification*) 2008 di bawah Seksyen D – Bekalan Elektrik, Gas, Wap dan Pendingin Udara, Bahagian 35 – Bekalan Elektrik, Gas, Wap dan Pendingin Udara. Dokumen ini dibahagikan kepada beberapa bab iaitu, Bab 1 merangkumi objektif, skop dan justifikasi pembangunan untuk aktiviti Bekalan Elektrik, Gas, Wap dan Pendingin Udara. Bab 2 merangkumi gambaran industri yang menonjolkan definisi dan skop industri, pihak berkepentingan, perundangan, inisiatif dan kecerdasan pasaran. Bab 3 menjelaskan metodologi yang digunakan dalam pembangunan seperti analisis kualitatif melalui sesi perbincangan berkumpulan. Bab 4 membincangkan penemuan daripada perbincangan kumpulan fokus yang diterjemahkan ke dalam Struktur Pekerjaan, Deskripsi Pekerjaan, Pekerjaan yang Diperlukan, Kemahiran yang Diperlukan dan Kemahiran Baru Muncul. Akhirnya, Bab 5 menyimpulkan jumlah bidang kerja yang dikenal pasti, iaitu 155 bidang dengan 884 jawatan pekerjaan dan 139 jawatan pekerjaan yang dikenal pasti sebagai jawatan pekerjaan kritikal, 144 pekerjaan yang relevan terhadap revolusi industri 4.0 dan juga mengesyorkan Standard Kemahiran Pekerjaan Kebangsaan (SKPK) atau Standard Keterampilan Kebangsaan (SKK) yang perlu dibangunkan berdasarkan pekerjaan yang diminta yang dikenal pasti dalam ini dan yang kemahiran dalam permintaan serta kemahiran baharu yang perlu dimasukkan ke dalam kurikulum latihan SKPK dan kemahiran di bawah JPK.

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## LIST OF ABBREVIATIONS

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<b>AD</b>	Area Description
<b>APEL</b>	Accreditation of Prior Experiential Learning
<b>ASPBI</b>	Annual Survey of Philippines Business and Industry
<b>CBT</b>	Competency-based Training
<b>DOSH</b>	Department of Occupational Safety and Health
<b>DOSM</b>	Department of Statistics Malaysia
<b>DSD</b>	Department of Skills Development
<b>EC</b>	Energy Commission
<b>FGD</b>	Focus Group Discussion
<b>GDP</b>	Gross Domestic Product
<b>HSE</b>	Health Safety and Environment
<b>HSEQ</b>	Health, Safety, Environment and Quality
<b>IKBN</b>	<i>Institut Kemahiran Belia Negara</i>
<b>IKM</b>	<i>Institut Kemahiran MARA</i>
<b>IPP</b>	Independent Power Producer
<b>IR4.0</b>	Industrial Revolution 4.0
<b>ISIC</b>	International Standard Industrial Classification
<b>LPG</b>	Liquefied Petroleum Gas
<b>MASCO</b>	Malaysian Standard Classification of Occupation
<b>MESTECC</b>	Ministry of Energy, Science, Technology, Environment and Climate Change
<b>MIDA</b>	Malaysian Investment Development Authority
<b>MITI</b>	Ministry of International Trade and Industry
<b>MOSQF</b>	Malaysian Occupational Skills Qualification Framework
<b>MQA</b>	Malaysian Qualifications Agency
<b>MQF</b>	Malaysian Qualifications Framework
<b>MSC</b>	Malaysian Skills Certificate
<b>MSIC</b>	Malaysian Standard Industrial Classification
<b>NACE</b>	National Association of Corrosion Engineers



## LIST OF ABBREVIATIONS

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<b>NCS</b>	National Competencies Standard
<b>NDLC</b>	National Distance Learning Centre
<b>NIOSH</b>	National Institute of Occupational Safety and Health
<b>NOSS</b>	National Occupational Skills Standard
<b>OA</b>	Occupational Analysis
<b>OF</b>	Occupational Framework
<b>OD</b>	Occupational Description
<b>OS</b>	Occupational Structure
<b>PETRONAS</b>	<i>PetroliaM Nasional Berhad</i>
<b>PhD</b>	Doctor of Philosophy
<b>PSDC</b>	Penang Skills Development Centre
<b>PTW</b>	Permit to Work
<b>RMK-11</b>	<i>Rancangan Malaysia Ke-11</i>
<b>SIRIM</b>	Standard and Industrial Research Institute of Malaysia
<b>SKK</b>	<i>Standard Keterampilan Kebangsaan</i>
<b>SSM</b>	<i>Suruhanjaya Syarikat Malaysia</i>
<b>STPM</b>	<i>Sijil Tinggi Pelajaran Malaysia</i>
<b>TE</b>	Total Employment
<b>TNB</b>	<i>Tenaga Nasional Berhad</i>
<b>TVET</b>	Technical and Vocational Education and Training

## GLOSSARY

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<b>3R</b>	3R refers to three terms that are often used when discussing about waste, namely reduce, reuse and recycle. Reducing is cutting back on the amount of trash we make, reusing is finding new ways to use trash so that we do not have to throw it out and recycling is using trash to remake new goods so that it can be resold again.
<b>Air conditioner</b>	An appliance, system or mechanism designed to dehumidify and extract heat from an area.
<b>Air handling unit</b>	A central unit consisting of a blower, heating and cooling elements, filter racks or chambers, dampers, humidifier and other central equipment in direct contact with the airflow.
<b>Centrifugal fan</b>	A centrifugal fan is a mechanical device for moving air or other gases.
<b>Chiller</b>	A device that removes heat from a liquid via a vapour-compression or absorption-refrigeration cycle.
<b>Coil</b>	Equipment that performs heat transfer to air when mounted inside an air handling unit or ductwork.
<b>Condenser</b>	A condenser is the heated side of an air conditioner or heat pump.
<b>Diffuser</b>	A diffuser is placed over a ductwork; it separates air with vanes going in differing directions.
<b>Dry bulb temperature</b>	Dry bulb temperature is the air temperature measured by a thermometer which is freely exposed to the air while shielded from radiation and moisture.

## **CHAPTER 1: INTRODUCTION**

### **1.1 Introduction**

Electricity, gas, steam and air conditioning supply was recorded a value of gross output of RM61.0 billion in 2017 as compared to RM54.4 billion in 2015 with annual growth rate of 5.9 per cent and employing more than 50,265 persons<sup>1</sup>. As the nation is moving towards a highly technology Industrial Revolution 4.0 nation, this industry plays an important role in propelling Malaysia towards a developed nation by 2025<sup>2</sup>. Due to the significance of this industry to Malaysia, Economic Census 2016 has recorded a registration of more than 305 companies of all sizes in the electricity, gas, steam and air conditioning supply industry alone. To further investigate the industry, this chapter will explain the problem statement, objectives, scope and justification of the OF MSIC 2008 section selection particularly for the electricity, gas, steam and air conditioning supply industry.

### **1.2 Problem Statement**

The basis of this study has its foundation from the existing NOSS documents. NOSS was built on the fundamentals of desirable employee competencies in various occupational sectors which provide clear pathways for relevant parties to achieve the desired competencies. However, with the government initiative moving towards developed nation by 2025, a more rigorous study on the electricity, gas, steam and air conditioning supply industry for the Ministry of Human Resources is much needed to fulfil the demand of professional workers. Consequently, this study hopes to provide insights on the industry's Occupational Structure (OS), Occupational Description (OD), demand for

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<sup>1</sup> Department of Statistics Malaysia. 2018. Annual Economic Statistics 2018. Pages 13 - 20

<sup>2</sup> Berita Harian Online 2019 retrieve from  
<https://www.bharian.com.my/berita/nasional/2019/04/549626/status-negara-maju-enam-tahun-lagi-pm>

skills, jobs titles and critical task skills levels as well as identification of job classifications required in correspondence with NOSS based on MSIC sections and divisions.

### **1.3 Objective of Study**

The main objective of this study is to propose the OS, OD, demand for the skills, jobs titles and critical task skills levels for the electricity, gas, steam and air conditioning supply industry. Precisely, the objectives of the study are as follows:

- a) To establish the OS for the electricity, gas, steam and air conditioning supply industry based on MSIC 2008;
- b) To examine the demand for competencies in the electricity, gas, steam and air conditioning supply industry;
- c) To identify critical jobs in the electricity, gas, steam and air conditioning supply industry; and
- d) To identify jobs titles related to IR4.0 in the electricity, gas, steam and air conditioning supply industry;
- e) To establish the OD for each job title based on the latest electricity, gas, steam and air conditioning supply industry's OS.

### **1.4 Scope of Study**

The scope of work for the study only covers Section D, Division 35 - Electricity, Gas, Steam and Air Conditioning Supply industry in Malaysia. Triangulation of data collection for both qualitative and quantitative methodology will be carried out. The data will be collected through document analysis, focus group discussion and field survey methodology. The respondents of this study will only be those who are working with the electricity, gas, steam and air conditioning supply industry that are registered with the Companies Commission of Malaysia (SSM). This survey includes all regions throughout Malaysia.

It was reported that about 305 companies are registered under the MSIC 2008 groups. They are:

- a) Group 351 - Electric Power Generation, Transmission and Distribution;
- b) Group 352 - Manufacture of Gas, Distribution of Gaseous Fuels Through Mains; and
- c) Group 353 - Steam and Air Conditioning Supply.

This study will begin with a review of documents available in the present environment. This is followed by focus group discussion with industrial experts to gain insights into the industry and to further develop the survey instrument that can be employed in the field study.

### **1.5 Justification for Malaysia Standard industrial Classification 2008 (MSIC 2008) Section Selection**

The electricity, gas, steam and air conditioning supply industry are in tandem with the description under Section D: Electricity, Gas, Steam and Air Conditioning Supply, Division 35: Electricity, Gas, Steam and Air Conditioning Supply. This division includes electric power generation, transmission and distribution; manufacture of gas and the distribution of gaseous fuels through mains; and steam and air conditioning supply.

### **1.6 Structure of Chapters**

This section consists of a brief overview of the entire study, which includes:

- a) Chapter 1  
This chapter introduces the research. It consists of an introduction to the construction industry, problem statement, research objectives, research scope and justification based on 2-digit MSIC 2008 Division 35: Electricity, Gas, Steam and Air Conditioning Supply.
- b) Chapter 2  
This chapter provides a review of the research which gives a further comprehend about the research purpose based on sources from the

Department of Statistics of Malaysia (DOSM), Annual Gross Domestic Product and Annual Economic Statistics.

c) Chapter 3

This chapter explains about the overall approach of the study and the methods deployed to achieve the objectives of the study. They include focus group discussions with experts from the electricity, gas, steam and air conditioning supply industry, surveys from companies related to the industry and document analysis based on published information.

d) Chapter 4

This chapter contains all the results and findings of the research on electricity, gas, steam and air conditioning supply obtained based on the objectives of the study.

e) Chapter 5

This chapter explains the discussions and summary of the results, the final conclusion as well as the recommendations for future research.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1 Introduction**

This chapter emphasises on the explanation of the electricity, gas, steam and air conditioning industry. This chapter also focuses on the current scenario in Malaysia, introduction to government bodies, government policies, development plans and competitiveness at the international level.

The information presented in this chapter was obtained via literature reviews, observations, interviews with sector practitioners and discussions during workshops with development panel members. The literature reviews were further discussed with panel members in order to obtain insights on matters at hand from a practitioner's perspective.

#### **2.1.1 National Skills Development Act 2006 (Act 652)**

The National Skills Development Act 2006 (Act 652) came into effect on 1<sup>st</sup> September 2006 after it was officially gazetted on 29<sup>th</sup> June 2006 with the mandate of promoting (through skills training) the development and improvement of a person's abilities that are needed for the vocation as well as to provide for other matters connected therewith. Act 652 is significant because for the first time in the history of skills training in Malaysia, a national legislation has been enacted solely and exclusively for skills training and development. In addition, the meaning and scope of the skills training have been clarified and given a statutory interpretation that can be used to distinguish it from other components of the country's national education and training system. Act 652 also provides for the implementation of a Malaysian Skills Certification System, leading to the award of five (5) levels of national skills qualification, namely Malaysian Skills

Certificate Level 1, 2 and 3; Malaysian Skills Diploma; and Malaysian Skills Advanced Diploma<sup>3</sup>.

## 2.1.2 Malaysian Qualifications Framework (MQF)

Malaysia Qualifications Framework (MQF) refers to the policy framework that satisfies both national and internationally recognised qualifications. It consists of titles and guidelines, together with principles and protocols covering the articulation and issuance of qualifications and statements of attainment. Elements of the qualification's framework indicate the achievements for each qualification title. It will also provide progression routes for all the graduates in the respective occupational fields.

The MQF has eight levels of qualifications in three sectors and it is supported by lifelong educational pathways as shown in Table 2.1. DSD governs the skills sector, in which there are five (5) levels of skills qualification. The definition for each level of skills qualification is specified in the Malaysian Occupational Skills Qualifications Framework (MOSQF) and can be referred to in Annex 1<sup>4</sup>.

Table 2.1: Malaysian Qualifications Framework (MQF) Chart  
(Source: Malaysian Qualifications Framework 2<sup>nd</sup> Edition)

MQF Level	Minimum Graduating Credit	Academic Sector	TVET Sector	Lifelong Learning/APEL Criteria for APEL(A)
8	No credit rating	PhD by Research		Admission criteria: 35 years old Bachelor's degree in relevant field/equivalent 5 years' work experience Passed APEL assessment
	80	Doctoral Degree by Mixed Mode & Coursework		
7	No credit rating	Master's by Research		Admission criteria: 30 years old

<sup>3</sup> National Skills Development Act 652 (2019, September 2) retrieved from <http://www.agc.gov.my/agcportal/index.php>

<sup>4</sup> Malaysian Qualifications Agency. 2018. Malaysian Qualifications Framework 2<sup>nd</sup> Edition



<b>MQF Level</b>	<b>Minimum Graduating Credit</b>	<b>Academic Sector</b>	<b>TVET Sector</b>	<b>Lifelong Learning/APEL Criteria for APEL(A)</b>
	40	Master's by Mixed Mode & Coursework		STPM/Diploma/equivalent Relevant work experience Passed APEL assessment
	30	Postgraduate Diploma		
	20	Postgraduate Certificate		
6	120	Bachelor's degree		Admission criteria: 21 years old Relevant work experience Passed APEL assessment
	66	Graduate Diploma		
	36	Graduate Certificate		
5	40	Advanced Diploma	5	no admission criteria
4	90	Diploma	4	Admission criteria: 20 years old Relevant work experience Passed APEL assessment
3	60	Certificate	3	Admission criteria: 19 years old Relevant work experience Passed APEL assessment
2	30	Certificate	2	3R
1	15	Certificate	1	3R

### 2.1.3 Occupational Framework (OF)

Occupational Framework (OF) was previously known as Occupational Analysis (OA). OF is an outcome of an Occupational Analysis and research work carried out on an industry sector. The contents of an OF include OS, OD, manpower requirements and industry intelligence. The OS is a matrix that will show the occupational areas and career paths for an occupation. The information on manpower skills requirements, OD and industry intelligence will allow an overall comprehend of the industry's occupational

areas. Manpower skills requirements are able to identify skills gaps and shortages in the workforce. Industry intelligence is based on actual qualitative and quantitative data from the industry to further strengthen and to prove the reliability of data.

Therefore, a properly planned development and analysis will enable the OF to be precise and accurate, thus ensuring that it will be a reliable source of information for further industry analysis as well as the development of NOSS and training requirements<sup>5</sup>.

#### **2.1.4 National Occupational Skills Standard (NOSS) and National Competency Standard (NCS)**

National Occupational Skills Standard (NOSS) is defined as a specification of the competencies expected of a skilled worker who is gainfully employed in Malaysia in an occupational area, level and pathway to achieve the competencies and was gazetted in Part IV of the National Skills Development Act 652. Meanwhile National Competency Standard (NCS) is described as the knowledge, skills and attitudes needed to perform in an occupation but does not directly relate to any job classification. Standards are developed by the industry experts based on the needs of the industry and is utilised as the main tool in the implementation of the Malaysian Skills Certification System in which the performance of existing industry workers and trainees are assessed based on the standards in awarding the Malaysian Skills Certificate<sup>6</sup>.

#### **2.1.5 Competency Based Training (CBT)**

Competency-based Training (CBT) is an approach to vocational training which emphasises what a person can do at the workplace as a result of education and training obtained. CBT is based on performance standards which are set by the industry which focus on measuring the performance while considering knowledge and attitude rather than the duration taken to complete the course. CBT is a learner-centric, outcome-based

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<sup>5</sup> Department of Skills Development (2019, August 27) retrieved from <https://www.dsd.gov.my/dsdv4/index.php/my/perkhidmatan/noss>

<sup>6</sup> Department of Skills Development (2019, August 29) retrieved from <https://www.dsd.gov.my/dsdv4/index.php/en/what-is-noss>

approach to training that allows everyone to develop skills at their own pace for a similar outcome. Thus, training practices can be customised for everyone to achieve a similar outcome. The CBT concept is the basis of the Malaysian Skills Certification System that is coordinated by DSD<sup>7</sup>.

## **2.2 Scope of Occupational Framework Based on MSIC 2008**

This section provides the Occupational Framework based on MSIC 2008 definition and title selection criteria for electricity, gas, steam and air conditioning supply industry.

### **2.2.1 Malaysia Standard Industrial Classification 2008 (MSIC 2008) Definition**

The MSIC 2008 is intended to be a standard classification of productive economic activities. Its main purpose is to provide a set of activity categories that can be utilised for the collection and presentation of statistics according to such activities. MSIC aims to present these set of activity categories in such a way that entities can be classified according to the economic activities that they carry out. For the purpose of international comparability, MSIC 2008 Version 1.0 conforms closely to the International Standard Industrial Classification of All Economic Activities (ISIC) Revision 4, which was published by the United Nations Statistics Division, with some modifications to suit national requirements. The objective of an industrial classification system is to classify data with respect to the economy according to categories of activities and characteristics which are similar. The MSIC is a classification of all types of economic activities and is not a classification of goods and services nor is it a classification of occupations<sup>8</sup>.

### **2.2.2 Title Selection Criteria**

The research area focuses on electricity, gas, steam and air conditioning supply industry. Based on MSIC 2008, definition and scope of coverage for the OF is as shown in table

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<sup>7</sup> Department of Skills Development (2019, August 31) retrieved from <https://www.dsd.gov.my/dsdv4/index.php/my/>

<sup>8</sup> Department of Statistics Malaysia. (2008). Malaysia Standard Industrial Classification (MSIC).

2.2. To further understand the scope of this particular OF based on MSIC 2008, Table 2.3 below can be referred.

Table 2.2: Summary of MSIC 2008 by Section, Division and Group  
(Source: MSIC 2008)

<b>Section</b>	<b>D</b>	<b>Electricity, Gas, Steam and Air Conditioning Supply</b>
<b>Division</b>	<b>35</b>	<b>Electricity, Gas, Steam and Air Conditioning Supply</b>
<b>Group</b>	<b>351</b>	<b>Electric power generation, transmission and distribution</b>
	<b>352</b>	<b>Manufacture of gas; distribution of gaseous fuels through mains</b>
	<b>353</b>	<b>Steam and air conditioning supply</b>

Table 2.3: Description of MSIC 2008 by Section, Division, Group, Item and Class  
(Source: MSIC 2008)

<b>CLASSIFICATION</b>	<b>CODE</b>	<b>DESCRIPTION</b>
<b>Section</b>	<b>D</b>	<b>Electricity, Gas, Steam and Air Conditioning Supply</b>
<b>Division</b>	<b>35</b>	<b>Electricity, Gas, Steam and Air Conditioning Supply</b> This division includes electric power generation, transmission and distribution; manufacture of gas and the distribution of gaseous fuels through mains; steam and air conditioning supply.
<b>Group</b>	<b>351</b>	<b>Electric power generation, transmission and distribution</b> This group comprises the generation of bulk electric power, transmission from generating facilities to distribution centres and distribution to end users.
<b>Class</b>	<b>3510</b>	<b>Electric power generation, transmission and distribution</b>

CLASSIFICATION	CODE	DESCRIPTION
		Excludes: Production of electricity through incineration of waste, see 38210
Item	35101	<b>Operation of generation facilities that produce electric energy</b> <b>Includes:</b> <ul style="list-style-type: none"> <li>(a) thermal</li> <li>(b) nuclear</li> <li>(c) hydroelectric</li> <li>(d) gas turbine</li> <li>(e) diesel and renewable</li> </ul>
	35102	<b>Operation of transmission, distribution and sales of electricity</b>
Group	352	<b>Manufacture of gas; distribution of gaseous fuels through mains</b> <p>This group includes the manufacture of gas and the distribution of natural or synthetic gas to the consumers through a system of mains. Gas marketers or brokers who arrange the sale of natural gas over distribution systems operated by others are included.</p> <p>The separate operation of gas pipelines, typically done over long distances, connecting producers with distributors of gas or between urban centres, is excluded from this class and classified with other pipeline transport activities.</p>
Class	3520	<b>Manufacture of gas; distribution of gaseous fuels through mains</b> <b>Excludes:</b> <ul style="list-style-type: none"> <li>(a) operation of coke ovens, see 19100</li> <li>(b) manufacture of refined petroleum products, see 19201</li> </ul>

CLASSIFICATION	CODE	DESCRIPTION
		(c) manufacture of industrial gases, see 20111 (d) wholesale of gaseous fuels, see 46619 (e) retail sale of bottled gas, see 47736 (f) direct selling of fuel, see 47991 (g) (long distance) transportation of gases by pipelines, see 49300
Item	35201	<b>Manufacture of gaseous fuels with a specified calorific value, by purification, blending and other processes from gases of various types including natural gas</b> <b>Includes:</b> (a) thermal (b) nuclear (c) hydroelectric (d) gas turbine (e) diesel and renewable
	35202	<b>Transportation, distribution and supply of gaseous fuels of all kinds through a system of mains</b>
	35203	<b>Sale of gas to users through mains</b>
Group	353	<b>Steam and air conditioning supply</b> This group includes the production, collection and distribution of steam and hot water for heating, power and other purposes; production and distribution of cooled air; production and distribution of chilled water for cooling purposes; production of ice, including ice for food and non-food (e.g. cooling) purposes.
Class	3530	<b>Steam and air conditioning supply</b>

CLASSIFICATION	CODE	DESCRIPTION
Item	35301	Production, collection and distribution of steam and hot water for heating, power and other purposes
	35302	Production and distribution of cooled air and chilled water for cooling purposes
	35303	Production of ice, including ice for food and non-food (e.g. cooling) purposes

## 2.3 Key Stakeholders

Key stakeholders for electricity, gas, steam and air conditioning supply industry in Malaysia comprise government agencies, regulatory bodies, industry associations and professional bodies.

### 2.3.1 Government Agencies and Regulatory Bodies

These are government agencies that are empowered by the legislation according to the scope and powers given in the related acts that directly regulate the electricity, gas, steam and air conditioning supply sector in Malaysia. All the list of agencies is shown in Table 2.4.

Table 2.4 List of Government Agencies and Regulatory Bodies for Electricity, Gas, Steam and Air Conditioning Supply Industry

NO	ORGANISATION	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
1	Ministry of Energy, Science, Technology, Environment & Climate Change (MESTECC)	MESTECC focuses on green and efficient energy sector, environmental pollution-free and

NO	ORGANISATION	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
		resistance to climate change, and wealth creation through science and technology <sup>9</sup> .
2	Ministry of Domestic Trade, and Consumer Affairs ( <i>Kementerian Perdagangan dalam Negeri dan Hal Ehwal Penggunaan, KPDNHEP</i> ) (Petroleum Safety Unit)	The Petroleum Safety Unit is responsible for ensuring and monitoring the safety of the petroleum industry by providing and updating policies, acts and regulations of the Petroleum (Safety Measures) Act 1984. This Act regulates petroleum safety from the aspects of storage, handling, transport and equipment/hardware <sup>10</sup> .
3	Energy Commission (EC)	EC is responsible for regulating the energy sector, specifically the electricity and piped gas supply industries in Peninsular Malaysia and Sabah <sup>11</sup> .
4	Department of Occupational Safety and Health (DOSH)	DOSH is responsible for ensuring the safety, health and welfare of people at work as well as protecting other people from the safety and health hazards arising from the activity sectors <sup>12</sup> .
5	National Institute of Occupational Safety and Health (NIOSH)	NIOSH is committed to ensuring a safe and healthy environment to all employees and others who are involved in or affected by its operation by considering statutory requirements and

<sup>9</sup> Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC). (2019, August 27) Retrieved from <https://www.mestecc.gov.my/web/en/>

<sup>10</sup> Ministry of Domestic Trade and Consumer Affairs (KPDNHEP) (Petroleum Safety Unit) (2019, August 27) Retrieved from <https://www.kpdnhep.gov.my/petroleum-industry-safety/?lang=en>

<sup>11</sup> Energy Commission (EC) (2019, August 27) Retrieved from <https://www.st.gov.my/details/aboutus/1>

<sup>12</sup> Department of Occupational Safety and Health (DOSH) (2019, August 27) Retrieved from <http://www.dosh.gov.my/index.php/en/about-us/dosh-profile>



NO	ORGANISATION	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
		relevant national and international standards and codes of practices <sup>13</sup> .
6	Standard and Industrial Research Institute of Malaysia (SIRIM)	SIRIM is a premier industrial research and technology organisation in Malaysia, wholly-owned by the Ministry of Finance Incorporated. With over 40 years of experience and expertise, SIRIM is mandated as the machinery for research and technology development, and the national champion for quality. SIRIM has always played a major role in the development of the country's private sector <sup>14</sup> .

### 2.3.2 Industry Associations and Professional Bodies

The industry associations and professional bodies for the electricity, gas, steam and air conditioning supply industry are presented in Table 2.5.

Table 2.5: List of Related Industry Associations and Professional Bodies for Electricity, Gas, Steam and Air Conditioning Supply

NO	INDUSTRY ASSOCIATION/PROFESSIONAL BODY	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
1	<i>Petroleum Nasional Berhad</i> (PETRONAS)	PETRONAS is a Malaysian oil and gas company. The corporation is vested with the entire oil and gas resources in Malaysia, and is entrusted with the

<sup>13</sup> National Institute of Occupational Safety and Health (NIOSH) (2019, August 27) Retrieved from <http://www.niosh.com.my/corporate-info/niosh-policy/safety-and-health-policy>

<sup>14</sup> SIRIM (2019, September 16) Retrieved from <http://www.sirim.my/about-us3.html>

NO	INDUSTRY ASSOCIATION/PROFESSIONAL BODY	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
		responsibility of developing and adding value to these resources. The group is engaged in a wide spectrum of petroleum activities including upstream exploration and production of oil and gas to downstream oil refining; marketing and distribution of petroleum products; trading; gas processing and liquefaction; gas transmission pipeline network operations; marketing of liquefied natural gas; petrochemical manufacturing and marketing; shipping; automotive engineering; and property investment <sup>15</sup> .
2	<i>Tenaga Nasional Berhad (TNB)</i>	TNB is the Malaysian electricity company and is the only electric utility company in Peninsular Malaysia. Its core activities are the generation, transmission and distribution of electricity. In addition, the company is also involved in repairing, testing and maintaining power plants; providing engineering; procurement and construction services for power plant-related products; assembling and manufacturing high voltage switchgears; coal mining; and trading <sup>16</sup> .

<sup>15</sup> Petroliam Nasional Berhad (PETRONAS) (2019, August 27) Retrieved from <https://www.petronas.com/>

<sup>16</sup> Tenaga Nasional Berhad (2019, August 27) Retrieved from <https://www.tnb.com.my/>

NO	INDUSTRY ASSOCIATION/PROFESSIONAL BODY	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
3	Malakoff Corporation Berhad	Malakoff Corporation Berhad is an independent water and power producer with core focus on power generation, water desalination and operation/maintenance services. Malakoff is the leading independent power producer (IPP) in Malaysia with an effective capacity of 6,346 MW generated by 7 power plants that run on oil, coal and gas. Its overseas projects are in Bahrain, Saudi Arabia, Algeria, Australia and Oman <sup>17</sup> .
4	<i>Gas Malaysia Berhad</i>	Gas Malaysia Berhad was established on 16 <sup>th</sup> May 1992 to sell, market and distribute natural gas as well as to develop, operate and maintain the natural gas distribution system within Peninsular Malaysia. Gas Malaysia Berhad operates and maintains 2,334 kilometres of gas pipelines across Peninsular Malaysia, supplying natural gas to 888 industrial customers, 1,021 commercial customers and 12,690 residential customers. It also supplies liquefied petroleum gas (LPG) to 1,310

<sup>17</sup> Malakoff Corporation Berhad (2019, September 16) Retrieved from <https://www.malakoff.com.my/About-Us/Corporate-Background/>

NO	INDUSTRY ASSOCIATION/PROFESSIONAL BODY	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
		commercial and 22,013 residential customers <sup>18</sup> .
5	Gas District Cooling (M) Sdn Bhd (GDCM)	GDCM is a member of KLCC Group of Companies, which in turn is a member of the PETRONAS Group of Companies. GDCM owns, manages and operates (directly or indirectly) 8 co-generation/district cooling plants within the Klang Valley area, serving high profile development areas and national icons such as Putrajaya, Kuala Lumpur City Centre (KLCC) as well as Kuala Lumpur International Airport (KLIA). The company's assets encompass 8 co-generation/district cooling plants with a total combined capacity of 59 MW electricity, 442 ton/hr steam, 147,000 RT and 238,000 RTH chilled water <sup>19</sup> .

### 2.3.3 Training Centres

The training centres for the electricity, gas, steam and air conditioning supply industry are shown in Table 2.6.

<sup>18</sup> Gas Malaysia Berhad (2019, September 16) Retrieved from <https://www.mmc.com.my/page46.html>

<sup>19</sup> Gas District Cooling (M) Sdn Bhd (2019, September 16) Retrieved from <https://www.gdc.com.my/the-company/>

Table 2.6: List of Training Centres for Electricity, Gas, Steam and Air Conditioning  
Supply Industry

NO.	TRAINING CENTRE	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
1.	The Electrical and Electronics Association of Malaysia (TEEAM)	<ul style="list-style-type: none"> <li>i) TEEAM aims to work closely with all government departments, statutory bodies and the private sector to ensure and promote orderly growth and development of the electrical and electronics industries.</li> <li>ii) TEEAM is represented in the various relevant government bodies' councils and committees.</li> <li>iii) TEEAM is accredited by CIDB to conduct building wiring installer training course<sup>20</sup>.</li> </ul>
2	Malaysian Association of Energy Service Companies (MAESCO)	<ul style="list-style-type: none"> <li>i) To develop recognised ESCO businesses in collaboration with the Government and the private sector.</li> <li>ii) To actively promote the activity of cost reduction and efficiency standards of the industrial and commercial sector.</li> <li>iii) To oversee the well-being of the members.</li> <li>iv) To facilitate and do all things necessary towards developing successful energy related projects.</li> <li>v) To introduce related products and services for the industry.</li> <li>vi) To foster healthy co-existence amongst members through ethical professional practices.</li> </ul>

<sup>20</sup> The Electrical and Electronics Association of Malaysia (TEEAM). (2019, August 27) Retrieved from <https://www.teeam.org.my/about-teeam/>

NO.	TRAINING CENTRE	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
		vii) To ensure prestige of services by members <sup>21</sup> .
3	Institute Technology of Petroleum PETRONAS (INSTEP)	<p>i) INSTEP is a state-of-the-art technical training institute owned by PETRONAS Technical Training Sdn Bhd (PTTSB).</p> <p>ii) To accelerate human capital development to support the growth of PETRONAS as well as Malaysia's oil and gas industry.</p> <p>iii) On 27<sup>th</sup> March 2014, INSTEP's learning experience and module offerings was transformed with the launch of the integrated Upstream Downstream Training Plant (UDTP), which simulates real plant scenario to enhance the competency of learners through hands-on training and experiential learning for safe, efficient and responsible exploitation of hydrocarbon resources<sup>22</sup>.</p>
4)	TNB Integrated Learning Solution Sdn Bhd (TNB-ILSAS)	<p>i) TNB-ILSAS is the training and consultant arm for Tenaga Nasional Berhad (TNB) and the leading learning solutions provider for the Malaysian electricity supply industry in Malaysia.</p> <p>ii) It designs and facilitates training programmes for TNB, Suruhanjaya Tenaga, Government agencies and</p>

<sup>21</sup> Malaysian Association Energy Service Companies (MAESCO) (2019, August 27) Retrieved from <http://www.maesco.org.my/about-us.html>

<sup>22</sup> INSTEP ((2019, September) Retrieved from <https://www.instep.my/about%20us/Pages/Default.aspx>

NO.	TRAINING CENTRE	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
		<p>independent power suppliers (IPP) on technical competency programmes.</p> <p>iii) It also builds human capital for the Malaysian capital market through its Program Kekompetenan Penjaga Jentera Elektrik (Chargemen), Program Jurutera Elektrik Kompeten (Competent Engineer) and Program Kekompetenan Pencantum Kabel (Cable Jointers).</p> <p>iv) ILSAS has been acknowledged by international institutions such as City and Guilds Approved Centre and Certified DOSH Examination Centre due to its comprehensive experience, successful track record in developing and delivering innovative, high calibre and fit-for-purpose training programmes for specific target audiences<sup>23</sup>.</p>
5	National Youth Skills Institute ( <i>Institut Kemahiran Belia Negara, IKBN</i> )	<p>i) Provides skills training to youth in electricity, gas, steam and air conditioning to produce highly-skilled labour resources according to the Department of Skills Development (DSD) standards.</p> <p>ii) Provides advisory services and improve discipline among students to become highly respected and obedient youths.</p> <p>iii) Provides entrepreneurial knowledge in order to produce progressive and competitive entrepreneurs.</p>

<sup>23</sup> ILSAS TNB (2019, September 16) Retrieved from <https://www.tnbilsas.com.my/profile/>

NO.	TRAINING CENTRE	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
		iv) Provides short-term training to companies in specific areas to enhance employee skills <sup>24</sup> .
6	MARA Skills Institute ( <i>Institut Kemahirana MARA, IKM</i> )	i) IKM is an educational institute established by the People's Trust Council (MARA). It is also an agency under the Ministry of Rural and Regional Development. ii) The IKM was set up to produce Bumiputera youths who are skilled in various technical fields to enable them to serve in the trade, enterprise and industrial sector such as the electricity, gas, steam and air conditioning supply. iii) IKM currently has 14 campuses across the country, 10 campuses of high-tech programmes led by MARA College of Higher Education and one campus under the MARA Japan Industrial Institute (MJII) <sup>25</sup> .

## 2.4 Government, Legislation, Policies and Initiatives

It is imperative that this research must refer to legislation, by-laws and policies that directly relate to the electricity, gas, steam and air conditioning supply industry.

### 2.4.1 Government Legislation

<sup>24</sup> IKBN (2019, September 16) Retrieved from <http://kemahiran.kbs.gov.my/ms/ikbn-kuala-perlis-info-korporat/ikbn-kuala-perlis-info-ikbn.html>

<sup>25</sup> IKM (2019, September 16) Retrieved from <https://www.tvetmara.edu.my/index.php/informasi>



Table 2.7 provides a list of relevant legislation for the overall electricity, gas, steam and air conditioning supply.

Table 2.7: List of Relevant Legislation for the Electricity, Gas, Steam and Air Conditioning Supply Industry

NO	LEGISLATION	DESCRIPTION
1	Employment Act 1955	This Act provides minimum terms and conditions (mostly of monetary value) to certain categories of workers.
2	Petroleum Development Act 1974	This Act provides for the exploration and exploitation of petroleum, regardless onshore or offshore, by a corporation in which is vested the entire ownership in and the exclusive rights, powers, liberties and privileges with respect to the said petroleum and the control of carrying on downstream activities and development relating to petroleum and its products. In addition, it also provides for the establishment of a corporation under the Companies Act 1965 or under the law relating to the incorporation of companies and the powers of that corporation, and to provide for matters connected therewith or incidental thereto.
3	Petroleum (Safety Measures) Act 1984	This Act consolidates laws relating to the safety in transportation, storage and utilisation of petroleum and to provide for matters relating thereto.
4	Electricity Supply Act 1990 (2015)	The amendments of the Distribution Code are necessary for the following purposes: i) To incorporate the requirements of Sabah's distribution system into the existing Code; ii) To facilitate and determine the requirements for connecting large scale solar photovoltaic plants and other distributed generations into the system.

NO	LEGISLATION	DESCRIPTION
		iii) To rectify certain inconsistencies in the existing provisions.
5	Renewable Energy Act 2011	This Act provides for the establishment and implementation of a special tariff system to catalyse the generation of renewable energy and to provide for related matters.
6	Sustainable Energy Development Authority Act 2011	This Act provides for the establishment of the Sustainable Energy Development Authority Malaysia and its functions and powers as well as other related matters.
7	Gas Supply (Amendment) Act 2016	This Act provides for the licensing of the supply of gas to consumers through pipelines and related matters, the supply of gas at reasonable prices, the control of gas supply pipelines, installations and appliances with respect to matters relating to the safety of persons and for purposes connected therewith.

#### **2.4.2 Government Policies and Initiatives**

This section provides information regarding Government policies and initiatives to the electrical, gas, steam and air conditioning supply in Malaysia.

##### **a) National Green Technology Policy**

The National Green Technology Policy (Dasar Teknologi Hijau Kebangsaan) focuses on four pillars, namely energy, environment, economics and social sciences. This policy has identified green technology as a key driver in improving the nation's economy and promoting sustainable development. This policy will help grow the green technology industry and increase its contribution to the national economy. In addition, the policy will enhance the capacity for innovation in the development of green technology and enhance the competitiveness of green technology internationally. In addition, this policy

will also ensure sustainable development and conservation of the environment for future generations.

**b) Malaysian Green Technology Master Plan**

The Malaysian Green Technology Master Plan (Pelan Induk Teknologi Hijau Malaysia) creates a framework that integrates green technology into Malaysia's planned development, including the four pillars set in the National Green Technology Policy, namely energy, environment, economics and social sciences. The first edition of the Malaysian Green Technology Master Plan focuses on six key sectors, namely energy, manufacturing, transportation, buildings, waste and water.

**c) National Energy Efficiency Action Plan (NEEAP) 2016 -2025**

The National Energy Efficiency Action Plan presents a strategy for a well-coordinated and cost-effective implementation of energy efficiency measures in the industrial, commercial and residential sectors, which will lead to reduced energy consumption and economic savings for consumers and the nation.

**d) National Renewable Energy Policy and Plan 2009**

The National Renewable Energy Policy and Plan is intended to increase the use of renewable natural resources in order to contribute to the security of the country's electricity supply and sustainable socioeconomic development.

## **2.5 Industry and Market Intelligence**

Industry and market intelligence are the collection and analysis of industry data by various sources in order for the industry to make business decisions, manpower development and training requirements. Industry intelligence is critical for developing the industry's strategies, areas of manpower development and the impact of those developments. This section will provide information regarding the electricity, gas, steam and air conditioning supply industry based on industry growth and employment statistics.

### **2.5.1 Growth of the Electricity, Gas, Steam and Air Conditioning Supply Industry**

Based on the National Account Gross Domestic Product 2015-2018, Malaysia's gross domestic product (GDP) recorded RM1,361.5 billion in 2018, which saw a 4.7 per cent growth compared to 2017 with 5.7 per cent<sup>26</sup>. According to Malaysia's GDP 2018, services and manufacturing are the main contributors with 56.7 per cent and 22.4 per cent respectively. Meanwhile, private final consumption was the main influencer for main expenditure.

For this research, the focus is on the electricity, gas, steam and air conditioning supply industry in services sector. The service sector's percentage share towards Malaysia's 2018 GDP is recorded at 56.7 per cent contribution compared to 55.6 per cent in 2017, 55.4 per cent in 2016 and 54.7 per cent in 2015<sup>27</sup>. From the percentage share, it can be seen that the services sector recorded a slight increase in percentage share towards Malaysia's GDP in 2018 as compared to 2017. However, the percentage share for electricity and gas industry towards Malaysia's GDP in 2017 and 2018 decrease slightly (2.1 per cent) compared to 2015 and 2016 (2.2 per cent).

In terms of the annual percentage change for the electricity and gas industry in 2018, it increased slightly to 4.4 per cent as compared to 2.0 per cent in 2017. However, in 2016, the annual percentage change for the electricity and gas industry is higher than in 2018, that is, at 5.0 per cent<sup>28</sup>.

### **2.5.2 Employment Statistics**

This section provides an overview of employment statistics in the electricity, gas, steam and air conditioning supply including the labour force in Malaysia, overview of services sector labour demand and employment growth in the electricity, gas, steam and air conditioning supply industry.

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<sup>26</sup> Department of Statistics Malaysia. 2019. National Account Gross Domestic Product 2018. Page 1

<sup>27</sup> Department of Statistics Malaysia. 2019. National Account Gross Domestic Product 2018. Page 42

<sup>28</sup> Department of Statistics Malaysia. 2019. National Account Gross Domestic Product 2018. Page 38

### a) Labour Force in Malaysia

Labour force can be defined as the sum of persons in employment plus persons in unemployment. Together these two groups of the population represent the current supply of labour for the production of goods and services taking place in a country through market transactions in exchange for remuneration<sup>29</sup>. The concepts and definitions in relation to labour force in Malaysia are stated in Figure 2.1.

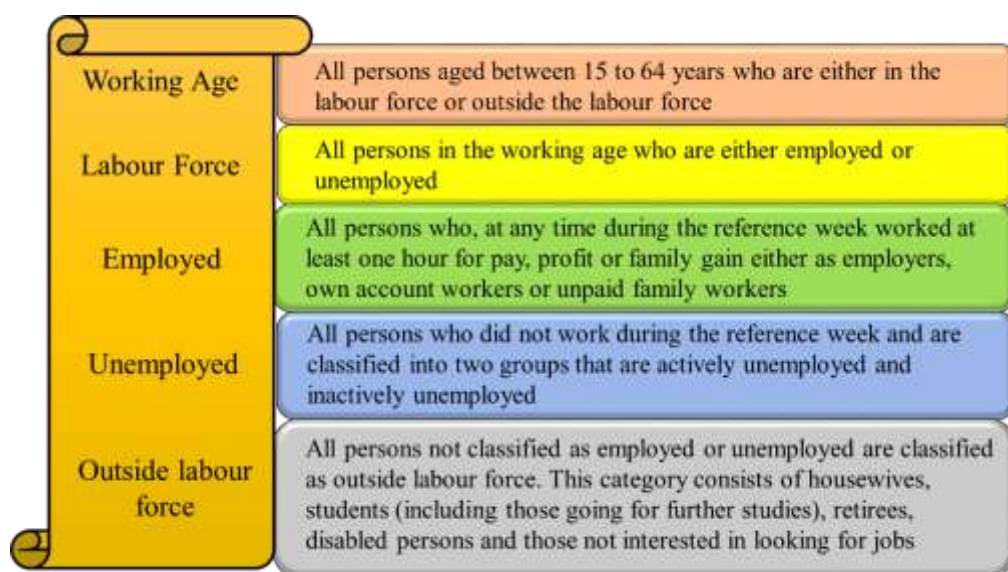


Figure 2.1: Concepts and Definition Relating to Labour Force in Malaysia  
(Source: Department of Statistics Malaysia, 2019)

The labour force in Malaysia increased by 2.0 per cent from 15.0 million persons in 2017 to nearly 15.3 million persons in 2018. The increment in labour force was contributed by 299,200 employed persons. Labour force participation rate (LFPR) in 2018 increased by 8.3 per cent as compared to 68.0 per cent in 2017<sup>30</sup>. Hence, the remaining 31.7 per cent of the working age population was outside the labour force. On the other hand, the unemployment rate improved to 3.3 per cent in 2018 as compared to 3.4 percent in 2017. This

<sup>29</sup> International Labour Organization. 2018. Labour force (2019, 30 September) Retrieved from [https://www.ilo.org/global/statistics-and-databases/statistics-overview-and-topics/WCMS\\_470304/lang--en/index.htm](https://www.ilo.org/global/statistics-and-databases/statistics-overview-and-topics/WCMS_470304/lang--en/index.htm)

<sup>30</sup> Department of Statistics Malaysia. 2019. The Labour Force Survey Report 2018. Page 12

shows that the country's economy is still operating with full employment where the unemployment rate is below 4.0 per cent.

## b) Overview of Service Sector Labour Demand

Labour demand indicates the total labour that the economy is willing to employ at any given point in time. At the microeconomic level, labour demand by a firm refers to the positions in the company. Through the process of hiring and separation, the information of filled positions and vacancies can be estimated. The concepts and definitions relating to labour demand in this publication are as shown in Figure 2.2.



Figure 2.2: Concepts and Definitions Relating to Labour Demand

(Source: Department of Statistics Malaysia, 2019)

The number of positions in the service sector in 2018 was 4,421,000, up 58,000 from 4,363,000 in 2017. The number of filled positions increased to 4,384,000 (from 4,322,000 in 2017) while vacancies in this sector decreased by 5,000. Meanwhile, 51,000 jobs were created in the service sector in 2018<sup>31</sup>.

<sup>31</sup> Department of Statistics Malaysia. 2019. Employment Statistics Second Quarter 2019. Page 15

The percentage share for positions according to skills in 2018 was recorded at 47.1 per cent for semi-skilled workers, 32.7 per cent for skilled workers and 20.2 per cent for low-skilled workers<sup>32</sup>. Compared to 2017, semi-skilled workers comprised 46.8 per cent followed by skilled workers and low-skilled workers at 32.6 per cent and 20.6 per cent respectively. The details of the information can be referred to in Figure 2.3.



Figure 2.3: Positions by Skills in Service Sector by Percentage Share  
(Source: Department of Statistics Malaysia, 2019)

On the other hand, the percentage share for filled positions according to skills in the service sector in 2018 was 47.1 per cent for semi-skilled workers, 32.8 per cent for skilled workers and 20.1 per cent for low-skilled workers<sup>33</sup>. The comparison against 2017 can be referred to in Figure 2.4.

<sup>32</sup> Department of Statistics Malaysia. 2019. Employment Statistics Second Quarter 2019. Page 33

<sup>33</sup> Department of Statistics Malaysia. 2019. Employment Statistics Second Quarter 2019. Page 39



Figure 2.4: Filled Positions by Skills in Service Sector by Percentage Share  
(Source: Department of Statistics Malaysia, 2019)

For vacancies according to skills in the service sector by percentage share in 2018, 45.0 per cent was recorded for semi-skilled workers, 27.0 per cent for skilled workers and 28.0 per cent for low-skilled workers<sup>34</sup>. The comparison against 2017 can be referred to in Figure 2.5.



Figure 2.5: Vacancies According to Skills in Service Sector by Percentage Share

(Source: Department of Statistics Malaysia, 2019)

Last but not least, for jobs created according to skills in the service sector by percentage share in 2018, 54.9 per cent was recorded for skilled

<sup>34</sup> Department of Statistics Malaysia. 2019. Employment Statistics Second Quarter 2019. Page 45



workers, 38.0 per cent for semi-skilled workers and 7.1 per cent for low-skilled workers<sup>35</sup>. The comparison against 2017 can be referred to in Figure 2.6.



Figure 2.6: Jobs Created by Skills in Services Sector by Percentage Share  
(Source: Department of Statistics Malaysia, 2019)

### c) Employment Growth of the Electricity, Gas, Steam and Air Conditioning Supply Industry

Figure 2.7 shows the number of persons engaged for the electricity, gas, steam and air conditioning supply industry in 2015 and 2017. Total number of persons engaged in electricity, gas, steam and air conditioning supply industry increased to 50,265 persons in 2017 from 47,972 in 2015<sup>36</sup>. The highest number of persons engaged comes from electric power generation, transmission and distribution subsector with 41,492 persons or 82.5 per cent (2015: 39,880) followed by steam and air conditioning supply and manufacture of gas and distribution of gaseous fuels through mains with 7,480 persons and 1,293 persons in 2017 and 2015 respectively.

<sup>35</sup> Department of Statistics Malaysia. 2019. Employment Statistics Second Quarter 2019. Page 51

<sup>36</sup> Department of Statistic Malaysia (DOSM). (2018). Annual Economic Statistic 2018

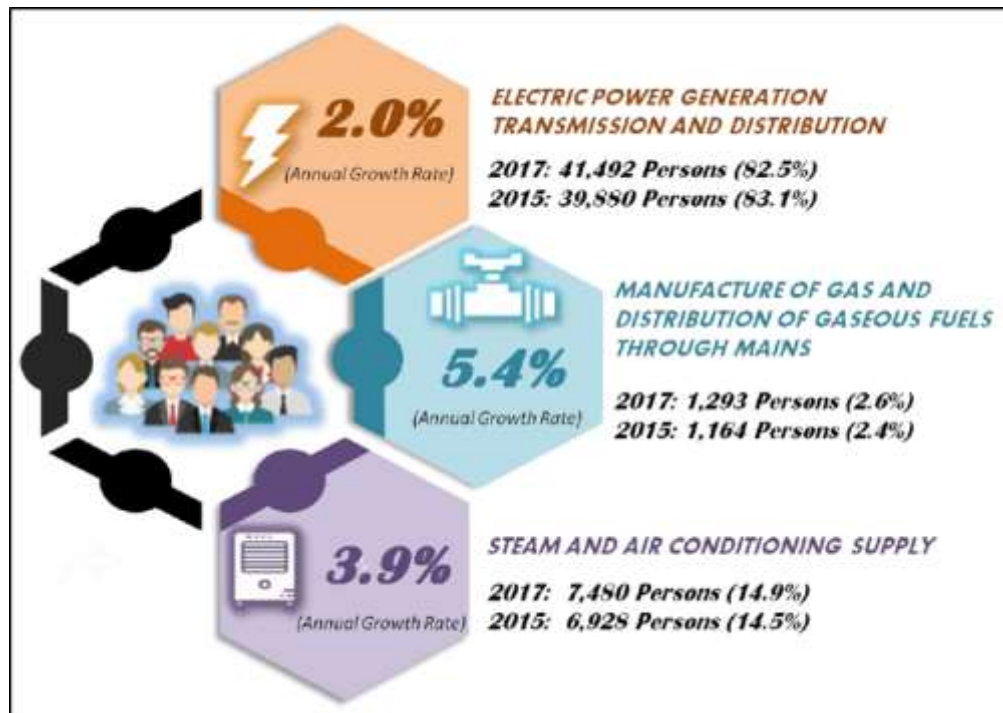


Figure 2.7: Number of Persons Engaged in Electricity, Gas, Steam and Air Conditioning Supply Industry by Subsector in 2015 and 2017 in Malaysia  
(Source: Department of Statistics Malaysia, 2018)

### 2.5.3 Conclusion

In conclusion, the contribution of electricity and gas industry towards Malaysia's GDP in 2018 is 4.4 per cent compared to 2.0 per cent in 2017.

More than that, with regard to employment statistics, the number of persons engaged in electricity, gas, steam and air conditioning supply industry increased from 47,972 persons in 2015 to 50,265 persons in 2017. The growth of this industry clearly shows that it is one of the potential industries to enhance the country's development in the future.

## 2.6 List of NOSS Relevant to MSIC 2008

Currently there are 22 NOSS developed by the Department of Skills Development (DSD) that are relevant to the subsectors and areas in the electricity, gas, steam and air conditioning supply industry. The NOSS developed are for Group 351 and Group 352.

However, there are no current NOSS developed for Group 353. Details of the existing NOSS relevant to the industry are shown in Table 2.8.

Table 2.8: Summary of NOSS Developed under Division 35  
(Source: NOSS Registry January 2019)

<b>MSIC GROUP</b>	<b>CORRESPONDING NOSS/LEVEL</b>
<b>351 Electricity, Gas, Steam and Air Conditioning Supply</b>	1) D351-001-1:2016 Small Hydro (Run of River) Intake Operations and Maintenance L1 2) D351-001-2:2016 Small Hydro Plant Operations and Maintenance L2 3) D351-001-3:2016 Small Hydro Plant Operations and Maintenance and Supervision L3 4) EE-214-3:2016 Combined-cycle/Coal-fired Power Plant Operation L3
<b>352 Manufacture of Gas, Distribution of Gaseous Fuels Through Mains</b>	1) D352-001-3:2016 Bio Compressed Natural Gas Plant Operations L3 2) D352-002-2:2017 Biomass Energy Generation Plant Operation L2 3) D352-002-3:2017 Biomass Energy Generation Plant Operation Control L3 4) D352-002-4:2017 Biomass Energy Generation Plant Operation and Maintenance Management L4 5) D352-002-5:2017 Biomass Energy Generation Plant Management L5 6) FTG1 Gas Fitter Class III L1 7) FTG2 Gas Fitter Class II L2 8) FTG3 Gas Fitter Class I L3 9) LE-041-2:2016 Anaerobic Digester Biogas Plant Operation and Maintenance L2 10) LE-041-3:2016 Anaerobic Digester Biogas Plant Supervision L3

MSIC GROUP	CORRESPONDING NOSS/LEVEL
	11)LE-041-4:2016 Anaerobic Digester Biogas Plant Management L4 12)LE-041-5:2016 Anaerobic Digester Biogas Plant Management L5 13)D352-003-2:2018 Landfill Gas Plant (LFGP) Operation L2 14)D352-003-3:2018 Landfill Gas Plant (LFGP) Operation Control and Supervision L3 15)D352-003-4:2018 Landfill Gas Plant (LFGP) Operation Management L4 16)D352-003-5:2018 Landfill Gas Plant (LFGP) Management L5 17)D352-004-2:2019 Atmospheric Safety Operations L2 18)D352-004-3:2019 Atmospheric Testing Operations L3
<b>353</b> <b>Steam and Air</b> <b>Conditioning Supply</b>	Not Available

## 2.7 Overview of Electricity, Gas, Steam and Air Conditioning Supply in Developed Countries

This section provides an overview of electricity, gas, steam and air conditioning supply and is projected to grow over the next decades as demand is on the increase every year. The evolution of technology in all industries and the rise of Industrial Revolution 4.0 boost electricity, gas, steam and air conditioning supply. In 2016 among European countries, Germany was reported as the highest contributor in value added compared to the five largest European member states, namely United Kingdom, France, Italy and Spain. Germany, as a developed country, is selected as a comparison for Malaysia in the growth of electricity, gas, steam and air conditioning supply sector because Germany is the top developed country in electricity, gas, steam and air conditioning supply industry. While Philippines is chosen as the closest-ranking country to Malaysia in its electricity,

gas, steam and air conditioning supply industry. Total GDP value of the Philippines is in range with Malaysia's total GDP and as both are developing countries, their growth of this sector is reported in Chapter 4.

## 2.8 The Relation of Industry and Industrial 4.0 (IR4.0)

Industrial production was transformed by steam power in the nineteenth century, electricity in the early twentieth century and automation in the 1970s. These waves of technological advancement did not reduce the overall employment. With the surge of automation in manufacturing sector, the number of manufacturing jobs decreased but new jobs emerged and the demand for new skills increased. Today, another workforce transformation is on the horizon as manufacturing experiences a fourth wave of technological advancement - the rise of new digital industrial technologies that are collectively known as Industrial Revolution 4.0 (IR4.0).

IR4.0 is referred to as production or manufacturing-based industry digitalisation transformation, driven by connected technologies. IR4.0 introduces what is referred to as “smart factory” in which cyber physical systems monitor real time physical progress of the factory and can make decentralised decisions. Other terminology includes “smart manufacturing”. According to the Ministry of International Trade and Industry (MITI), the 9 main pillars of IR4.0 which actually reflect more of the different technologies used in an IR4.0 environment can be referred to in Table 2.9<sup>37</sup>.

Table 2.9: The 9 Pillars of Industrial Revolution 4.0  
(Source: Ministry of International Trade and Industry)

No.	Industrial Revolution 4.0 Pillars	Brief Description
1	Autonomous Robots	Coordinated and automated actions of robots to complete tasks intelligently, with minimal human input.

<sup>37</sup> Penang Skills Development Centre. (2019, September 16). Retrieved from <https://www.psdcc.org.my>

No.	Industrial Revolution 4.0 Pillars	Brief Description
2	Big Data Analytics	The analysis of ever larger volumes of data. Circulation, collection, and analysis of information is a necessity because it supports productivity growth based on a real-time decision-making process.
3	Cloud Computing	Storing and accessing data and programs over the Internet instead of your computer's hard drive.
4	Internet of Things (IOT)	All machines and systems connected to the production plant (as well as other systems) must be able to collect, exchange and save these massive volumes of information, in a completely autonomous way and without the need of human intervention.
5	Additive Manufacturing (3D printing)	Use in prototyping, design iteration and small-scale production and often described as "rapid prototyping" - produce the desired components faster, more flexibly and more precisely than ever before.
6	System Integration	The process of linking together different computing systems and software applications physically or functionally to act as a coordinated whole via Internet of Things-IoT.
7	Cyber-security	With the increased connectivity and use of standard communications protocols, the need to protect critical industrial systems and manufacturing lines from cybersecurity threats is increasing.

No.	Industrial Revolution 4.0 Pillars	Brief Description
8	Augmented Reality	Augmented-reality-based systems support a variety of services, such as selecting parts in a warehouse and sending repair instructions over mobile devices - provide workers with real-time information to improve decision making and work procedures.
9	Simulation	Simulations will leverage real-time data to mirror the physical world in a virtual model, which can include machines, products, and humans. This allows operators to test and optimize the machine settings for the next product in line in the virtual world before the physical changeover, thereby driving down machine setup times and increasing quality.

Based on the recent research conducted, the results suggested electricity, gas, steam and air conditioning supply used autonomous robots, Internet of Things (IoT), big data, system integration and simulation are the elements of IR4.0 that relate to electricity, gas, steam and air conditioning supply. For example, autonomous robots are intelligent machines capable of performing tasks related to supplying electricity, gas, steam and air conditioning activities by themselves, without explicit human control (see Figure 2.8). In other words, IR4.0 will turn manufacturers into predictors instead of reactors. This will save time and money for those who invest in the technology<sup>38</sup>.

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<sup>38</sup>Awang Dzul Hashriq Darfizi. (2018). The Energy Sector and the Internet of Things: Sustainable Consumption and Enhanced Security through Industrial Revolution 4.0. *Journal of International Studies*. Vol 15, 99-117.

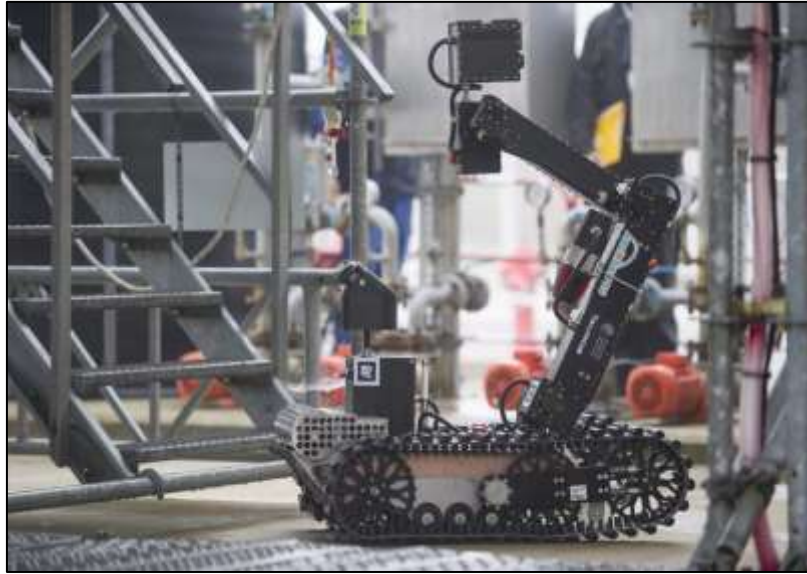


Figure 2.8: First Autonomous Surface Robot for the Oil and Gas Industry in France.

(Source: Verdict Media, 2019)

## 2.9 Conclusion

The electricity, gas, steam and air conditioning supply sector is an important and strategic part of Malaysian services industry. The overall electricity, gas, steam and air conditioning supply industry employs around 50,265 people in 2017<sup>39</sup>.

Twenty-two (22) NOSS related to this division have been developed over the years. Certain NOSS titles in this group have not been revised and require immediate action in order to update the standard.

The findings on industry landscape, MSIC definition of the job area and the NOSS that have been developed gave an insight of the overall picture of the industry. These inputs pave the way and guide the next course of action in restructuring the OS, identifying skills in demand and critical job titles. In addition, the requirements of IR4.0 would also impact the future of manpower in this area.

To realise the above, certain research methodologies will be employed. The description of research strategies and approaches will be discussed in the next chapter.

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<sup>39</sup> Department of Statistics Malaysia. 2018. Annual Economic Statistics 2018. Pages 13 - 20



## **CHAPTER 3: METHODOLOGY**

### **3.1 Introduction**

This section gives an overview of the overall research design, strategies for data collection and data analysis procedures performed to meet the deliverables. In developing a better comprehend of the current development of electricity, gas, steam and air conditioning supply industry in Malaysia, this study used multiple data collection approaches. Besides document analysis, mixed method research that involves quantitative and qualitative approaches were utilised. The quantitative approach was embedded by using survey questionnaire while the qualitative approach was based on document analysis and focus group discussion with industry experts. By using both methods, better insights of the industry were obtained where identification and building appropriate instrument for the quantitative data collection approach.

### **3.2 Research Approach**

For this study, the research approach was subjected to 7 phases as follows:

#### **Phase 1: Identification of Research Problem**

Broad problem area was identified through preliminary information gathering from secondary data and literature reviews.

#### **Phase 2: Document Analysis**

Perform actual secondary data collection by reviewing available published information from sources such as websites, archives and other written reports.

### **Phase 3: Preparation of Qualitative Data Procedure**

The interview protocol was in the form of semi-structure questionnaire that was prepared in line with the objective of this study. The interview protocol was developed by the researchers themselves. The validity of this study was verified by employing the triangulation strategy. In this approach, the researchers triangulated different data sources of information to build a coherent justification of the different themes in close relation to the aim of the study. Focus group discussion was conducted where respondents from industry experts and practitioners were chosen.

### **Phase 4: Quantitative Instrument Building**

From the focus group discussion, the reliable instrument was verified and proposed to be used in the actual field survey.

### **Phase 5: Quantitative Data Collection**

Actual data collection was carried out. Both self-administrated and survey was carried out nationwide for generalisation purpose. Sample from the population were collected at random in order to reflect an objective representation.

### **Phase 6: Data Analysis for Both Qualitative and Quantitative Data Approaches**

Final verification by focus group discussions was carried out. New focus group members were selected from industry players who looked into the documents. They were also requested to verify the descriptive analysis that was utilised in the quantitative approach. The issues of concern were related to the demand for skills, jobs titles and critical task skills levels in the electricity, gas, steam and air conditioning supply industry.

### **Phase 7: Discussion and Recommendations**

Final discussion on the study was established coupled with recommendations.

Specifically, three data collections approaches were employed as follows:

- a) Document analysis;
- b) Focus group discussion; and
- c) Survey

### **3.2.1 Document Analysis**

By conducting document analysis, the researcher examined the work of not only other researchers but also from professionals through trade reports, the Internet and articles to get a better insight into the industry and address the research aim. This approach provides an overview of the industry that is relevant to the requirements of IR4.0 and industrial need.

#### **a) Data Collection Strategy**

There were two main sources for data collection in document analysis namely:

- i) Economic Database; and
- ii) Database from other agencies (such as MESTECC and DSD).

##### **i) Economic Database**

Some information related to labour that are highly relevant to this study were collected. Thus, the following information were requested from the Department of Statistics Malaysia (DOSM):

- MSIC 2008; and
- Occupation categories at 1-digit MASCO 2013.

The information from the economic database serves two purposes:

- Provides a snapshot of the current electricity, gas, steam and air conditioning supply industry landscape and outlook; and
- Serves as control figures and baseline database when assessing data obtained from the online survey.

##### **ii) Database from Other Agencies (RMK 11, DSD and others)**

In addition, economic databases from other agencies (local and international) that are relevant to the electricity, gas, steam and air conditioning supply were collected and analysed. Based on our initial

observation, the following database contained relevant information for the industry:

- Local database, namely DSD, MITI, mid-term review of RMK11, Budget and MIDA; and
- International database, namely Organisation for Economic Co-operation and Development (OECD), World Bank, European Union (EU) and Economic Monitor.

Database in the form of online resources and published reports were collected from local and international agencies.

## **b) Data Analysis Procedure**

Based on the two groups of databases, the following data analysis procedure were carried out:

- i) Examining the economic performance of the industry by looking at several macroeconomic indicators (such as GDP, employment and output);
- ii) Analysing the industry outlook in relation to regional and global perspectives;
- iii) Determining the profile of the current and future workforce (such as occupations as well as salaries and wages); and
- iv) Reviewing technological development in the industry (such as robotic and automation as well as elements of IR4.0).

### **3.2.2 Focus Group Discussion**

Industry engagement based on focus group discussion (FGD) was conducted to enable in-depth discussions on the issues of the industry workforce. Two phases of FGD were conducted. Initially the FGD discussed on the OS, OD, assessment of curriculum and training programmes; accreditation and qualification based on NOSS and MQA framework; potential workforce challenges; outlook and strategic recommendations to be

proposed. From this discussion of the themes used the survey method instrument were reviewed based on the industrial feedbacks.

For the focus group discussion, six industry experts were selected. and facilitated by a facilitator to encourage dialogue among the panel members while controlling the discussion. Facilitators were commissioned by the DSD. In terms of industry experts, they have at least 7 years of experience in the related industry and worked with a company that is registered with the Companies Commission of Malaysia (SSM). A transcriber was also employed to report on the FGD discussion outcome.

In the first FGD meeting, semi-structured questions were used. It was based on OS and OD construction based on four themes, namely competencies in demand, jobs in demand, emerging skills and related issues. The identification of critical jobs in the electricity, gas, steam and air conditioning supply industry was also be determined in the FGD. The second phase in FGD was for the verification and validation of the findings.

Five main semi-structured questions for FGD were constructed as follows:

- 1) What will the industry's OS look like?
- 2) What will be the OD for each job title?
- 3) How to determine the demand for industry skills?
- 4) How to determine the relevant job titles that are in line with IR4.0?
- 5) How to determine the critical jobs for the industry?

#### **a) Data Collection Strategy**

In the process of gathering the input, brainstorming technique was adopted in this FGD discussion. It was attended by industry expert on development panel members who discussed the different sub-sectors and areas of the industry. Facts obtained during the document search were also discussed and presented to the development panel members. The information gathered was then used as input for the OF subsector.

The second meeting with a new FGD group was conducted after the data analysis result was obtained from field and online survey. The output from the surveys underwent verification from the experts in the FGD discussion. The following is the process of the FGD:

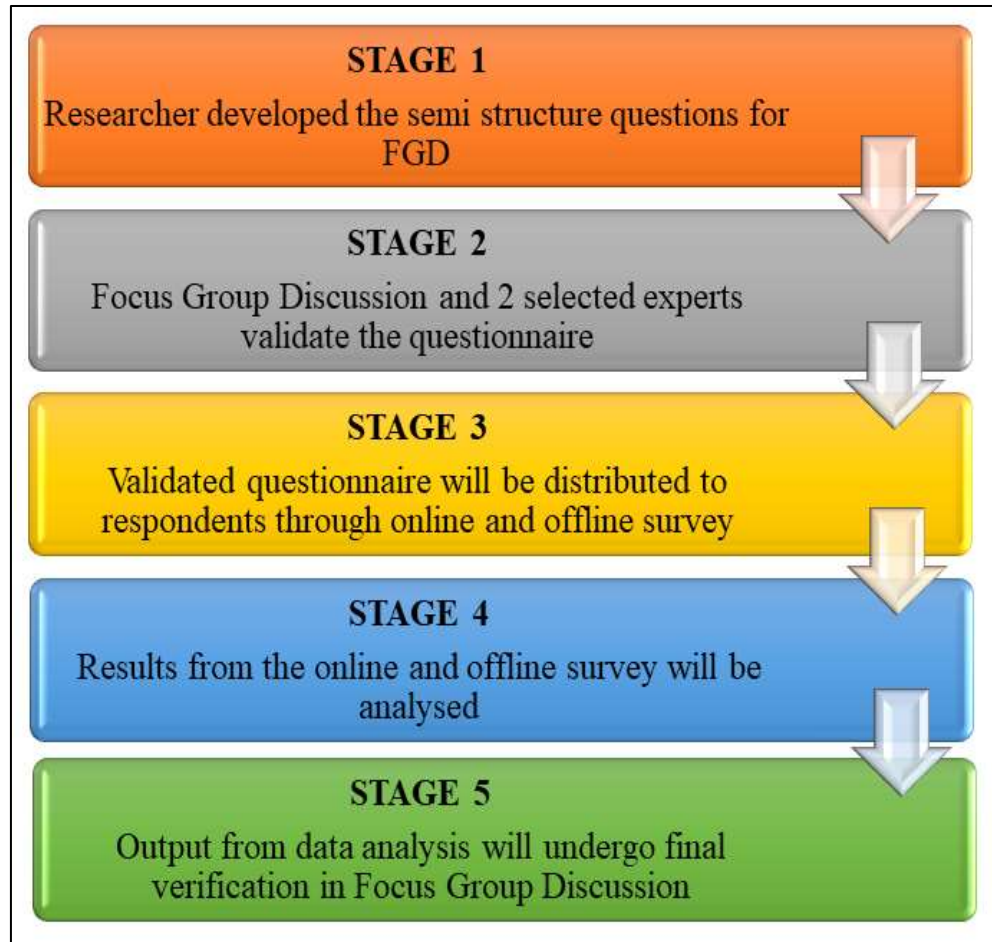


Figure 3.1: Focus Group Discussion Flow Chart

### 3.2.3 Survey

This study employed self-administrated and online surveys to examine four keys information, namely competencies in demand, jobs in demand, emerging skills and related issues. Google form was used for the survey. The survey was distributed to the related organisations based on organisational level. The survey form was divided into 4 sections as follows:

### **Section 1: Competencies in Demand**

This section explores the competencies that are required by the industry. Another objective of this section to figure out the skills gap and how to overcome the gap.

### **Section 2: Jobs in Demand**

This section is aimed at determining which category of workers are in short supply or over-supply. The category is based on MASCO, for example, skilled workers, semi-skilled workers and low-skilled workers.

### **Section 3: Emerging Skills**

This section tries to determine the readiness of industry players and the workers at the advent of IR4.0. The technology drivers or pillars of IR4.0 are listed and the respondents must decide the relevancy of each element in their line of duty.

### **Section 4: Related Issues**

This section explores the common issues surrounding the industry. The respondents were asked to suggest ways to overcome those issues.

#### **a) Establishments and Sampling Procedure**

According to Roscoe (1975), sample size of 30 and less than 500 are appropriate for most research. Therefore, since the total population is 305 companies, the number of sample establishments is 56 and number of targeted respondents are 30. However, to minimize errors in sampling and to take care issues of non-response, the number of targeted respondents were doubled and a total of 60 questionnaires were distributed to selected companies or organisations. For respondent's response rate, based on Brauch, Y & Holtom, B.C (2008), the average level of response rate is 52.7 per cent. After data collected exercise was conducted, there are 54 totals of questionnaire collected. The targeted respondents were among the managerial levels in the related company and association in the industry or human resources director.

Based on sample size calculator software Raosoft, the sample size was calculated and the results was shown in Table 3.1. This research used 10% margin of error based on Weisberg & Bowen (1977) which stated 10% margin of error are acceptable for this kind of research.

Table 3.1: Number of Targeted Respondents According to MSIC 2008 Group

SECTION	D	ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	NUMBER OF ESTABLISHMENT	NUMBER OF SAMPLE ESTABLISHMENT	NUMBER OF TARGETED RESPONDENTS	NUMBER OF AACTUAL RESPONDENTS
<b>DIVISION</b>	<b>35</b>	Electricity, Gas, Steam and Air Conditioning Supply				
<b>GROUP</b>	<b>351</b>	Electric power generation, transmission and distribution	<b>122</b>	<b>305</b>	<b>56</b>	<b>30</b>
	<b>352</b>	Manufacture of gas; distribution of gaseous fuels through mains	<b>17</b>			
	<b>353</b>	Steam and air conditioning supply	<b>166</b>			
					<b>54</b>	



## **b) Questionnaire Design**

For this study, the questionnaires were designed from the first focus group discussion's feedback based on the four key important elements, which are competencies in demand, jobs in demand, emerging skills and related issues.

To increase the response rate and consistent responses, the questionnaire was designed based on close-ended questions on interval scale appropriate to the instrument. Content validity and face validity were employed. Content validity were performed in the pre-test stage by two experts from academic and industry sectors. They were expected to identify the content, grammar, phrasing of sentences and comprehend of the items used. After the pre-testing stage is completed, a pilot test was conducted to pre-test the instruments for this study. 10 respondents were chosen and none of the items required modification.

## **c) Measures and Instrumentation**

For this study, the sections of questionnaire are divided into 4 sections which are section 1, section 2, section 3 and section 4. Section 1 discussed regarding competencies in demand and 4-interval scale to measure the intensity of job demands against the supply or labour. The 4-interval scale range is as follows:

- 4 High in demand;
- 3 Mid in demand;
- 2 Low in demand; and
- 1 Not in demand.

Section 2 discussed jobs in demand and will use the 4-interval scale mentioned earlier to measure the shortage of manpower in the electricity, gas, steam and air conditioning supply industry.

In Section 3, emerging skills were discussed. It contains close-ended questions to measure the important prerequisites and skills for IR4.0 in the electricity, gas, steam and air conditioning supply industry.

For the last section which is Section 4, related issues regarding the industry was discussed using 4-interval scales ranging from strongly agree, agree, disagree and strongly disagree will be used to measure key issues in the electricity, gas, steam and air conditioning supply industry.

#### **d) Data Collection Strategy**

Costing is an important consideration that influences the determination of sampling size for a primary survey. The population of the industry is large and this will require a significant financial budget if a nationally representative survey is the primary target. The consultation with related associations concluded that a nationally representative survey was not be feasible. Instead of aiming for a nationally representative sample, the survey aims to increase only participation rates from the industry.

Three strategies to increase the number of responds for the data collection were utilized as follows:

- i) Targeted of associations' members. The secretariat of each association has agreed to distribute the questionnaire;
- ii) Industry engagements/interviews/visits were scheduled over a period 2 months to seek their assistance to answer the survey and distribute to the members of the respective associations; and
- iii) Assistance from related government agencies to provide institutional support when engaging the selected respondents.

To lessen the bias in the survey procedure as suggested by Armstrong and Overton (1977), extrapolation method was employed. Non-response bias (error) will occur when respondents vary in significant ways from the non-respondents in the research (Sekaran, 2013) which is common in self-

administrated and via mail survey method (Armstrong & Overton, 1977; Groves, 2002). For this study, personal distribution of survey questionnaire was employed for the data collection. To overcome the non-response from respondents usually occur when respondents declined to answer or have language problems (Groves, 2002). Thus, to encourage good response rates from the respondents, a token of appreciation was given to respondents for each questionnaire completed.

#### **e) Data Analysis Procedure**

The following analyses were obtained from the survey:

- i) Analysis of critical occupations identified by the industry;
- ii) Analysis of future trend of the occupational demand by various skills category including TVET related occupations;
- iii) Analysis of talent gaps between supply and demand according to NOSS and MQA standards; and
- iv) Analysis of training provided by the industry to employees.

### **3.3 Conclusion**

The selected research approach were document analysis, survey and questionnaire, and focus group discussion. Document analysis was chosen due to its efficient and effective way of gathering data. This is because the documents can easily be manageable and were practical resources. Documents can be obtained from a commonplace but maybe come in a variety of forms, but are easily accessible and reliable source of data. Besides, obtaining and analysing documents is often far more cost efficient and time efficient than conducting the research. Consequently, document analysis is a suitable method in this research because of its requirement for current statistics in related industries as well as to study the industry's growth. Another research approached is focus group discussion to allow free and open discussion among the respondents, that generated new ideas that well useful in decision-making. It is also a fast way to gain the needed information regarding job titles in the related industries. This approach was the advantage of time saving and an effective way to gather information from many sources. Besides, survey and

questionnaire were also deployed in this research where questionnaires may be taken due to anonymously of respondents. It is an effective way for gathering some sensitive information when is required. Consequently, the shorter and more concise is the questionnaire and the more specific is the group of respondents, the results will be more effective.

## **CHAPTER 4: FINDINGS**

### **4.1 Introduction**

This chapter elaborates the findings of this research on 2-digit MSIC 2008 Division 35. The findings are based on objectives set for the study, namely to produce the Occupational Structure (OS) for electricity, gas, steam and air conditioning supply based on MSIC 2008, to determine Occupational Description (OD) for each job title on latest industry OS, to highlight competencies in demand in the electricity, gas, steam and air conditioning supply industry, to identify job titles related to Industry Revolution 4.0 (IR4.0) and to determine critical jobs in the electricity, gas, steam and air conditioning supply industry. This chapter, therefore, highlights the findings gathered on these key areas.

### **4.2 Finding Analysis**

This section provides the analysis of data regarding jobs in demand, competencies in demand, jobs related to IR4.0 and related issues. The data is based on the approach through two main sources, which are focus group discussion and distributed survey. This sub-chapter divided into 5 main parts namely 4.2.1 (Discussion of Results), 4.2.2 (Jobs in Demand), 4.2.3 (Competencies in Demand), 4.2.4 (Emerging Skills) and 4.2.5 (Related Issues).

#### **4.2.1 Discussion of Results**

The findings of this research were obtained through document analysis and focus group discussion with industry representatives during development workshops, OS and Area Description (AD) of the industry. The discussions have also identified the jobs and

competencies in demand by the industry. These analyses were discussed based on the main groups in Division 35: Electricity, Gas, Steam and Air Conditioning Supply.

Research instruments used were focus group discussions, document analyses and distributed surveys. The initial information is gathered by using document analysis and used as the basis for the focus group discussion workshops. Then, the survey questionnaire is distributed to gain more information related to the discussion and also to validate the data obtained from the focus group discussion and document analysis. The total of actual respondents obtained is 54 respondents which is considered as acceptable according to Roscoe (1975).

During the focus group discussion workshops, the information on electricity, gas, steam and air conditioning supply activities was analysed and grouped into three groups based on MSIC 2008 Group. They are:

- a) Group 351: Electric power generation, transmission and distribution
- b) Group 352: Manufacture of gas and distribution of gaseous fuels through mains
- c) Group 353: Steam and air conditioning supply

#### **4.2.2 Jobs in Demand**

In summary, jobs in demand means that there are job openings and guarantees for people who have skills that match the jobs in demand. This section comprises the jobs in demand as stated below, which were obtained from the discussions in the development workshops. Based on the focus group discussion with the expert industrial panel and MASCO 2013, job titles were divided into 3 categories of worker skills, namely low-skilled worker, semi-skilled worker and skilled worker, corresponding to the levels of MQF as shown in the Table 4.1.

Table 4.1: Category of Skills Corresponding to the Levels of MQF

<b>Category of Skills</b>	<b>Low-skilled Worker</b>	<b>Semi-skilled Worker</b>	<b>Skilled Worker</b>
Level	1	2 - 3	4 - 8

Based on the focus group discussion (FGD), jobs in demand and factors contributing to the demand for electric, gas, steam and air conditioning supply were identified and listed in Table 4.2. Based on the data from the focus group discussion in Table 4.2, most of the development panels agreed that there is a high in demand for semi-skilled and skilled workers such as technical assistants, foremen and panel controllers to increase the industry's productivity. The data is supported by distributed surveys which showed that there is a high demand for semi-skilled and skilled worker.

Table 4.2: Jobs in Demand and Factors Contributing to the demand for Electric, Gas, Steam and Air Conditioning Supply

NO.	JOB TITLES	FACTORS CONTRIBUTING TO THE DEMAND	SPECIFIC REQUIREMENTS AND SKILLS
1)	(Shift Manager, Technical Assistant, Operation Executive, Construction Executive, Lab Analyst)	a) Growth in the energy sector requires managerial skills. b) Complexity in analysing problem.	a) Managerial skills with technical acumen. b) Leadership skills with ability to execute the work.
2)	(Panel Controller, Foreman, Chargeman, Assistant Lab Analyst, Construction Supervisor, Electrical Wireman, Technician, Sampling Operator)	a) Certified workforce to supervise and operate front-end work activities.	a) Creativity in solving problems. b) Innovative in generating new ideas for performance improvements. c) Analytical skills with independence in delivering results.

Figure 4.1 shows the jobs in demand for electric power generation, transmission and distribution. Based on the data survey obtained, 33 respondents agreed that low-

skilled workers are low in demand while 32 respondents agreed that there is mid demand for semi-skilled workers and 30 respondents agreed that there is a high demand for skilled workers. From here we can conclude that for electric power generation, transmission and distribution, there is a low demand for low skilled workers, mid demand for semi-skilled workers and high demand for skilled workers.

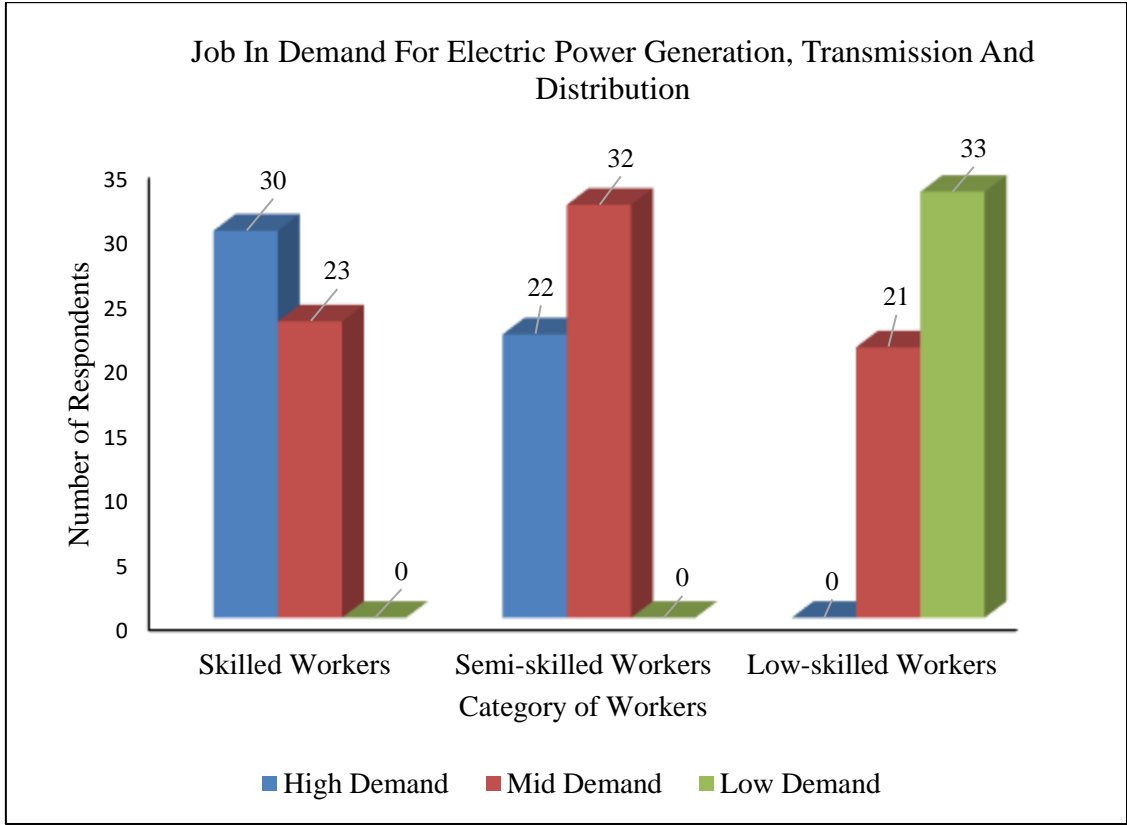


Figure 4.1: Jobs in Demand for Electric Power Generation, Transmission and Distribution

Figure 4.2 shows the jobs in demand for the manufacture of gas and distribution of gaseous fuels through mains. Based on the data survey obtained, 30 respondents agreed that low-skilled workers are low in demand while 31 respondents agreed that there is mid demand for semi-skilled workers and 37 respondents agreed that there is a high demand for skilled workers. Therefore, we can conclude that for the manufacture of gas and distribution of gaseous fuels through mains, there is low demand for low-skilled worker, mid demand for semi-skilled workers and high demand for skilled workers.



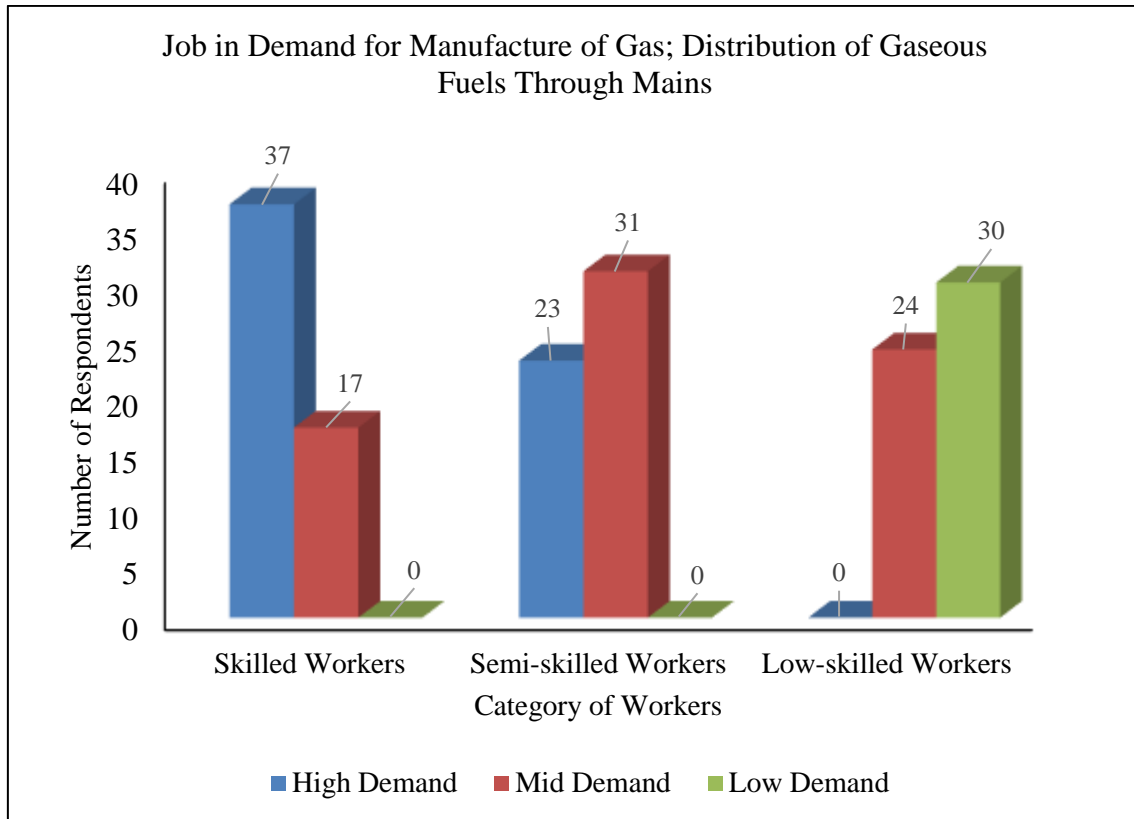


Figure 4.2: Jobs in Demand for the Manufacture of Gas and Distribution of Gaseous Fuels through Mains

Figure 4.3 shows the jobs in demand for steam and air conditioning supply. Based on the data survey obtained, 29 respondents agreed that low-skilled workers are low in demand while 31 respondents agreed that there is mid demand for semi-skilled workers and 32 respondents agreed that there is a high demand for skilled workers. Therefore, we can conclude that for the steam and air conditioning supply, there is low demand for low-skilled workers, mid demand for semi-skilled workers and high demand for skilled workers.

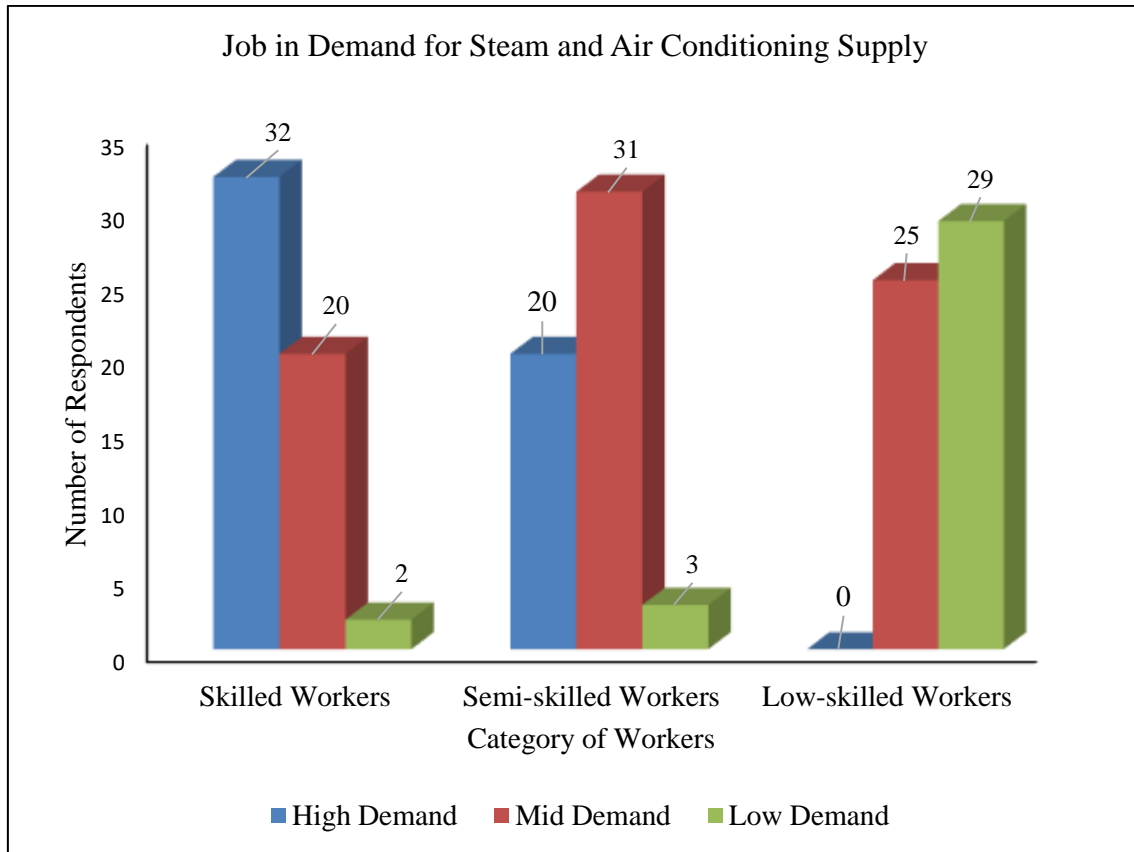


Figure 4.3: Jobs in Demand for Steam and Air Conditioning Supply

Based on all the data mentioned, we can conclude that semi-skilled workers and skilled workers are highly in demand for the electricity, gas, steam and air conditioning supply industry.

#### 4.2.3 Competencies in Demand

Competencies in demand can be defined as specific set of skills in a particular of job that is highly required by the industry. Competencies in demand for the 2-digit MSIC 2008 Division 35: Electricity, Gas, Steam and Air Conditioning Supply are listed in Table 4.3 based on the results obtained from the focus group discussion (FGD) with development panels.

- a) **Technical knowledge and skills** are defined as comprehend modern technology, its working and advances.

- b) **Diagnostic and troubleshooting skills** refer to the process of identifying, troubleshooting and diagnosing the source of the problem.
- c) **Problem-solving skills** refer to the ability to solve problems without any impediment.
- d) **Tools and machinery skills** refer to the ability to handle machinery and tools.
- e) **Communication skills** involve listening, speaking, observing and empathising. It is used to give and receive different types of information.
- f) **Administrative and management skills** involve completing tasks related to managing the business such as filing paperwork and meeting stakeholders.
- g) **Leadership skills** refer to the strength and ability to help people oversee processes, guide initiatives and steer their employees towards the achievement of business goals.

Table 4.3: Competencies in Demand for Electric, Gas, Steam and Air Conditioning Supply

NO	COMPETENCIES IN DEMAND	SUBSECTOR JOB AREAS / RELATED JOB TITLES	FACTOR(S) CONTRIBUTING TO THE DEMAND	SPECIFIC REQUIREMENTS AND SKILLS
1)	Technical knowledge and skills Diagnostic and troubleshooting skills Problem-solving skills Tools and machinery skills	i) Technical Assistant, Supervisor, Technician, Lab Analyst	i) Lack of hands-on practical experience ii) Perceived as 3D job iii) Lack of youth involvement	i) Training on related or similar areas ii) Review of training syllabus at training centre or by provider iii) Joint venture with industry players to provide facilities and exposure

NO	COMPETENCIES IN DEMAND	SUBSECTOR JOB AREAS / RELATED JOB TITLES	FACTOR(S) CONTRIBUTING TO THE DEMAND	SPECIFIC REQUIREMENTS AND SKILLS
2)	Communication skills Administrative and managerial skills Leadership skills General attitude towards work (commitment, resourcefulness, teamwork, etc.)	i) Manager, Supervisor, Technical Assistant, Lab Analyst	i) No structured system to transfer skills to new successors ii) Lack of exposure on the process iii) Lack of hands-on experience on the process	i) Training on related or similar areas ii) Review of training syllabus at training centre or by provider iii) Invite industry players to jointly carry out R&D programmes

Based on FGD data, technical knowledge and skills, diagnostic and troubleshooting skills, problem-solving skills as well as tools and machinery skills are examples of skill sets and competencies in demand for electricity, gas, steam and air conditioning supply industry. These competency skills are mostly demanded by semi-skilled and skilled workers such as technical assistants, managers and supervisors. The data is also supported by distributed surveys shown in Figure 4.4.

Based on the data obtained in Figure 4.4, technical knowledge and skills as well as general attitude towards work pose the highest demand with 24 respondents, followed by communication skills, and diagnostic and troubleshooting skills with 22 and 23 respondents respectively. As a conclusion, we can summarise that both FGD and distributed surveys show a high demand for technical knowledge and skills, general attitude, diagnostic and troubleshooting skills as well as communication skills in the electricity, gas, steam and air conditioning supply industry.

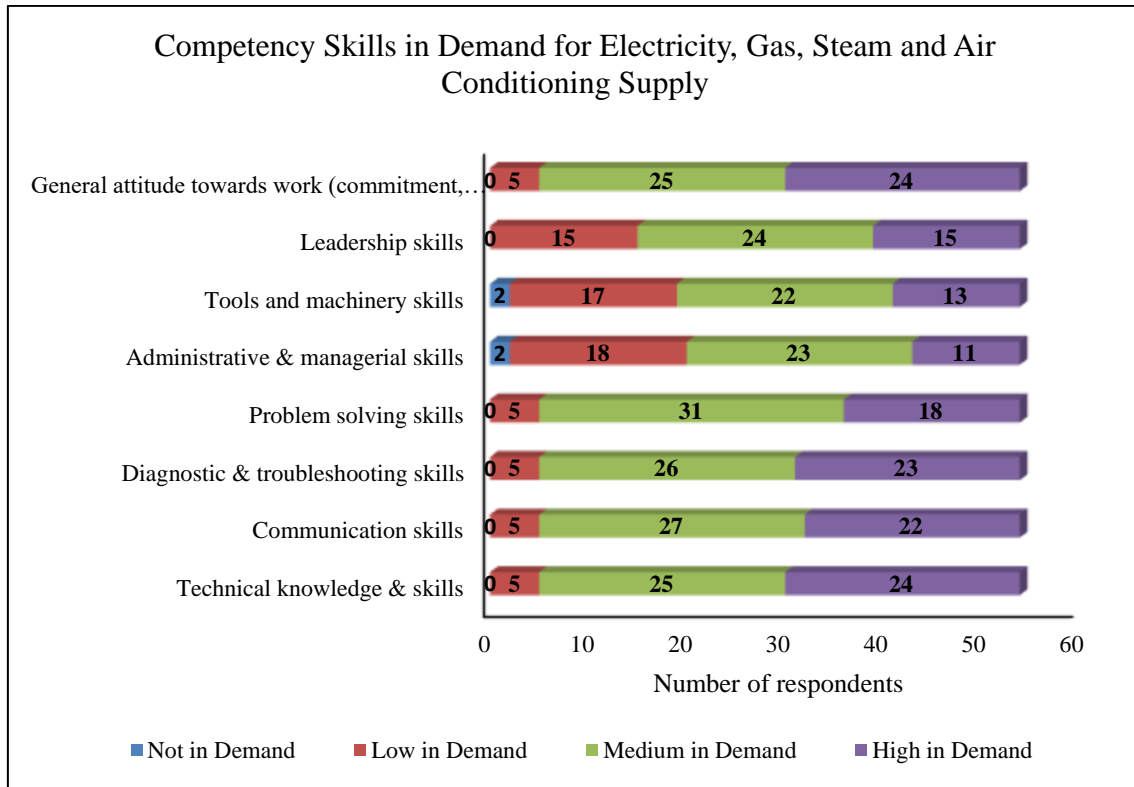


Figure 4.4: Competencies in Demand for Electricity, Gas, Steam and Air Conditioning Supply

#### 4.2.4 Emerging Skills

Emerging skills can be defined as the new set of potential skills for the industry such as IR4.0-related skills. Emerging skills for the electricity, gas, steam and air conditioning supply industry were identified and listed in Table 4.4. According to the data from FGD, jobs related to the emerging skills for electricity, gas, steam and air conditioning supply listed in Table 4.4 are managers, engineers, technical assistants and panel controllers. Based on the survey distributed, it was observed that almost all 11 pillars of the IR4.0 affected the electricity, gas, steam and air conditioning supply activities. The respondents agreed that the pillar that gives the highest impact on electricity, gas, steam and air conditioning supply activities are big data analytics, followed by cloud computing and Internet of Things (IoT).

Table 4.4: Emerging Skills for Electricity, Gas, Steam and Air Conditioning Supply Industry

NO.	EMERGING SKILLS	JOB TITLES RELATED TO IR4.0	REASONS FOR THE REQUIRED EMERGING SKILLS
1	IR4.0-related skills – Interpretation of Big Data, Internet of Things (IoT), Supply Chain, Cloud and Cybersecurity, Artificial Intelligence, Horizontal and Vertical Integration, Simulation Augmented Reality, Utilisation of automation systems which include ability to configure, utilise, debug and maintain the system	a) Manager b) Engineer c) Technical Assistant d) Panel Controller	a) Increase in productivity, reduction in costs and improvement in efficiency b) Fast decision making c) Increase in process effectiveness d) Reduction in human error

Figure 4.5 shows the emerging skills that relates to IR4.0 for electricity, gas, steam and air conditioning supply industry. Based on the data obtained, we can conclude that big data analytics and cybersecurity show the highest score for emerging skills in electricity, gas, steam and air conditioning supply. In conclusion, we can summarise that both FGD and distributed surveys concurred that emerging skills related to IR4.0 such as big data analytics and cybersecurity are crucial for this industry.

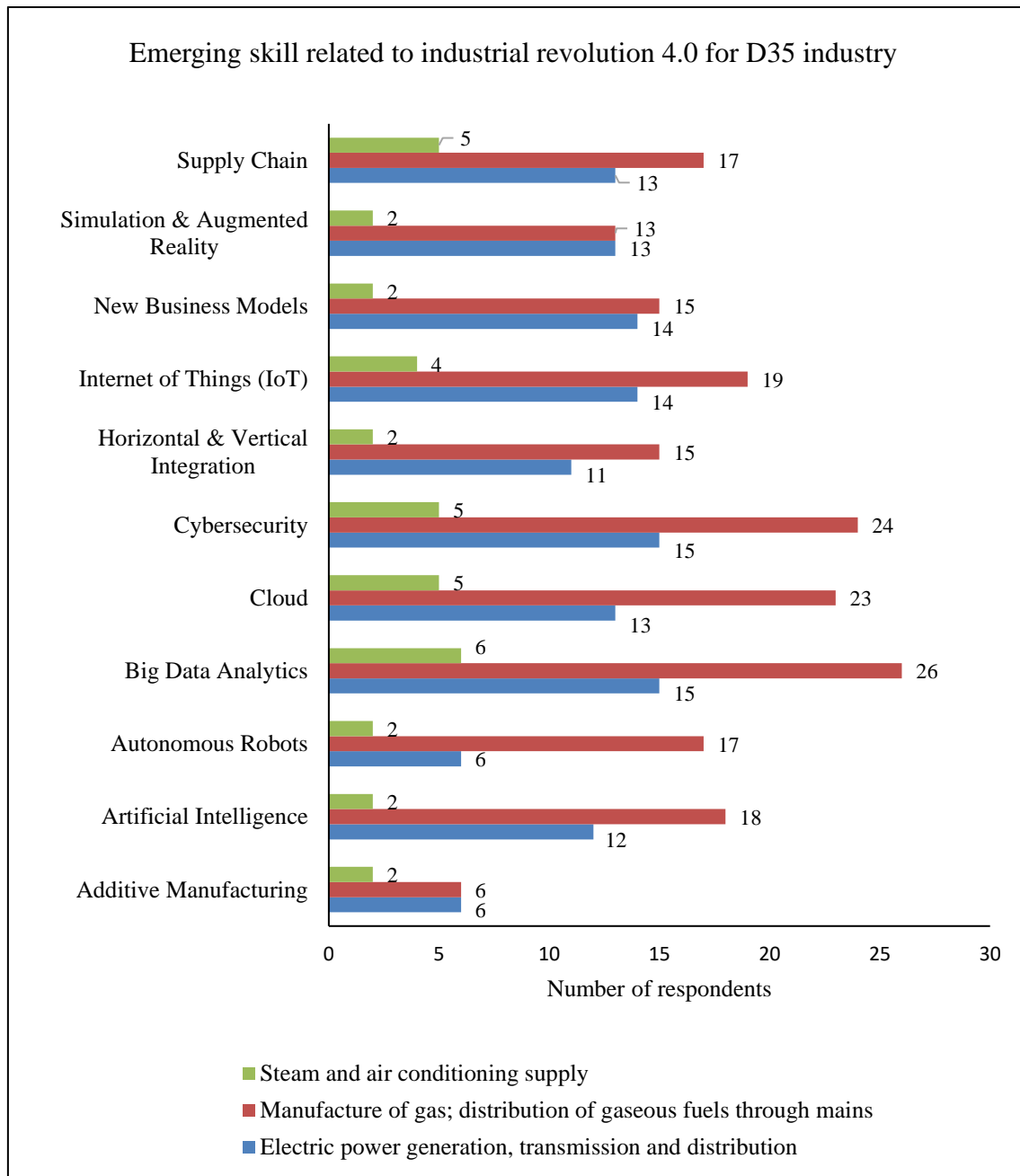


Figure 4.5: Emerging Skill Related to Industrial Revolution 4.0 for D35 Industry

#### 4.2.5 Related Issues

Related issues for the electricity, gas, steam and air conditioning supply industry were identified during the focus group discussion and the results were listed in Table 4.5. According to the data from FGD, the related issues for electricity, gas, steam and air conditioning supply as listed in Table 4.5 are certified and competent skills personnel and productivity-based work activities.

Table 4.5: Related Issues in Electricity, Gas, Steam and Air Conditioning Supply Industry

NO	KEY ISSUES	REASONS	SUGGESTIONS
1.	Certified and competent skills personnel	Excellent certificate does not mean good competency	a) Review skills training curriculum b) Continuous learning and training
2.	Productivity-based work activities	a) Lack of choice by workers. b) Company provides less productivity-based work activity environment	a) Career path development programme b) Government incentives

Figure 4.6 shows the related issues regarding electricity, gas, steam and air conditioning supply activities in the industry. Based on the result, the two most important issues regarding electricity, gas, steam and air conditioning supply are high dependency on foreign labour and insufficient manpower.

Based on the data obtained, 33 respondents agreed that insufficient skills is considered as the most critical related issue regarding the electricity, gas, steam and air conditioning supply, followed by high dependency on foreign labour. As such, we can conclude that both FGD and the distributed survey concurred that insufficient skilled or competent manpower is the major issue related to D35 industry and that led to dependency of foreign labour.



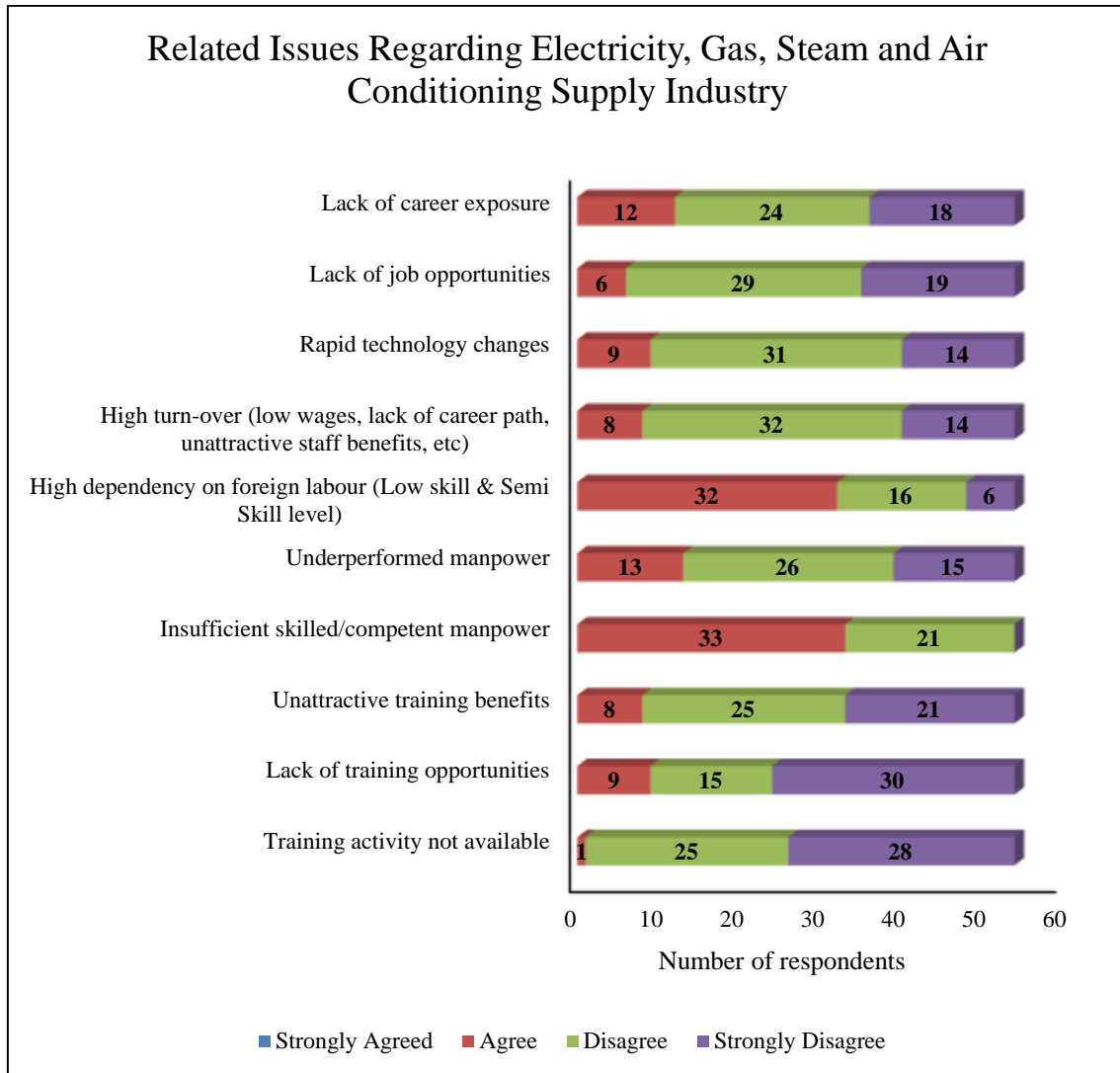


Figure 4.6: Related Issues Regarding Electricity, Gas, Steam and Air Conditioning Supply Industry

### 4.3 Comparative Study Analysis

This section provides a comparison between Malaysia, Germany and Philippines regarding electricity, gas, steam and air conditioning supply. In this study, Germany was selected due to it being the highest-ranking country in electricity, steam, gas and air conditioning supply. On the other hand, Philippine was selected as it has the same level of electricity, gas, steam and air conditioning supply as Malaysia.

#### Germany

Based on the classification of economic activity NACE Rev. 2, Germany contributed the highest in added value for the electricity, gas, steam and air conditioning supply sector amongst five largest European member states which includes United Kingdom, France, Italy and Spain. Germany contributed USD43.62 billion of added value during that year. Statistics showed that there were 2,000 establishments and total employment of 227,800 in the electricity, gas, steam and air conditioning supply sector<sup>40</sup>.

Figure 4.7 shows the revenues of the industry's electricity, gas, steam and air conditioning supply in Germany from 2011 to 2017, with a forecast into 2023. Based on the statistics, the revenue of the industry's electricity, gas, steam and air conditioning supply in Germany in 2018 was approximately USD385.7 billion. It is projected that the revenue for electricity, gas, steam and air conditioning supply in Germany will amount to approximately USD398.7 billion by 2023<sup>41</sup>.

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<sup>40</sup> Eurostat Statistics Explained. (2019, October 9). Retrieved from [https://ec.europa.eu/eurostat/statistics-explained/index.php/Electricity,\\_gas,\\_steam\\_and\\_air\\_conditioning\\_supply\\_statistics\\_-\\_NACE\\_Rev.\\_2](https://ec.europa.eu/eurostat/statistics-explained/index.php/Electricity,_gas,_steam_and_air_conditioning_supply_statistics_-_NACE_Rev._2)

<sup>41</sup> Statista (2019, September 17) Retrieved from <https://www.statista.com/forecasts/884249/electricity-gas-steam-and-air-conditioning-supply-revenue-in-germany>

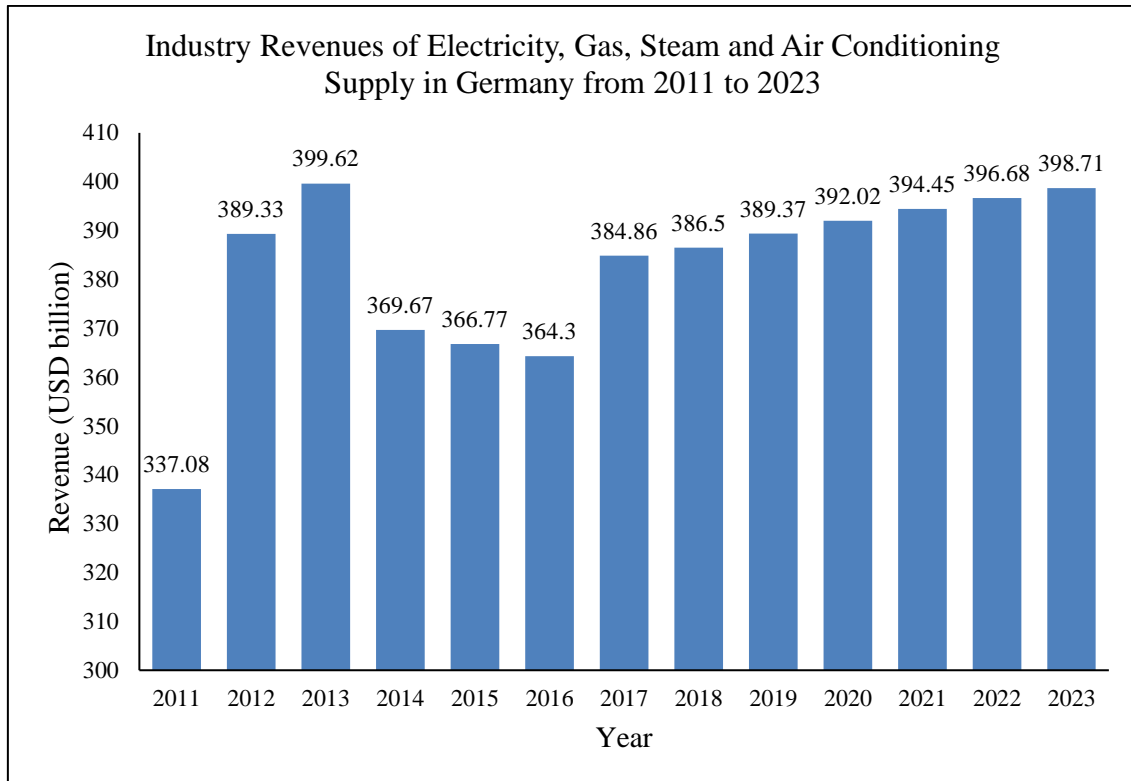


Figure 4.7: Industry Revenues of Electricity, Gas, Steam and Air Conditioning Supply in Germany from 2011 to 2023  
(Source: Statistica 2019)

### Philippines

Based on the 2015 Annual Survey of Philippines Business and Industry (ASPBI), there were a total of 261 establishments in the Philippines. Among the three industries of the sector, distribution of electricity recorded the highest with 154 establishments or 59.0 per cent of the total. This is followed by electric power generation with 104 establishments or 40.0 per cent of the total. Transmission of electricity reported only a total of three establishments or 1.0 per cent of the total.

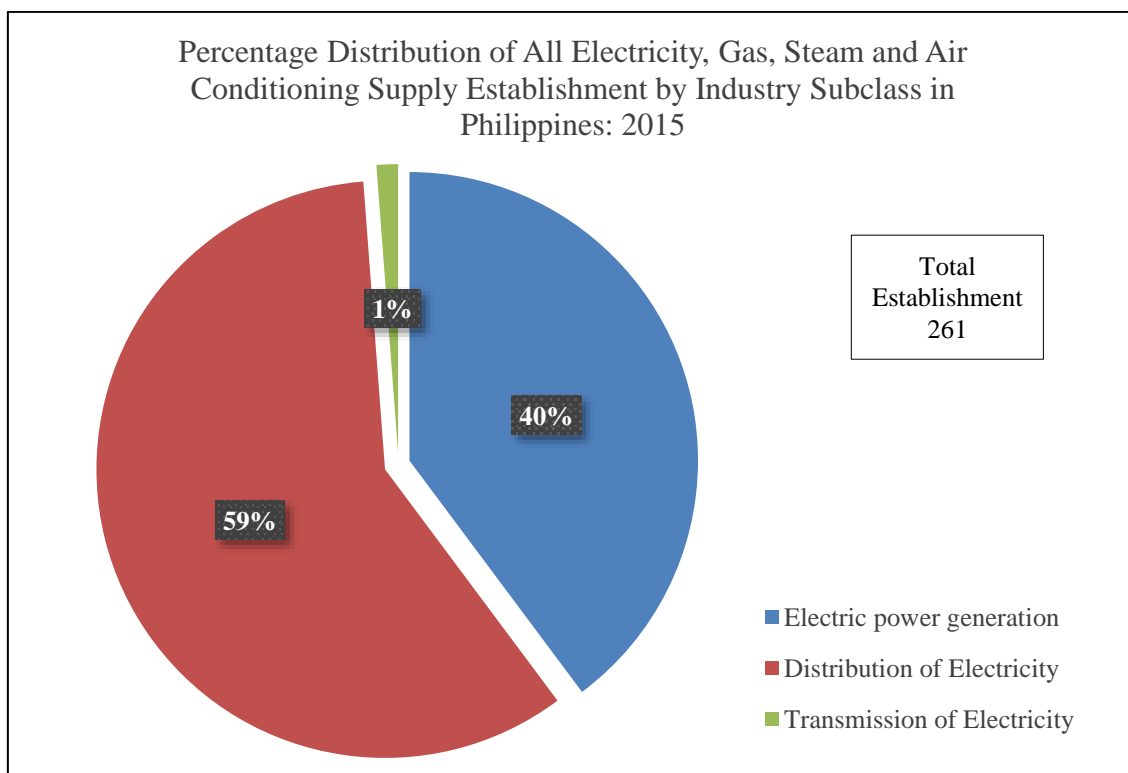


Figure 4.8: Percentage Distribution of All Electricity, Gas, Steam and Air Conditioning Supply Establishments by Industry Subclass in Philippines: 2015  
(Source: Annual Survey of Philippines Business and Industry)

Total employment generated by electricity, gas, steam and air conditioning supply establishments reached 46,650 in 2015, of which all were paid employees. At the industry level, distribution of electricity reported the highest number of workers with 32,488 or 69.6 per cent of the total. Electric power generation followed next with 9,553 workers (20.5 per cent) and transmission of electricity came as the third top employer with 4,629 workers (9.9 per cent).

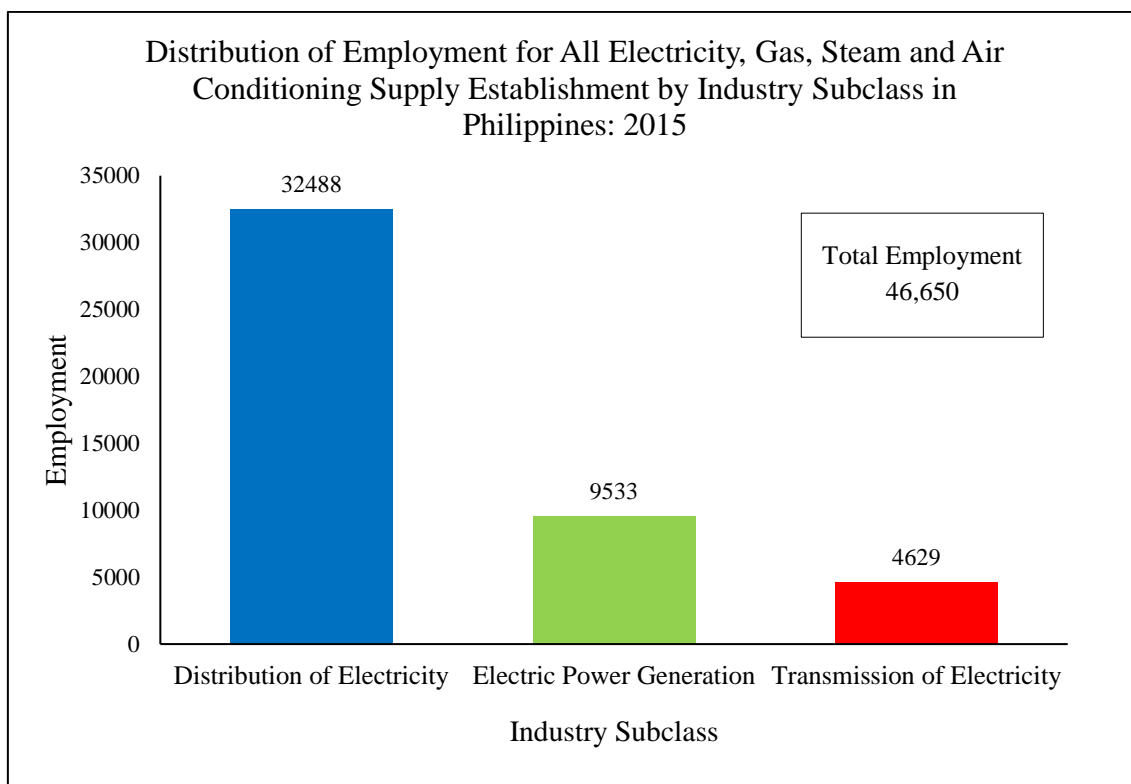





Figure 4.9: Distribution of Employment for All Electricity, Gas, Steam and Air Conditioning Supply Establishments by Industry Subclass in Philippines: 2015  
(Source: Annual Survey of Philippines Business and Industry)

The average number of workers per establishment for the sector was recorded at 179. Transmission of electricity recorded the highest average number of employments at 1,543. This was followed by distribution of electricity and electric power generation with 211 and 92 workers per establishment, respectively.

Table 4.6: Comparison of the Electricity, Gas, Steam and air Conditioning Supply in Malaysia, Philippines and Germany

<b>Country</b>	<b>GDP (USD)</b>	<b>Number of Establishments</b>	<b>Employment Statistics</b>
 <b>Malaysia<sup>42</sup></b>	<b>7.167 billion</b>	<b>305</b>	<b>50,265</b>
 <b>Philippines<sup>43</sup></b>	<b>14.117 billion</b>	<b>265</b>	<b>47,973</b>
 <b>Germany<sup>44</sup></b>	<b>387.7 billion</b>	<b>1,974</b>	<b>227,794</b>

<sup>42</sup> Department of Statistics Malaysia. 2018. Annual Economic Statistics 2018. Pages 13 - 20

<sup>43</sup> Annual Survey of Philippines Business and Industry (ASPBI)

<sup>44</sup> Statista (2019, September 17) Retrieved from <https://www.statista.com/forecasts/884249/electricity-gas-steam-and-air-conditioning-supply-revenue-in-germany>

#### **4.4 Occupational Structure (OS)**

This section shows the overview of Occupational Structure (OS) for Division 35: Electricity, Steam, Gas and Air Conditioning Supply. OS is the distribution of occupations in society that is classified according to the levels based on MSIC 2008. This OS is important for NOSS development in the future.

The focus group discussion with the expert development panel from the electricity, steam, gas and air conditioning supply successfully came out with a total number of 155 total job areas, 884 job titles, 139 critical job titles and 144 jobs related to IR4.0.

The results are listed from Table 4.7 until Table 4.49. The summary of the findings including those with the critical job titles and job titles related to IR4.0 are also listed in Table 4.50. Level 8 jobs such as Project Director, Station Manager and Engineering Manager having the same job title can be merged into one as per industry practice. Certain job titles at Level 7 jobs such as Plant Manager and Project Manager can also be merged, similar to Level 8 jobs.

Table 4.7: Group 351 Occupational Structure (1 of 31)

<b>SECTION</b>	<b>(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY</b>				
<b>DIVISION</b>	<b>(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY</b>				
<b>GROUP</b>	<b>(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION</b>				
<b>AREA</b>	<b>Coal-fired Power Plant – Project (Engineering)</b>	<b>Coal-fired Power Plant – Project (Civil Construction)</b>	<b>Coal-fired Power Plant – Project (Mechanical Construction)</b>	<b>Coal-fired Power Plant – Project (Electric &amp; Instrument Construction)</b>	<b>Coal-fired Power Plant – Project (Health, Safety and Environment Construction)</b>
<b>LEVEL 8</b>	Engineering Manager	Project Director	Project Director	Project Director	Project Director
<b>LEVEL 7</b>	Design Office Manager	Project Manager	Project Manager	Project Manager	Health, Safety and Environment Manager
<b>LEVEL 6</b>	Design Engineer	Civil Construction Engineer	Mechanical Construction Engineer	Electric and Instrument Construction Engineer	Health, Safety and Environment Engineer
<b>LEVEL 5</b>	Design Executive	Civil Construction Executive	Mechanical Construction Executive	Electric and Instrument Construction Executive	Safety Officer
<b>LEVEL 4</b>	Design Supervisor	Civil Construction Supervisor	Mechanical Construction Supervisor	Electric and Instrument Construction Supervisor	Safety Supervisor
<b>LEVEL 3</b>	Draftsman	Civil Construction Technician	Mechanical Construction Technician	Electric and Instrument Construction Technician	No Level
<b>LEVEL 2</b>	Junior Draftsman	Junior Civil Construction Technician	Junior Mechanical Construction Technician	Junior Electric and Instrument Technician	No Level
<b>LEVEL 1</b>	No Level	No Level	No Level	No Level	No Level



Table 4.8: Group 351 Occupational Structure (2 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION				
AREA	Coal-Fired Power Plant – Operation	Coal-Fired Power Plant – Maintenance (Boiler)	Coal-Fired Power Plant – Maintenance (Turbine)	Coal-Fired Power Plant – Maintenance (Electrical)	Coal-Fired Power Plant – Maintenance (Instrument)
LEVEL 8	Station Manager**	Station Manager**	Station Manager**	Station Manager**	Station Manager**
LEVEL 7	Operation Manager**	Mechanical Maintenance Manager**	Mechanical Maintenance Manager**	Electrical and Instrument Maintenance Manager**	Electrical and Instrument Maintenance Manager**
LEVEL 6	Operation Engineer**	Boiler Engineer**	Turbine Engineer**	Electrical Engineer**	Instrument Engineer**
LEVEL 5	Shift Manager***	Boiler Technical Assistant **	Turbine Technical Assistant**	Electrical Technical Assistant**	Instrument Technical Assistant***
LEVEL 4	Panel Controller***	Boiler Foreman*	Turbine Foreman*	Electrical Chargeman*	Instrument Foreman*
LEVEL 3	Plant Operator***	Boiler Technician*	Turbine Technician*	Electrical Technician*	Instrument Technician*
LEVEL 2	Junior Plant Operator	Junior Boiler Technician	Junior Turbine Technician	Junior Electrical Technician	No Level
LEVEL 1	No Level	No Level	No Level	No Level	No Level

Note: \*Critical job titles

\*\*Jobs relevant to IR4.0

\*\*\*Critical job titles and jobs relevant to IR4.0

Table 4.9: Group 351 Occupational Structure (3 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION	
SUB AREA	Coal-fired Power Plant – Support Services (Health, Safety and Environment)	Coal-fired Power Plant – Support Services (Chemist)
LEVEL 8	Station Manager**	Station Manager**
LEVEL 7	Health, Safety and Environment Manager	Chief Chemist
LEVEL 6	Health, Safety and Environment Engineer	Chemist
LEVEL 5	Safety Officer	Lab Analyst*
LEVEL 4	Safety Supervisor	Assistant Lab Analyst*
LEVEL 3	No Level	Sampling Operator*
LEVEL 2	No Level	No Level
LEVEL 1	No Level	No Level

Note: \*Critical job titles

\*\*Jobs relevant to IR4.0

Table 4.10: Group 351 Occupational Structure (4 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION				
AREA	Combined-cycle Power Plant – Project (Engineering)	Combined-cycle Power Plant – Project (Civil Construction)	Combined-cycle Power Plant – Project (Mechanical Construction)	Combined-cycle Power Plant – Project (Electric & Instrument Construction)	Combined-cycle Power Plant – Project (Health, Safety and Environment Construction)
LEVEL 8	Engineering Manager	Project Director	Project Director	Project Director	Project Director
LEVEL 7	Design Office Manager	Project Manager	Project Manager	Project Manager	Health, Safety and Environment Manager
LEVEL 6	Design Engineer	Civil Construction Engineer	Mechanical Construction Engineer	Electric and Instrument Construction Engineer	Health, Safety and Environment Engineer
LEVEL 5	Design Executive	Civil Construction Executive	Mechanical Construction Executive	Electric and Instrument Construction Executive	Safety Officer
LEVEL 4	Design Supervisor	Civil Construction Supervisor	Mechanical Construction Supervisor	Electric and Instrument Construction Supervisor	Safety Supervisor
LEVEL 3	Draftsman	Civil Construction Technician	Mechanical Construction Technician	Electric and Instrument Construction Technician	No Level
LEVEL 2	Junior Draftsman	Junior Civil Construction Technician	Junior Mechanical Construction Technician	Junior Electric and Instrument Technician	No Level
LEVEL 1	No Level	No Level	No Level	No Level	No Level

Table 4.11: Group 351 Occupational Structure (5 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION				
AREA	Combined-cycle Power Plant – Operation	Combined-cycle Power Plant – Maintenance (Boiler)	Combined-cycle Power Plant – Maintenance (Turbine)	Combined-cycle Power Plant – Maintenance (Electrical)	Combined-cycle Power Plant – Maintenance (Instrument)
LEVEL 8	Station Manager**	Station Manager**	Station Manager**	Station Manager**	Station Manager**
LEVEL 7	Operation Manager**	Mechanical Maintenance Manager**	Mechanical Maintenance Manager**	Electrical & Instrument Maintenance Manager**	Electrical & Instrument Maintenance Manager**
LEVEL 6	Operation Engineer**	Boiler Engineer**	Turbine Engineer**	Electrical Engineer**	Instrument Engineer**
LEVEL 5	Shift Manager***	Boiler Technical Assistant**	Turbine Technical Assistant**	Electrical Technical Assistant**	Instrument Technical Assistant***
LEVEL 4	Panel Controller***	Boiler Foreman*	Turbine Foreman*	Electrical Chargeman*	Instrument Foreman*
LEVEL 3	Plant Operator***	Boiler Technician*	Turbine Technician*	Electrical Technician*	Instrument Technician*
LEVEL 2	Junior Plant Operator	Junior Boiler Technician	Junior Turbine Technician	Junior Electrical Technician	No Level
LEVEL 1	No Level	No Level	No Level	No Level	No Level

Note: \*Critical job titles

\*\*Jobs relevant to IR4.0

\*\*\*Critical job titles and jobs relevant to IR4.0

Table 4.12: Group 351 Occupational Structure (6 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION	
AREA	Combined-cycle Power Plant – Support Services (Health, Safety and Environment)	Combined-cycle Power – Support Services (Chemist)
LEVEL 8	Station Manager**	Station Manager**
LEVEL 7	Health, Safety and Environment Manager	Chief Chemist
LEVEL 6	Health, Safety and Environment Engineer	Chemist
LEVEL 5	Safety Officer	Lab Analyst*
LEVEL 4	Safety Supervisor	Assistant Lab analyst*
LEVEL 3	No Level	Sampling Operator*
LEVEL 2	No Level	No Level
LEVEL 1	No Level	No Level

Note: \*Critical job titles

\*\*Jobs relevant to IR4.0

Table 4.13: Group 351 Occupational Structure (7 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION				
AREA	Hydro-electric Power Plant – Project (Engineering)	Hydro-electric Power Plant – Project (Civil Construction)	Hydro-electric Power Plant – Project (Mechanical Construction)	Hydro-electric Power Plant – Project (Electric and Instrument Construction)	Hydro-electric Power Plant – Project (Health, Safety and Environment Construction)
LEVEL 8	Engineering Manager	Project Director	Project Director	Project Director	Project Director
LEVEL 7	Design Office Manager	Project Manager	Project Manager	Project Manager	Health, Safety and Environment Manager
LEVEL 6	Design Engineer	Civil Construction Engineer	Mechanical Construction Engineer	Electric and Instrument Construction Engineer	Health, Safety and Environment Engineer
LEVEL 5	Design Executive	Civil Construction Executive	Mechanical Construction Executive	Electric and Instrument Construction Executive	Safety Officer
LEVEL 4	Design Supervisor	Civil Construction Supervisor	Mechanical Construction Supervisor	Electric and Instrument Construction Supervisor	Safety Supervisor
LEVEL 3	Draftsman	Civil Construction Technician	Mechanical Construction Technician	Electric and Instrument Construction Technician	No Level
LEVEL 2	Junior Draftsman	Junior Civil Construction Technician	Junior Mechanical Construction Technician	Junior Electric and Instrument Construction Technician	No Level
LEVEL 1	No Level	No Level	No Level	No Level	No Level

Table 4.14: Group 351 Occupational Structure (8 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY			
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY			
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION			
AREA	Hydro-electric Power Plant – Operation	Hydro-electric Power Plant – Maintenance (Turbine)	Hydro-electric Power Plant – Maintenance (Electrical)	Hydro-electric Power Plant – Maintenance (Instrument)
LEVEL 8	Station Manager**	Station Manager**	Station Manager**	Station Manager**
LEVEL 7	Operation Manager**	Mechanical Maintenance Manager**	Electrical Maintenance Manager**	Instrument Maintenance Manager**
LEVEL 6	Operation Engineer**	Turbine Engineer**	Electrical Engineer**	Instrument Engineer**
LEVEL 5	Shift Manager***	Turbine Technical Assistant**	Electrical Technical Assistant**	Instrument Technical Assistant***
LEVEL 4	Panel Controller***	Turbine Foreman*	Electrical Chargeman*	Instrument Foreman*
LEVEL 3	Plant Operator***	Turbine Technician*	Electrical Technician*	Instrument Technician*
LEVEL 2	Junior Plant Operator	Junior Turbine Technician	Junior Electrical Technician	No Level
LEVEL 1	No Level	No Level	No Level	No Level

Note: \*Critical job titles

\*\*Jobs relevant to IR4.0

\*\*\*Critical job titles and jobs relevant to IR4.0

Table 4.15: Group 351 Occupational Structure (9 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION	
AREA	Hydro-electric Power Plant – Support Services (Health, Safety and Environment)	Hydro-electric Power Plant – Support Services (Chemist)
LEVEL 8	Station Manager**	Station Manager**
LEVEL 7	Health, Safety and Environment Manager	Chief Chemist
LEVEL 6	Health, Safety and Environment Engineer	Chemist
LEVEL 5	Safety Officer	Lab Analyst*
LEVEL 4	Safety Supervisor	Assistant Lab Analyst*
LEVEL 3	No Level	Sampling Operator*
LEVEL 2	No Level	No Level
LEVEL 1	No Level	No Level

Note: \*Critical job titles

\*\*Jobs relevant to IR4.0



Table 4.16: Group 351 Occupational Structure (10 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY			
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY			
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION			
SUB AREA	Solar Power Plant – Project (Engineering)	Solar Power Plant – Project (Mechanical Construction)	Solar Power Plant – Project (Electric and Instrument Construction)	Solar Power Plant – Project (Health, Safety and Environment Construction)
LEVEL 8	Engineering Manager	Project Director	Project Director	Project Director
LEVEL 7	Design Office Manager	Project Manager	Project Manager	Health, Safety and Environment Manager
LEVEL 6	Design Engineer	Mechanical Construction Engineer	Electric and Instrument Construction Engineer	Health, Safety and Environment Engineer
LEVEL 5	Design Executive*	Mechanical Construction Executive	Electric and Instrument Construction Executive	Safety Officer
LEVEL 4	Design Supervisor*	Mechanical Construction Supervisor	Electric and Instrument Construction Supervisor	Safety Supervisor
LEVEL 3	Draftsman	Mechanical Construction Technician	Electric and Instrument Construction Technician	No Level
LEVEL 2	Junior Draftsman	Junior Mechanical Construction Technician	Junior Electric and Instrument Construction Technician	No Level
LEVEL 1	No Level	No Level	No Level	No Level

Note: \*Critical job titles

Table 4.17: Group 351 Occupational Structure (11 of 31)

<b>SECTION</b>	<b>(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY</b>			
<b>DIVISION</b>	<b>(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY</b>			
<b>GROUP</b>	<b>(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION</b>			
<b>SUB AREA</b>	<b>Solar Power Plant – Operation</b>	<b>Solar Power Plant – Maintenance (Mechanical)</b>	<b>Solar Power Plant – Maintenance (Electrical and Instrument Maintenance)</b>	<b>Solar Power Plant – Support Services (Health Safety and Environment)</b>
<b>LEVEL 8</b>	Not Available	Not Available	Not Available	Not Available
<b>LEVEL 7</b>	Plant Manager**	Plant Manager**	Plant Manager**	Not Available
<b>LEVEL 6</b>	Operation Engineer**	Mechanical Engineer**	Electrical Engineer**	Not Available
<b>LEVEL 5</b>	Operation Executive***	Mechanical Technical Assistant**	Electrical and Instrument Technical Assistant**	Safety Officer
<b>LEVEL 4</b>	Panel Controller***	Mechanical Supervisor	Electrical and Instrument Supervisor	Safety Supervisor
<b>LEVEL 3</b>	Plant Operator***	Mechanical Technician	Electrical and Instrument Technician	No Level
<b>LEVEL 2</b>	Junior Plant Operator	Junior Mechanical Technician	Junior Electrical and Instrument Technician	No Level
<b>LEVEL 1</b>	No Level	No Level	No Level	No Level

Note: \*\*Jobs relevant to IR4.0

\*\*\*Critical job titles and job relevant to IR4.0

Table 4.18: Group 351 Occupational Structure (12 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION				
SUB AREA	Bio-mass Power Plant – Project (Engineering)	Bio-mass Power Plant – Project (Civil Construction)	Bio-mass Power Plant – Project (Mechanical Construction)	Bio-mass Power Plant – Project (Electric and Instrument Construction)	Bio-mass Power Plant – Project (Health, Safety and Environment Construction)
LEVEL 8	Engineering Manager	Project Director	Project Director	Project Director	Project Director
LEVEL 7	Design Office Manager	Project Manager	Project Manager	Project Manager	Health, Safety and Environment Manager
LEVEL 6	Design Engineer	Civil Construction Engineer	Mechanical Construction Engineer	Electric & Instrument Construction Engineer	Health, Safety and Environment Engineer
LEVEL 5	Design Executive	Civil Construction Executive	Mechanical Construction Executive	Electric and Instrument Construction Executive	Safety Officer
LEVEL 4	Design Supervisor	Civil Construction Supervisor	Mechanical Construction Supervisor	Electric and Instrument Construction Supervisor	Safety Supervisor
LEVEL 3	Draftsman	Civil Construction Technician	Mechanical Construction Technician	Electric and Instrument Construction Technician	No level
LEVEL 2	Junior Draftsman	Civil Construction Junior Technician	Mechanical Construction Junior Technician	Electric and Instrument Junior Technician	No Level
LEVEL 1	No Level	No Level	No Level	No Level	No Level

Table 4.19: Group 351 Occupational Structure (13 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY		
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY		
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION		
AREA	Bio-mass Power Plant – Operation	Bio-mass Power Plant – Maintenance (Mechanical)	Bio-mass Power Plant – Maintenance (Electrical and Instrument)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Plant Manager**	Plant Manager**	Plant Manager**
LEVEL 6	Operation Engineer**	Mechanical Engineer**	Electrical Engineer**
LEVEL 5	Operation Executive***	Mechanical Technical Assistant**	Electrical and Instrument Technical Assistant**
LEVEL 4	Panel Controller***	Mechanical Supervisor***	Electrical and Instrument Supervisor***
LEVEL 3	Plant Operator***	Mechanical Technician*	Electrical and Instrument Technician*
LEVEL 2	Junior Plant Operator	Junior Mechanical Technician	Junior Electrical and Instrument Technician
LEVEL 1	No Level	No Level	No Level

Note: \*Critical job titles

\*\*Jobs relevant to IR4.0

\*\*\*Critical job titles and jobs relevant to IR4.0

Table 4.20: Group 351 Occupational Structure (14 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION	
AREA	Bio-mass Power Plant – Support Services (Health, Safety and Environment)	Bio-mass Power Plant – Support Services (Chemist)
LEVEL 8	Not Available	Not Available
LEVEL 7	Not Available	Plant Manager**
LEVEL 6	Not Available	Chemist
LEVEL 5	Safety Officer	Lab Analyst*
LEVEL 4	Safety Supervisor	Assistant Lab analyst*
LEVEL 3	No Level	Sampling Operator*
LEVEL 2	No Level	No Level
LEVEL 1	No Level	No Level

Note: \*Critical job titles

\*\*Jobs relevant to IR4.0

Table 4.21: Group 351 Occupational Structure (15 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION				
AREA	Bio-gas Power Plant – Project (Engineering)	Bio-gas Power Plant – Project (Civil Construction)	Bio-gas Power Plant – Project (Mechanical Construction)	Bio-gas Power Plant – Project (Electric and Instrument Construction)	Bio-gas Power Plant – Project (Health, Safety and Environment Construction)
LEVEL 8	Engineering Manager	Project Director	Project Director	Project Director	Project Director
LEVEL 7	Design Office Manager	Project Manager	Project Manager	Project Manager	Health, Safety and Environment Manager
LEVEL 6	Design Engineer	Civil Construction Engineer	Mechanical Construction Engineer	Electric and Instrument Construction Engineer	Health, Safety and Environment Engineer
LEVEL 5	Design Executive	Civil Construction Executive	Mechanical Construction Executive	Electric and Instrument Construction Executive	Safety Officer
LEVEL 4	Design Supervisor	Civil Construction Supervisor	Mechanical Construction Supervisor	Electric and Instrument Construction Supervisor	Safety Supervisor
LEVEL 3	Draftsman	Civil Construction Technician	Mechanical Construction Technician	Electric and Instrument Construction Technician	No Level
LEVEL 2	Junior Draftsman	Junior Civil Construction Technician	Junior Mechanical Construction Technician	Junior Electric and Instrument Technician	No Level
LEVEL 1	No Level	No Level	No Level	No Level	No Level

Table 4.22: Group 351 Occupational Structure (16 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY		
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY		
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION		
AREA	Bio-gas Power Plant – Operation	Bio-gas Power Plant – Maintenance (Mechanical)	Bio-gas Power Plant – Maintenance (Electrical and Instrument)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Plant Manager**	Plant Manager**	Plant Manager**
LEVEL 6	Operation Engineer**	Mechanical Engineer**	Electrical Engineer**
LEVEL 5	Operation Executive***	Mechanical Technical Assistant**	Electrical and Instrument Technical Assistant**
LEVEL 4	Panel Controller***	Mechanical Supervisor***	Electrical and Instrument Supervisor***
LEVEL 3	Plant Operator*	Mechanical Technician*	Electrical and Instrument Technician*
LEVEL 2	Junior Plant Operator	Junior Mechanical Technician	Junior Electrical and Instrument Technician
LEVEL 1	No Level	No Level	No Level

Note: \*Critical job titles

\*\*Jobs relevant to IR4.0

\*\*\* Critical job titles and jobs relevant to IR4.0

Table 4.23: Group 351 Occupational Structure (17 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION	
SUB AREA	Bio-gas Power Plant – Support Services (Health, Safety & Environment)	Bio-gas Power Plant – Support Services (Chemist)
LEVEL 8	Not Available	Not Available
LEVEL 7	Not Available	Plant Manager**
LEVEL 6	Not Available	Chemist
LEVEL 5	Safety Officer	Lab Analyst*
LEVEL 4	Safety Supervisor	Assistant Lab analyst*
LEVEL 3	No Level	Sampling Operator*
LEVEL 2	No Level	No Level
LEVEL 1	No Level	No Level

Note: \*Critical job titles

\*\*Jobs relevant to IR4.0



Table 4.24: Group 351 Occupational Structure (18 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION				
SUB AREA	Geo-thermal Power Plant – Project (Engineering)	Geo-thermal Power Plant – Project (Civil Construction)	Geo-thermal Power Plant– Project (Mechanical Construction)	Geo-thermal Power Plant– Project (Electric and Instrument Construction)	Geo-thermal Power Plant– Project (Health, Safety and Environment Construction)
LEVEL 8	Engineering Manager	Project Director	Project Director	Project Director	Project Director
LEVEL 7	Design Office Manager	Project Manager	Project Manager	Project Manager	Health, Safety and Environment Manager
LEVEL 6	Design Engineer	Civil Construction Engineer	Mechanical Construction Engineer	Electric and Instrument Construction Engineer	Health, Safety and Environment Engineer
LEVEL 5	Design Executive	Civil Construction Executive	Mechanical Construction Executive	Electric and Instrument Construction Executive	Safety Officer
LEVEL 4	Design Supervisor	Civil Construction Supervisor	Mechanical Construction Supervisor	Electric and Instrument Construction Supervisor	Safety Supervisor
LEVEL 3	Draftsman	Civil Construction Technician	Mechanical Construction Technician	Electric and Instrument Construction Technician	No Level
LEVEL 2	Junior Draftsman	Civil Construction Junior Technician	Junior Mechanical Construction Technician	Junior Electric and Instrument Technician	No Level
LEVEL 1	No Level	No Level	No Level	No Level	No Level

Table 4.25: Group 351 Occupational Structure (19 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY		
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY		
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION		
AREA	Geo-thermal Power Plant – Operation	Geo-thermal Power Plant – Maintenance (Mechanical)	Geo-thermal Power Plant – Maintenance (Electrical and Instrument)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Plant Manager**	Plant Manager**	Plant Manager**
LEVEL 6	Operation Engineer**	Mechanical Engineer**	Electrical Engineer**
LEVEL 5	Operation Executive**	Mechanical Technical Assistant**	Electrical and Instrument Technical Assistant**
LEVEL 4	Panel Controller**	Mechanical Supervisor	Electrical and Instrument Supervisor
LEVEL 3	Plant Operator**	Mechanical Technician	Electrical and Instrument Technician
LEVEL 2	Junior Plant Operator	Junior Mechanical Technician	Junior Electrical and Instrument Technician
LEVEL 1	No Level	No Level	No Level

Note: \*\*Jobs relevant to IR4.0

Table 4.26: Group 351 Occupational Structure (20 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION	
AREA	Geo-thermal Power Plant – Support Services (Health, Safety and Environment)	Geo-thermal Power Plant – Support Services (Chemist)
LEVEL 8	Not Available	Not Available
LEVEL 7	Not Available	Plant Manager**
LEVEL 6	Not Available	Chemist
LEVEL 5	Safety Officer	Lab Analyst
LEVEL 4	Safety Supervisor	Assistant Lab analyst
LEVEL 3	No Level	Sampling Operator
LEVEL 2	No Level	No Level
LEVEL 1	No Level	No Level

Note: \*\*Jobs relevant to IR4.0

Table 4.27: Group 351 Occupational Structure (21 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY		
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY		
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION		
AREA	Overhead Transmission – Project (Civil Construction)	Overhead Transmission – Project (Mechanical Construction)	Overhead Transmission – Project (Instrument and Control Construction)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Project Manager	Project Manager	Project Manager
LEVEL 6	Civil Construction Engineer	Mechanical Construction Engineer	Instrument and Control Construction Engineer
LEVEL 5	Civil Construction Executive*	Mechanical Construction Executive*	Instrument and Control Construction Executive*
LEVEL 4	Civil Construction Supervisor*	Mechanical Construction Supervisor*	Instrument and Control Construction Supervisor*
LEVEL 3	Civil Construction Technician*	Mechanical Construction Technician*	Instrument and Control Construction Technician*
LEVEL 2	Junior Civil Construction Technician	Junior Mechanical Construction Technician	Junior Instrument and Control Technician
LEVEL 1	No Level	No Level	No level

Note: \*Critical job titles

Table 4.28: Group 351 Occupational Structure (22 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY		
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY		
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION		
AREA	Overhead Transmission – Operation	Overhead Transmission – Maintenance (Civil and Mechanical)	Overhead Transmission – Maintenance (Instrument and Control)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Operation Manager	Maintenance Manager	Maintenance Manager
LEVEL 6	Operation Engineer	Civil and Mechanical Engineer	Instrument and Control Engineer
LEVEL 5	Shift Manager***	Civil and Mechanical Technical Assistant*	Instrument and Control Technical Assistant*
LEVEL 4	Panel Controller***	Civil and Mechanical Foreman*	Instrument and Control Supervisor*
LEVEL 3	Plant Operator***	Civil and Mechanical Technician*	Instrument and Control Technician*
LEVEL 2	Junior Plant Operator	Junior Civil and Mechanical Technician	Junior Instrument and Control Technician
LEVEL 1	No Level	No Level	No Level

Note: \*Critical job titles

\*\*\*Critical job titles and jobs relevant to IR4.0

Table 4.29: Group 351 Occupational Structure (23 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY		
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY		
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION		
AREA	Sub-marine Transmission – Project (Civil Construction)	Sub-marine Transmission – Project (Mechanical Construction)	Sub-marine Transmission – Project (Instrument and Control Construction)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Project Manager	Project Manager	Project Manager
LEVEL 6	Civil Construction Engineer	Mechanical Construction Engineer	Instrument and Control Construction Engineer
LEVEL 5	Civil Construction Executive	Mechanical Construction Executive	Instrument and Control Construction Executive
LEVEL 4	Civil Construction Supervisor	Mechanical Construction Supervisor	Instrument and Control Construction Supervisor
LEVEL 3	Civil Construction Technician	Mechanical Construction Technician	Instrument and Control Construction Technician
LEVEL 2	Junior Civil Construction Technician	Junior Mechanical Construction Technician	Junior Instrument and Control Technician
LEVEL 1	No Level	No Level	No level

Table 4.30: Group 351 Occupational Structure (24 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY		
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY		
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION		
AREA	Sub-marine Transmission – Operation	Sub-marine Transmission – Maintenance (Civil and Mechanical)	Sub-marine Transmission – Maintenance (Instrument and Control)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Operation Manager	Maintenance Manager	Maintenance Manager
LEVEL 6	Operation Engineer	Civil and Mechanical Engineer	Instrument and Control Engineer
LEVEL 5	Shift Manager**	Civil and Mechanical Technical Assistant	Instrument and Control Technical Assistant
LEVEL 4	Panel Controller**	Civil and Mechanical Foreman	Instrument and Control Supervisor
LEVEL 3	Plant Operator**	Civil and Mechanical Technician	Instrument and Control Technician
LEVEL 2	Junior Plant Operator	Junior Civil and Mechanical Technician	Junior Instrument and Control Technician
LEVEL 1	No Level	No level	No level

Note: \*\*Jobs relevant to IR4.0

Table 4.31: Group 351 Occupational Structure (25 of 31)

<b>SECTION</b>	<b>(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY</b>				
<b>DIVISION</b>	<b>(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY</b>				
<b>GROUP</b>	<b>(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION</b>				
<b>AREA</b>	<b>Distribution: Sub-station – Project (Engineering)</b>	<b>Distribution: Sub-station – Project (Civil Construction)</b>	<b>Distribution: Sub-station – Project (Mechanical Construction)</b>	<b>Distribution: Sub-station – Project (Electric and Instrument Construction)</b>	<b>Distribution: Sub-station – Project (Health, Safety and Environment Construction)</b>
<b>LEVEL 8</b>	Project Director	Project Director	Project Director	Project Director	Project Director
<b>LEVEL 7</b>	Engineering Manager	Project Manager	Project Manager	Project Manager	Health, Safety and Environment Manager
<b>LEVEL 6</b>	Design Engineer	Civil Construction Engineer	Mechanical Construction Engineer	Electric and Instrument Construction Engineer	Health, Safety and Environment Engineer
<b>LEVEL 5</b>	Design Executive	Civil Construction Executive	Mechanical Construction Executive	Electric and Instrument Construction Executive	Safety Officer
<b>LEVEL 4</b>	Design Supervisor	Civil Construction Supervisor	Mechanical Construction Supervisor	Electric and Instrument Construction Supervisor	Safety Supervisor
<b>LEVEL 3</b>	Draughtsman	Civil Construction Technician	Mechanical Construction Technician	Electric and Instrument Construction Technician	No Level
<b>LEVEL 2</b>	Junior Draughtsman	Junior Civil Construction Technician	Junior Mechanical Construction Technician	Junior Electric and Instrument Technician	No Level
<b>LEVEL 1</b>	No Level	No Level	No Level	No Level	No Level



Table 4.32: Group 351 Occupational Structure (26 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION				
AREA	Distribution: Sub-station – Operation	Distribution: Sub-station – Maintenance (Civil)	Distribution: Sub-station – Maintenance (Mechanical)	Distribution: Sub-station – Maintenance (Electrical)	Distribution: Sub-station – Maintenance (Instrument)
LEVEL 8	Station Manager	Station Manager	Station Manager	Station Manager	Station Manager
LEVEL 7	Operation Manager	Civil and Mechanical Maintenance Manager	Civil and Mechanical Maintenance Manager	Electrical and Instrument Maintenance Manager	Electrical and Instrument Maintenance Manager
LEVEL 6	Operation Engineer	Civil Engineer	Mechanical Engineer	Electrical Engineer	Instrument Engineer
LEVEL 5	Shift Manager***	Civil Technical Assistant	Mechanical Technical Assistant	Electrical Technical Assistant	Instrument Technical Assistant*
LEVEL 4	Panel Controller***	Senior Civil Technician	Mechanical Foreman	Electric Chargeman	Instrument Foreman*
LEVEL 3	No Level	Civil Technician	Mechanical Technician	Electrical Technician	Instrument Technician*
LEVEL 2	No Level	Junior Civil Technician	Junior Mechanical Technician	Junior Electrical Technician	Junior Instrument Technician
LEVEL 1	No Level	No Level	No Level	No Level	No Level

Note: \*Critical Job Titles

\*\*\*Critical job titles and jobs relevant to IR4.0

Table 4.33: Group 351 Occupational Structure (27 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION	
AREA	Distribution: Sub-station – Support Services (Health, Safety and Environment)	Distribution: Sub-station – Support Services (Billing)
LEVEL 8	Station Manager	Not Available
LEVEL 7	Health, Safety and Environment Manager	Not Available
LEVEL 6	Health, Safety and Environment Engineer	Not Available
LEVEL 5	Safety Officer	Not Available
LEVEL 4	Safety Supervisor	Not Available
LEVEL 3	No Level	Meter Reader
LEVEL 2	No Level	Junior Meter Reader
LEVEL 1	No Level	No Level

Table 4.34: Group 351 Occupational Structure (28 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION				
AREA	33kV/11kV Transmission – Project (Engineering)	33kV/11kV Transmission – Project (Civil Construction)	33kV/11kV Transmission – Project (Mechanical Construction)	33kV/11kV Transmission – Project (Electric and Instrument Construction)	33kV/11kV Transmission – Project (Health, Safety and Environment Construction)
LEVEL 8	Engineering Manager	Project Director	Project Director	Project Director	Project Director
LEVEL 7	Design Office Manager	Project Manager	Project Manager	Project Manager	Health, Safety and Environment Manager
LEVEL 6	Design Engineer	Civil Construction Engineer	Mechanical Construction Engineer	Electric and Instrument Construction Engineer	Health, Safety and Environment Engineer
LEVEL 5	Design Executive	Civil Construction Executive	Mechanical Construction Executive	Electric and Instrument Construction Executive	Safety Officer
LEVEL 4	Design Supervisor	Civil Construction Supervisor	Mechanical Construction Supervisor	Electric and Instrument Construction Supervisor	Safety Supervisor
LEVEL 3	Draughtsman	Civil Construction Technician	Mechanical Construction Technician	Electric and Instrument Construction Technician	No Level
LEVEL 2	Junior Draughtsman	Junior Civil Construction Technician	Junior Mechanical Construction Technician	Junior Electric and Instrument Construction Technician	No Level
LEVEL 1	No Level	No Level	No Level	No Level	No Level

Table 4.35: Group 351 Occupational Structure (29 of 31)

<b>SECTION</b>	<b>(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY</b>	
<b>DIVISION</b>	<b>(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY</b>	
<b>GROUP</b>	<b>(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION</b>	
<b>AREA</b>	<b>33kV/11kV Transmission – Maintenance (Electrical)</b>	<b>33kV/11kV Transmission – Support Services (Health, Safety and Environment)</b>
<b>LEVEL 8</b>	Not Available	Not Available
<b>LEVEL 7</b>	Electrical and Instrument Maintenance Manager	Health, Safety and Environment Manager
<b>LEVEL 6</b>	Electrical and Instrument Maintenance Engineer	Health, Safety and Environment Engineer
<b>LEVEL 5</b>	Electrical and Instrument Technical Assistant	Safety Officer
<b>LEVEL 4</b>	Electrical Wireman*	Safety Supervisor
<b>LEVEL 3</b>	Electrical Technician*	No Level
<b>LEVEL 2</b>	Junior Electrical Technician	No Level
<b>LEVEL 1</b>	No Level	No Level

Note: \*Critical job titles

Table 4.36: Group 351 Occupational Structure (30 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION				
AREA	415V/240V Transmission – Project (Engineering)	415V/240V Transmission – Project (Civil Construction)	415V/240V Transmission – Project (Mechanical Construction)	415V/240V Transmission – Project (Electric & Instrument Construction)	415V/240V Transmission – Project (Health, Safety and Environment Construction)
LEVEL 8	Engineering Manager	Project Director	Project Director	Project Director	Project Director
LEVEL 7	Design Office Manager	Project Manager	Project Manager	Project Manager	Health, Safety and Environment Manager
LEVEL 6	Design Engineer	Civil Construction Engineer	Mechanical Construction Engineer	Electric and Instrument Construction Engineer	Health, Safety and Environment Engineer
LEVEL 5	Design Executive	Civil Construction Executive	Mechanical Construction Executive	Electric and Instrument Construction Executive	Safety Officer
LEVEL 4	Design Supervisor	Civil Construction Supervisor	Mechanical Construction Supervisor	Electric and Instrument Construction Supervisor	Safety Supervisor
LEVEL 3	Draughtsman	Civil Construction Technician	Mechanical Construction Technician	Electric and Instrument Construction Technician	No Level
LEVEL 2	Junior Draughtsman	Junior Civil Construction Technician	Junior Mechanical Construction Technician	Junior Electric and Instrument Construction Technician	No Level
LEVEL 1	No Level	No Level	No Level	No Level	No Level

Table 4.37: Group 351 Occupational Structure (31 of 31)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY		
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY		
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION		
AREA	415V/240V Transmission – Maintenance (Electrical)	415V/240V Transmission – Support Services (Health, Safety and Environment)	415V/240V Transmission – Support Services (Billing)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Electrical and Instrument Maintenance Manager	Health, Safety and Environment Manager	Not Available
LEVEL 6	Electrical and Instrument Maintenance Engineer	Health, Safety and Environment Engineer	Not Available
LEVEL 5	Electrical and Instrument Technical Assistant	Safety Officer	Not Available
LEVEL 4	Electrical Wireman*	Safety Supervisor	Not Available
LEVEL 3	Electrical Technician*	No Level	Meter Reader
LEVEL 2	Junior Electrical Technician	No Level	Junior Meter Reader
LEVEL 1	No Level	No Level	No Level

Note: \*Critical job titles

Table 4.38: Group 352 Occupational Structure (1 of 5)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY			
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY			
GROUP	(352) MANUFACTURE OF GAS; DISTRIBUTION OF GASEOUS FUELS THROUGH MAINS			
AREA	Operation – Process (Field Operator)	Operation – Process (Panel Operator)	Operation – Utilities	Operation - Laboratory
LEVEL 8	Plant Manager	Plant Manager	Plant Manager	Not Available
LEVEL 7	Process Shift Manager	Process Shift Manager	Utilities Shift Manager	Not Available
LEVEL 6	Process Shift Supervisor	Process Shift Supervisor	Utilities Shift Supervisor	Chemist
LEVEL 5	Senior Process Field Operator***	Senior Process Panel Operator**	Senior Utilities Field Operator**	Senior Laboratory Technician
LEVEL 4	Process Field Operator***	Process Panel Operator**	Utilities Field Operator**	Laboratory Technician
LEVEL 3	No Level	No Level	No Level	No Level
LEVEL 2	No Level	No Level	No Level	No Level
LEVEL 1	No Level	No Level	No Level	No Level

Note: \*\*Jobs relevant to IR4.0

\*\*\*Critical job titles and jobs relevant to IR4.0

Table 4.39: Group 352 Occupational Structure (2 of 5)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY					
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY					
GROUP	(352) MANUFACTURE OF GAS; DISTRIBUTION OF GASEOUS FUELS THROUGH MAINS					
AREA	Maintenance – Electrical	Maintenance – Mechanical (Static)	Maintenance – Mechanical (Rotating)	Maintenance – Mechanical (Turbine)	Maintenance – Instrument	Manufacture of gaseous fuels with a specified calorific value, by purification, blending and other processes from gases of various types including natural gas - Support – Safety
LEVEL 8	Plant Manager	Plant Manager	Plant Manager	Plant Manager	Plant Manager	Not Available
LEVEL 7	Maintenance Manager	Maintenance Manager	Maintenance Manager	Maintenance Manager	Maintenance Manager	Safety Manager
LEVEL 6	Electrical Maintenance Engineer	Mechanical Static Maintenance Engineer	Mechanical Rotating Engineer	Mechanical Turbine Engineer	Instrument Maintenance Engineer	Safety Executive
LEVEL 5	Senior Electrical Maintenance Technician*	Senior Mechanical Static Maintenance Technician*	Senior Mechanical Rotating Maintenance Technician*	Senior Mechanical Turbine Maintenance Technician*	Senior Instrument Maintenance Technician*	Safety Officer
LEVEL 4	Electrical Maintenance Technician*	Mechanical Static Maintenance Technician*	Mechanical Rotating Maintenance Technician*	Mechanical Turbine Maintenance Technician*	Instrument Maintenance Technician*	No Level
LEVEL 3	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 2	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 1	No Level	No Level	No Level	No level	No Level	No Level

Note: \*Critical job titles



Table 4.40: Group 352 Occupational Structure (3 of 5)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY			
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY			
GROUP	(352) MANUFACTURE OF GAS; DISTRIBUTION OF GASEOUS FUELS THROUGH MAINS			
AREA	Planning	Engineering	Construction	Operation and Maintenance
LEVEL 8	Project General Manager	Project General Manager	Project General Manager	Operation and Maintenance General Manager
LEVEL 7	Planning Manager	Engineering Manager	Project Manager	Operation and Maintenance Manager
LEVEL 6	Planning Engineer	Design Engineer	Project Engineer	Operation and Maintenance Engineer
LEVEL 5	Planning Engineering Assistant	Design Engineering Assistant	Construction Engineering Assistant*	Operation and Maintenance Engineering Assistant
LEVEL 4	Senior Planning Draughtsman	Senior Engineering Draughtsman	Construction Supervisor*	Operation and Maintenance Supervisor
LEVEL 3	Planning Draughtsman	Engineering Draughtsman	Construction Technician	Operation and Maintenance Technician*
LEVEL 2	No Level	No Level	Junior Construction Technician	Junior Operation and Maintenance Technician*
LEVEL 1	No Level	No Level	No Level	No Level

Note: \*Critical job titles

Table 4.41: Group 352 Occupational Structure (4 of 5)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY		
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY		
GROUP	(352) MANUFACTURE OF GAS; DISTRIBUTION OF GASEOUS FUELS THROUGH MAINS		
AREA	Gas System Management – Operation Control	Gas System Management – Operation Services	Transportation, distribution and supply of gaseous fuels of all kinds through a system of mains - Support – Safety
LEVEL 8	Gas System Management General Manager	Gas System Management General Manager	Not Available
LEVEL 7	Operation Control Manager	Operation Services Manager	Safety Manager
LEVEL 6	Operation Control Engineer	Operation Services Engineer	Safety Executive
LEVEL 5	Operation Control Engineering Assistant**	Operation Services Engineering Assistant**	Safety Officer
LEVEL 4	Operation Control Supervisor**	Operation Services Supervisor**	No Level
LEVEL 3	Operation Control Technician	Operation Services Technician*	No Level
LEVEL 2	Junior Operation Control Technician	Junior Operation Service Technician*	No Level
LEVEL 1	No Level	No Level	No Level

Note: \*Critical job titles

\*\*Jobs relevant to IR4.0

Table 4.42: Group 352 Occupational Structure (5 of 5)

<b>SECTION</b>	<b>(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY</b>	
<b>DIVISION</b>	<b>(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY</b>	
<b>GROUP</b>	<b>(352) MANUFACTURE OF GAS; DISTRIBUTION OF GASEOUS FUELS THROUGH MAINS</b>	
<b>AREA</b>	<b>Sales</b>	<b>Technical Support</b>
<b>LEVEL 8</b>	General Manager	General Manager
<b>LEVEL 7</b>	Sales Manager	Technical Support Manager
<b>LEVEL 6</b>	Sales Executive	Technical Support Engineer
<b>LEVEL 5</b>	No Level	Technical Support Engineering Assistant*
<b>LEVEL 4</b>	No Level	Senior Technical Support Technician*
<b>LEVEL 3</b>	No Level	Technical Support Technician*
<b>LEVEL 2</b>	No Level	No Level
<b>LEVEL 1</b>	No Level	No Level

Note: \*Critical job titles

Table 4.43: Group 353 Occupational Structure (1 of 7)

<b>SECTION</b>	<b>(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY</b>	
<b>DIVISION</b>	<b>(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY</b>	
<b>GROUP</b>	<b>(353) STEAM AND AIR CONDITIONING SUPPLY</b>	
<b>AREA</b>	<b>Production, collection and distribution of steam and hot water for heating, power and other purposes - Sales and Marketing – Technical Support and Sales (Project)</b>	<b>Production, collection and distribution of steam and hot water for heating, power and other purposes - Sales and Marketing – Technical Support and Sales (Product Maintenance)</b>
<b>LEVEL 8</b>	Not Available	Not Available
<b>LEVEL 7</b>	Technical Support and Sales Manager	Technical Support and Sales Manager
<b>LEVEL 6</b>	Project Engineer	Product Maintenance Engineer
<b>LEVEL 5</b>	Project Technical Assistant	Product Maintenance Technical Assistant
<b>LEVEL 4</b>	Project Supervisor	Product Maintenance Supervisor
<b>LEVEL 3</b>	Project Technician	Product Maintenance Technician
<b>LEVEL 2</b>	No Level	No Level
<b>LEVEL 1</b>	No Level	No Level

Table 4.44: Group 353 Occupational Structure (2 of 7)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	
GROUP	(353) STEAM AND AIR CONDITIONING SUPPLY	
AREA	Production, collection and distribution of steam and hot water for heating, power and other purposes - Research and Development – Electrical	Production, collection and distribution of steam and hot water for heating, power and other purposes - Research and Development – Mechanical
LEVEL 8	Not Available	Not Available
LEVEL 7	Research and Development Manager	Research and Development Manager
LEVEL 6	Research and Development Electrical Engineer	Research and Development Mechanical Engineer
LEVEL 5	Electrical Technical Assistant*	Mechanical Technical Assistant*
LEVEL 4	Senior Electrical Technician*	Senior Mechanical Technician*
LEVEL 3	Electrical Technician*	Mechanical Technician*
LEVEL 2	No Level	No Level
LEVEL 1	No Level	No Level

Note: \*Critical job titles

Table 4.45: Group 353 Occupational Structure (3 of 7)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY					
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY					
GROUP	(353) STEAM AND AIR CONDITIONING SUPPLY					
AREA	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Hot Water (Operation)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Hot Water (Maintenance)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Gas/Biogas/Biomass (Operation)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Gas/Biogas/Biomass (Maintenance)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Health, Safety, Environment and Quality (Chemist)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Health, Safety, Environment and Quality (Safety)
LEVEL 8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 7	Production Manager	Production Manager	Production Manager	Production Manager	Not Available	Not Available
LEVEL 6	Operation Engineer	Maintenance Engineer	Operation Engineer	Maintenance Engineer	Chemist	Safety Officer
LEVEL 5	Operation Technical Assistant**	Maintenance Technical Assistant*	Operation Technical Assistant**	Maintenance Technical Assistant*	Senior Lab Technician	Not Available
LEVEL 4	Senior Operation Technician**	Maintenance Supervisor*	Senior Operation Technician**	Maintenance Supervisor*	Lab Technician	Safety Supervisor
LEVEL 3	Operation Technician	Maintenance Technician*	Operation Technician	Maintenance Technician*	No level	No level
LEVEL 2	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 1	No Level	No Level	No Level	No Level	No Level	No Level

Note: \*Critical job titles

\*\*Jobs relevant to IR4.0

Table 4.46: Group 353 Occupational Structure (4 of 7)

<b>SECTION</b>	<b>(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY</b>	
<b>DIVISION</b>	<b>(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY</b>	
<b>GROUP</b>	<b>(353) STEAM AND AIR CONDITIONING SUPPLY</b>	
<b>AREA</b>	<b>Production and distribution of cooled air, chilled water for cooling purposes - Sales and Marketing – Technical Support and Sales (Project)</b>	<b>Production and distribution of cooled air, chilled water for cooling purposes - Sales and Marketing – Technical Support and Sales (Product Maintenance)</b>
<b>LEVEL 8</b>	Not Available	Not Available
<b>LEVEL 7</b>	Technical Support and Sales Manager	Technical Support and Sales Manager
<b>LEVEL 6</b>	Project Engineer	Product Maintenance Engineer
<b>LEVEL 5</b>	Project Technical Assistant	Product Maintenance Technical Assistant
<b>LEVEL 4</b>	Project Supervisor	Product Maintenance Supervisor
<b>LEVEL 3</b>	Project Technician	Product Maintenance Technician
<b>LEVEL 2</b>	No level	No level
<b>LEVEL 1</b>	No Level	No Level

Table 4.47: Group 353 Occupational Structure (5 of 7)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	
GROUP	(353) STEAM AND AIR CONDITIONING SUPPLY	
AREA	Production and distribution of cooled air, chilled water for cooling purposes - Research and Development – Electrical	Production and distribution of cooled air, chilled water for cooling purposes - Research and Development – Mechanical
LEVEL 8	Not Available	Not Available
LEVEL 7	Research and Development Manager	Research and Development Manager
LEVEL 6	Research and Development Electrical Engineer	Research and Development Mechanical Engineer
LEVEL 5	Electrical Technical Assistant*	Mechanical Technical Assistant*
LEVEL 4	Senior Electrical Technician	Senior Mechanical Technician
LEVEL 3	Electrical Technician	Mechanical Technician
LEVEL 2	No Level	No Level
LEVEL 1	No Level	No Level

Note: \*Critical job titles



Table 4.48: Group 353 Occupational Structure (6 of 7)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY					
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY					
GROUP	(353) STEAM AND AIR CONDITIONING SUPPLY					
AREA	Production and distribution of cooled air, chilled water for cooling purposes - Production – Hot Water (Operation)	Production and distribution of cooled air, chilled water for cooling purposes - Production – Hot Water (Maintenance)	Production and distribution of cooled air, chilled water for cooling purposes - Production – Gas/Biogas/Biomass (Operation)	Production and distribution of cooled air, chilled water for cooling purposes - Production – Gas/Biogas/Biomass (Maintenance)	Production and distribution of cooled air, chilled water for cooling purposes - Production – Health, Safety, Environment and Quality (Chemist)	Production and distribution of cooled air, chilled water for cooling purposes - Production – Health, Safety, Environment and Quality (Safety)
LEVEL 8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 7	Production Manager	Production Manager	Production Manager	Production Manager	Not Available	Not Available
LEVEL 6	Operation Engineer	Maintenance Engineer	Operation Engineer	Maintenance Engineer	Chemist	Safety Officer
LEVEL 5	Operation Technical Assistant**	Maintenance Technical Assistant	Operation Technical Assistant***	Maintenance Technical Assistant*	Senior Lab Technician	Not Available
LEVEL 4	Senior Operation Technician**	Maintenance Supervisor	Senior Operation Technician***	Maintenance Supervisor*	Lab Technician	Safety Supervisor
LEVEL 3	Operation Technician	Maintenance Technician	Operation Technician*	Maintenance Technician*	No Level	No Level
LEVEL 2	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 1	No Level	No Level	No Level	No Level	No Level	No Level

Note: \*Critical job titles

\*\*Jobs relevant to IR4.0

\*\*\*Critical job titles and jobs relevant to IR4.0

Table 4.49: Group 353 Occupational Structure (7 of 7)

<b>SECTION</b>	<b>(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY</b>			
<b>DIVISION</b>	<b>(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY</b>			
<b>GROUP</b>	<b>(353) STEAM AND AIR CONDITIONING SUPPLY</b>			
<b>AREA</b>	<b>Cold Room – Production</b>	<b>Cold Room – Maintenance</b>	<b>Cold Room – Health, Safety, Environment and Quality (Chemist)</b>	<b>Cold Room – Health, Safety, Environment and Quality (Safety)</b>
<b>LEVEL 8</b>	Not Available	Not Available	Not Available	Not Available
<b>LEVEL 7</b>	Production Manager	Production Manager	Not Available	Not Available
<b>LEVEL 6</b>	Production Engineer	Maintenance Engineer	Chemist	Safety Officer
<b>LEVEL 5</b>	Production Technical Assistant	Maintenance Technical Assistant*	Senior Lab Technician	Not Available
<b>LEVEL 4</b>	Senior Production Supervisor	Senior Maintenance Technician*	Lab Technician	Safety Supervisor
<b>LEVEL 3</b>	Production Supervisor	Maintenance Technician*	No Level	No Level
<b>LEVEL 2</b>	Production Operator	No Level	No Level	No Level
<b>LEVEL 1</b>	No Level	No Level	No Level	No Level

Note: \*Critical job titles

Table 4.50: Summary of Job Titles

NO	AREA	LEVEL								Total Identified Job Titles	Total Critical Job Titles	Total IR4.0 Job Titles
		1	2	3	4	5	6	7	8			
(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION												
1.	Coal-fired Power Plant – Project (Engineering)	NL	1	1	1	1	1	1	1	7	0	0
2.	Coal-fired Power Plant – Project (Civil Construction)	NL	1	1	1	1	1	1	1	7	0	0
3.	Coal-fired Power Plant – Project (Mechanical Construction)	NL	1	1	1	1	1	1	1	7	0	0
4.	Coal-fired Power Plant – Project (Electric and Instrument Construction)	NL	1	1	1	1	1	1	1	7	0	0
5.	Coal-fired Power Plant – Project (Health, Safety and Environment Construction)	NL	NL	NL	1	1	1	1	1	5	0	0
6.	Coal-Fired Power Plant – Operation	NL	1	1	1	1	1	1	1	7	3	6
7.	Coal-Fired Power Plant – Maintenance (Boiler)	NL	1	1	1	1	1	1	1	7	2	4
8.	Coal-Fired Power Plant – Maintenance (Turbine)	NL	1	1	1	1	1	1	1	7	2	4
9.	Coal-Fired Power Plant – Maintenance (Electrical)	NL	1	1	1	1	1	1	1	7	2	4
10.	Coal-Fired Power Plant – Maintenance (Instrument)	NL	NL	1	1	1	1	1	1	6	3	4
11.	Coal-fired Power Plant – Support Services (Health, Safety and Environment)	NL	NL	NL	1	1	1	1	1	5	0	1
12.	Coal-fired Power Plant – Support Services (Chemist)	NL	NL	1	1	1	1	1	1	6	3	1
13.	Combined-cycle Power Plant – Project (Engineering)	NL	1	1	1	1	1	1	1	7	0	0
14.	Combined-cycle Power Plant – Project (Civil Construction)	NL	1	1	1	1	1	1	1	7	0	0
15.	Combined-cycle Power Plant – Project (Mechanical Construction)	NL	1	1	1	1	1	1	1	7	0	0

NO	AREA	LEVEL								Total Identified Job Titles	Total Critical Job Titles	Total IR4.0 Job Titles
		1	2	3	4	5	6	7	8			
16.	Combined-cycle Power Plant – Project (Electric and Instrument Construction)	NL	1	1	1	1	1	1	1	7	0	0
17.	Combined-cycle Power Plant – Project (Health, Safety and Environment Construction)	NL	NL	NL	1	1	1	1	1	5	0	0
18.	Combined-cycle Power Plant – Operation	NL	1	1	1	1	1	1	1	7	3	6
19.	Combined-cycle Power Plant – Maintenance (Boiler)	NL	1	1	1	1	1	1	1	7	2	4
20.	Combined-cycle Power Plant – Maintenance (Turbine)	NL	1	1	1	1	1	1	1	7	2	4
21.	Combined-cycle Power Plant – Maintenance (Electrical)	NL	1	1	1	1	1	1	1	7	2	4
22.	Combined-cycle Power Plant – Maintenance (Instrument)	NL	NL	1	1	1	1	1	1	6	3	4
23.	Combined-cycle Power Plant – Support Services (Health, Safety and Environment)	NL	NL	NL	1	1	1	1	1	5	0	1
24.	Combined-cycle Power – Support Services (Chemist)	NL	NL	1	1	1	1	1	1	6	3	1
25.	Hydro-electric Power Plant – Project (Engineering)	NL	1	1	1	1	1	1	1	7	0	0
26.	Hydro-electric Power Plant – Project (Civil Construction)	NL	1	1	1	1	1	1	1	7	0	0
27.	Hydro-electric Power Plant – Project (Mechanical Construction)	NL	1	1	1	1	1	1	1	7	0	0
28.	Hydro-electric Power Plant – Project (Electric and Instrument Construction)	NL	1	1	1	1	1	1	1	7	0	0
29.	Hydro-electric Power Plant – Project (Health, Safety and Environment Construction)	NL	NL	NL	1	1	1	1	1	5	0	0
30.	Hydro-electric Power Plant – Operation	NL	1	1	1	1	1	1	1	7	3	6

NO	AREA	LEVEL								Total Identified Job Titles	Total Critical Job Titles	Total IR4.0 Job Titles
		1	2	3	4	5	6	7	8			
31.	Hydro-electric Power Plant – Maintenance (Turbine)	NL	1	1	1	1	1	1	1	7	2	4
32.	Hydro-electric Power Plant – Maintenance (Electrical)	NL	1	1	1	1	1	1	1	7	2	4
33.	Hydro-electric Power Plant – Maintenance (Instrument)	NL	NL	1	1	1	1	1	1	6	3	4
34.	Hydro-electric Power Plant – Support Services (Health, Safety and Environment)	NL	NL	NL	1	1	1	1	1	5	0	1
35.	Hydro-electric Power Plant – Support Services (Chemist)	NL	NL	1	1	1	1	1	1	6	3	1
36.	Solar Power Plant – Project (Engineering)	NL	1	1	1	1	1	1	1	7	2	0
37.	Solar Power Plant – Project (Mechanical Construction)	NL	1	1	1	1	1	1	1	7	0	0
38.	Solar Power Plant – Project (Electric and Instrument Construction)	NL	1	1	1	1	1	1	1	7	0	0
39.	Solar Power Plant – Project (Health, Safety and Environment Construction)	NL	NL	NL	1	1	1	1	1	5	0	0
40.	Solar Power Plant – Operation	NL	1	1	1	1	1	1	NA	6	3	5
41.	Solar Power Plant – Maintenance (Mechanical)	NL	1	1	1	1	1	1	NA	6	0	3
42.	Solar Power Plant – Maintenance (Electrical and Instrument Maintenance)	NL	1	1	1	1	1	1	NA	6	0	3
43.	Solar Power Plant – Support Services (Health Safety and Environment)	NL	NL	NL	1	1	NA	NA	NA	2	0	0
44.	Bio-mass Power Plant – Project (Engineering)	NL	1	1	1	1	1	1	1	7	0	0
45.	Bio-mass Power Plant – Project (Civil Construction)	NL	1	1	1	1	1	1	1	7	0	0
46.	Bio-mass Power Plant – Project (Mechanical Construction)	NL	1	1	1	1	1	1	1	7	0	0

NO	AREA	LEVEL								Total Identified Job Titles	Total Critical Job Titles	Total IR4.0 Job Titles
		1	2	3	4	5	6	7	8			
47.	Bio-mass Power Plant – Project (Electric and Instrument Construction)	NL	1	1	1	1	1	1	1	7	0	0
48.	Bio-mass Power Plant – Project (Health, Safety and Environment Construction)	NL	NL	NL	1	1	1	1	1	5	0	0
49.	Bio-mass Power Plant – Operation	NL	1	1	1	1	1	1	NA	6	3	5
50.	Bio-mass Power Plant – Maintenance (Mechanical)	NL	1	1	1	1	1	1	NA	6	2	4
51.	Bio-mass Power Plant – Maintenance (Electrical and Instrument)	NL	1	1	1	1	1	1	NA	6	2	4
52.	Bio-mass Power Plant – Support Services (Health, Safety and Environment)	NL	NL	NL	1	1	NA	NA	NA	2	0	0
53.	Bio-mass Power Plant – Support Services (Chemist)	NL	NL	1	1	1	1	1	NA	5	3	1
54.	Bio-gas Power Plant – Project (Engineering)	NL	1	1	1	1	1	1	1	7	0	0
55.	Bio-gas Power Plant – Project (Civil Construction)	NL	1	1	1	1	1	1	1	7	0	0
56.	Bio-gas Power Plant – Project (Mechanical Construction)	NL	1	1	1	1	1	1	1	7	0	0
57.	Bio-gas Power Plant – Project (Electric and Instrument Construction)	NL	1	1	1	1	1	1	1	7	0	0
58.	Bio-gas Power Plant – Project (Health, Safety and Environment Construction)	NL	NL	NL	1	1	1	1	1	5	0	0
59.	Bio-gas Power Plant – Operation	NL	1	1	1	1	1	1	NA	6	3	5
60.	Bio-gas Power Plant – Maintenance (Mechanical)	NL	1	1	1	1	1	1	NA	6	2	4
61.	Bio-gas Power Plant – Maintenance (Electrical and Instrument)	NL	1	1	1	1	1	1	NA	6	2	4
62.	Bio-gas Power Plant – Support Services (Health, Safety & Environment)	NL	NL	NL	1	1	NA	NA	NA	2	0	0
63.	Bio-gas Power Plant – Support Services (Chemist)	NL	NL	1	1	1	1	1	NA	5	3	1
64.	Geo-thermal Power Plant – Project (Engineering)	NL	1	1	1	1	1	1	1	7	0	0

NO	AREA	LEVEL								Total Identified Job Titles	Total Critical Job Titles	Total IR4.0 Job Titles
		1	2	3	4	5	6	7	8			
65.	Geo-thermal Power Plant – Project (Civil Construction)	NL	1	1	1	1	1	1	1	7	0	0
66.	Geo-thermal Power Plant– Project (Mechanical Construction)	NL	1	1	1	1	1	1	1	7	0	0
67.	Geo-thermal Power Plant– Project (Electric and Instrument Construction)	NL	1	1	1	1	1	1	1	7	0	0
68.	Geo-thermal Power Plant– Project (Health, Safety and Environment Construction)	NL	NL	NL	1	1	1	1	1	5	0	0
69.	Geo-thermal Power Plant – Operation	NL	1	1	1	1	1	1	NA	6	0	5
70.	Geo-thermal Power Plant – Maintenance (Mechanical)	NL	1	1	1	1	1	1	NA	6	0	3
71.	Geo-thermal Power Plant – Maintenance (Electrical and Instrument)	NL	1	1	1	1	1	1	NA	6	0	3
72.	Geo-thermal Power Plant – Support Services (Health, Safety and Environment)	NL	NL	NL	1	1	NA	NA	NA	2	0	0
73.	Geo-thermal Power Plant – Support Services (Chemist)	NL	NL	1	1	1	1	1	NA	5	0	1
74.	Overhead Transmission – Project (Civil Construction)	NL	1	1	1	1	1	1	NA	6	3	0
75.	Overhead Transmission – Project (Mechanical Construction)	NL	1	1	1	1	1	1	NA	6	3	0
76.	Overhead Transmission – Project (Instrument and Control Construction)	NL	1	1	1	1	1	1	NA	6	3	0
77.	Overhead Transmission – Operation	NL	1	1	1	1	1	1	NA	6	3	3
78.	Overhead Transmission – Maintenance (Civil and Mechanical)	NL	1	1	1	1	1	1	NA	6	3	0
79.	Overhead Transmission – Maintenance (Instrument and Control)	NL	1	1	1	1	1	1	NA	6	3	0

NO	AREA	LEVEL								Total Identified Job Titles	Total Critical Job Titles	Total IR4.0 Job Titles
		1	2	3	4	5	6	7	8			
80.	Sub-marine Transmission – Project (Civil Construction)	NL	1	1	1	1	1	1	NA	6	0	0
81.	Sub-marine Transmission – Project (Mechanical Construction)	NL	1	1	1	1	1	1	NA	6	0	0
82.	Sub-marine Transmission – Project (Instrument and Control Construction)	NL	1	1	1	1	1	1	NA	6	0	0
83.	Sub-marine Transmission – Operation	NL	1	1	1	1	1	1	NA	6	0	3
84.	Sub-marine Transmission – Maintenance (Civil and Mechanical)	NL	1	1	1	1	1	1	NA	6	0	0
85.	Sub-marine Transmission – Maintenance (Instrument and Control)	NL	1	1	1	1	1	1	NA	6	0	0
86.	Distribution: Sub-station – Project (Engineering)	NL	1	1	1	1	1	1	1	7	0	0
87.	Distribution: Sub-station – Project (Civil Construction)	NL	1	1	1	1	1	1	1	7	0	0
88.	Distribution: Sub-station – Project (Mechanical Construction)	NL	1	1	1	1	1	1	1	7	0	0
89.	Distribution: Sub-station – Project (Electric and Instrument Construction)	NL	1	1	1	1	1	1	1	7	0	0
90.	Distribution: Sub-station – Project (Health, Safety and Environment Construction)	NL	NL	NL	1	1	1	1	1	5	0	0
91.	Distribution: Sub-station – Operation	NL	NL	NL	1	1	1	1	1	5	2	2
92.	Distribution: Sub-station – Maintenance (Civil)	NL	1	1	1	1	1	1	1	7	0	0
93.	Distribution: Sub-station – Maintenance (Mechanical)	NL	1	1	1	1	1	1	1	7	0	0
94.	Distribution: Sub-station – Maintenance (Electrical)	NL	1	1	1	1	1	1	1	7	0	0
95.	Distribution: Sub-station – Maintenance (Instrument)	NL	1	1	1	1	1	1	1	7	3	0



NO	AREA	LEVEL								Total Identified Job Titles	Total Critical Job Titles	Total IR4.0 Job Titles
		1	2	3	4	5	6	7	8			
96.	Distribution: Sub-station – Support Services (Health, Safety and Environment)	NL	NL	NL	1	1	1	1	1	5	0	0
97.	Distribution: Sub-station – Support Services (Billing)	NL	1	1	NA	NA	NA	NA	NA	2	0	0
98.	33kV/11kV Transmission – Project (Engineering)	NL	1	1	1	1	1	1	1	7	0	0
99.	33kV/11kV Transmission – Project (Civil Construction)	NL	1	1	1	1	1	1	1	7	0	0
100.	33kV/11kV Transmission – Project (Mechanical Construction)	NL	1	1	1	1	1	1	1	7	0	0
101.	33kV/11kV Transmission – Project (Electric and Instrument Construction)	NL	1	1	1	1	1	1	1	7	0	0
102.	33kV/11kV Transmission – Project (Health, Safety and Environment Construction)	NL	NL	NL	1	1	1	1	1	5	0	0
103.	33kV/11kV Transmission – Maintenance (Electrical)	NL	1	1	1	1	1	1	NA	6	2	0
104.	33kV/11kV Transmission – Support Services (Health, Safety and Environment)	NL	NL	NL	1	1	1	1	NA	4	0	0
105.	415V/240V Transmission – Project (Engineering)	NL	1	1	1	1	1	1	1	7	0	0
106.	415V/240V Transmission – Project (Civil Construction)	NL	1	1	1	1	1	1	1	7	0	0
107.	415V/240V Transmission – Project (Mechanical Construction)	NL	1	1	1	1	1	1	1	7	0	0
108.	415V/240V Transmission – Project (Electric and Instrument Construction)	NL	1	1	1	1	1	1	1	7	0	0
109.	415V/240V Transmission – Project (Health, Safety and Environment Construction)	NL	NL	NL	1	1	1	1	1	5	0	0
110.	415V/240V Transmission – Maintenance (Electrical)	NL	1	1	1	1	1	1	NA	6	2	0

NO	AREA	LEVEL								Total Identified Job Titles	Total Critical Job Titles	Total IR4.0 Job Titles
		1	2	3	4	5	6	7	8			
111.	415V/240V Transmission – Support Services (Health, Safety and Environment)	NL	NL	NL	1	1	1	1	NA	4	0	0
112.	415V/240V Transmission – Support Services (Billing)	NL	1	1	NA	NA	NA	NA	NA	2	0	0
<b>(352) Manufacture of gas; distribution of gaseous fuels through mains</b>												
113.	Operation – Process (Field Operator)	NL	NL	NL	1	1	1	1	1	5	2	2
114.	Operation – Process (Panel Operator)	NL	NL	NL	1	1	1	1	1	5	0	2
115.	Operation – Utilities	NL	NL	NL	1	1	1	1	1	5	0	2
116.	Operation - Laboratory	NL	NL	NL	1	1	1	NA	NA	3	0	0
117.	Maintenance – Electrical	NL	NL	NL	1	1	1	1	1	5	2	0
118.	Maintenance – Mechanical (Static)	NL	NL	NL	1	1	1	1	1	5	2	0
119.	Maintenance – Mechanical (Rotating)	NL	NL	NL	1	1	1	1	1	5	2	0
120.	Maintenance – Mechanical (Turbine)	NL	NL	NL	1	1	1	1	1	5	2	0
121.	Maintenance – Instrument	NL	NL	NL	1	1	1	1	1	5	2	0
122.	Manufacture of gaseous fuels with a specified calorific value, by purification, blending and other processes from gases of various types including natural gas - Support – Safety	NL	NL	NL	NL	1	1	1	NA	3	0	0
123.	Planning	NL	NL	1	1	1	1	1	1	6	0	0
124.	Engineering	NL	NL	1	1	1	1	1	1	6	0	0
125.	Construction	NL	1	1	1	1	1	1	1	7	2	0
126.	Operation and Maintenance	NL	1	1	1	1	1	1	1	7	2	0
127.	Gas System Management – Operation Control	NL	1	1	1	1	1	1	1	7	0	2
128.	Gas System Management – Operation Services	NL	1	1	1	1	1	1	1	7	2	2
129.	Transportation, distribution and supply of gaseous fuels of all kinds through a system of mains - Support – Safety	NL	NL	NL	NL	1	1	1	NA	3	0	0

NO	AREA	LEVEL								Total Identified Job Titles	Total Critical Job Titles	Total IR4.0 Job Titles
		1	2	3	4	5	6	7	8			
130.	Sales	NL	NL	NL	NL	NL	1	1	1	3	0	0
131.	Technical Support	NL	NL	1	1	1	1	1	1	6	3	0
<b>(353) Steam and air conditioning supply</b>												
132.	Production, Collection and distribution of steam and hot water for heating, power and other purposes - Sales and Marketing – Technical Support and Sales (Project)	NL	NL	1	1	1	1	1	NA	5	0	0
133.	Production, collection and distribution of steam and hot water for heating, power and other purposes - Sales and Marketing – Technical Support and Sales (Product Maintenance)	NL	NL	1	1	1	1	1	NA	5	0	0
134.	Production, collection and distribution of steam and hot water for heating, power and other purposes - Research and Development – Electrical	NL	NL	1	1	1	1	1	NA	5	3	0
135.	Production, collection and distribution of steam and hot water for heating, power and other purposes - Research and Development – Mechanical	NL	NL	1	1	1	1	1	NA	5	3	0
136.	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Hot Water (Operation)	NL	NL	1	1	1	1	1	NA	5	0	2
137.	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Hot Water (Maintenance)	NL	NL	1	1	1	1	1	NA	5	3	0
138.	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Gas/Biogas/Biomass (Operation)	NL	NL	1	1	1	1	1	NA	5	0	2

NO	AREA	LEVEL								Total Identified Job Titles	Total Critical Job Titles	Total IR4.0 Job Titles
		1	2	3	4	5	6	7	8			
139.	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Gas/Biogas/Biomass (Maintenance)	NL	NL	1	1	1	1	1	NA	5	3	0
140.	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Health, Safety, Environment and Quality (Chemist)	NL	NL	NL	1	1	1	NA	NA	3	0	0
141.	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Health, Safety, Environment and Quality (Safety)	NL	NL	NL	1	NA	1	NA	NA	2	0	0
142.	Production and distribution of cooled air, chilled water for cooling purposes - Sales & Marketing – Technical Support and Sales (Project)	NL	NL	1	1	1	1	1	NA	5	0	0
143.	Production and distribution of cooled air, chilled water for cooling purposes - Sales and Marketing – Technical Support and Sales (Product Maintenance)	NL	NL	1	1	1	1	1	NA	5	0	0
144.	Production and distribution of cooled air, chilled water for cooling purposes - Research and Development – Electrical	NL	NL	1	1	1	1	1	NA	5	1	0
145.	Production and distribution of cooled air, chilled water for cooling purposes - Research and Development – Mechanical	NL	NL	1	1	1	1	1	NA	5	1	0
146.	Production and distribution of cooled air, chilled water for cooling purposes - Production – Hot Water (Operation)	NL	NL	1	1	1	1	1	NA	5	0	2

NO	AREA	LEVEL								Total Identified Job Titles	Total Critical Job Titles	Total IR4.0 Job Titles
		1	2	3	4	5	6	7	8			
147.	Production and distribution of cooled air, chilled water for cooling purposes - Production – Hot Water (Maintenance)	NL	NL	1	1	1	1	1	NA	5	0	0
148.	Production and distribution of cooled air, chilled water for cooling purposes - Production – Gas/Biogas/Biomass (Operation)	NL	NL	1	1	1	1	1	NA	5	3	2
149.	Production and distribution of cooled air, chilled water for cooling purposes - Production – Gas/Biogas/Biomass (Maintenance)	NL	NL	1	1	1	1	1	NA	5	3	0
150.	Production and distribution of cooled air, chilled water for cooling purposes - Production – Health, Safety, Environment and Quality (Chemist)	NL	NL	NL	1	1	1	NA	NA	3	0	0
151.	Production and distribution of cooled air, chilled water for cooling purposes - Production – Health, Safety, Environment and Quality (Safety)	NL	NL	NL	1	NA	1	NA	NA	2	0	0
152.	Cold Room – Production	NL	1	1	1	1	1	1	NA	6	0	0
153.	Cold Room – Maintenance	NL	NL	1	1	1	1	1	NA	5	3	0
154.	Cold Room – Health, Safety, Environment and Quality (Chemist)	NL	NL	NL	1	1	1	NA	NA	3	0	0
155.	Cold Room – Health, Safety, Environment and Quality (Safety)	NL	NL	NL	1	NA	1	NA	NA	2	0	0
Total										884	139	144

NL – No Level

NA – Not Available

## 4.5 Occupational Responsibilities

### DIVISION: D-35 ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY

### GROUP: 351 – ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION

There are 155 main areas in Group 351. In most cases, the Level 8 job position having the same job title can be merged into one as per industry practice. This group comprises 896 job titles. Responsibilities include but not limited to the list. These occupational responsibilities are intended to be referred for NOSS development. The information discussed are listed in Table 4.51 to Table 4.103.

Table 4.51: List of Responsibilities for Group 351 Based on Table 4.7 (1 of 38)

AREA	Coal-fired Power Plant – Project (Engineering)	Coal-fired Power Plant – Project (Civil Construction)	Coal-fired Power Plant – Project (Mechanical Construction)
LEVEL 8	<b><u>Engineering Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage engineering project office.</li> <li>2) Lead multidisciplinary design engineers.</li> <li>3) Develop business proposal for new project.</li> <li>4) Manage design of new or rejuvenation of coal-fired power plant.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage civil construction project office.</li> <li>2) Lead a team of civil construction organisation.</li> <li>3) Approve site construction work changes.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage mechanical construction project office.</li> <li>2) Lead a team of mechanical construction organisation.</li> <li>3) Approve site construction work changes.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> </ol>

AREA	Coal-fired Power Plant – Project (Engineering)	Coal-fired Power Plant – Project (Civil Construction)	Coal-fired Power Plant – Project (Mechanical Construction)
		teams of project managers to implement those decisions.	7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.
LEVEL 7	<b><u>Design Office Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage design office.</li> <li>2) Lead design office engineers and draughtsman.</li> <li>3) Review detailed design works by engineers.</li> <li>4) Assign design activities to discipline engineers.</li> <li>5) Monitor design work schedule and work progress.</li> </ol>	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate civil construction project activities.</li> <li>2) Manage civil construction project engineers and technicians.</li> <li>3) Manage civil construction sub-contractors work progress.</li> <li>4) Review site construction work changes.</li> <li>5) Assign job activities to engineers.</li> <li>6) Monitor project schedule and work progress.</li> </ol>	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate mechanical construction project activities.</li> <li>2) Manage mechanical construction project engineers and technicians.</li> <li>3) Manage mechanical construction sub-contractors work progress.</li> <li>4) Review site construction work changes.</li> <li>5) Assign job activities to engineers.</li> <li>6) Monitor project schedule and work progress.</li> </ol>
LEVEL 6	<b><u>Design Engineer</u></b> <ol style="list-style-type: none"> <li>1) Review design sketches.</li> <li>2) Carry out design calculations.</li> <li>3) Review design codes and standards to meet authority's requirements.</li> <li>4) Monitor site construction verification works.</li> <li>5) Assign job activities to draughtsman.</li> <li>6) Check design schedule and work progress.</li> </ol>	<b><u>Civil Construction Engineer</u></b> <ol style="list-style-type: none"> <li>1) Oversee civil construction project activities.</li> <li>2) Supervise civil construction project technicians.</li> <li>3) Monitor civil construction sub-contractors work progress.</li> <li>4) Check site construction work changes.</li> <li>5) Assign job activities to technicians.</li> </ol>	<b><u>Mechanical Construction Engineer</u></b> <ol style="list-style-type: none"> <li>1) Oversee mechanical construction project activities.</li> <li>2) Supervise mechanical construction project technicians.</li> <li>3) Monitor mechanical construction sub-contractors work progress.</li> <li>4) Check site construction work changes.</li> <li>5) Assign job activities to technicians.</li> </ol>

AREA	Coal-fired Power Plant – Project (Engineering)	Coal-fired Power Plant – Project (Civil Construction)	Coal-fired Power Plant – Project (Mechanical Construction)
		6) Check project schedule and work progress.	6) Check project schedule and work progress.
LEVEL 5	<b><u>Design Executive</u></b> <ol style="list-style-type: none"> <li>1) Carry out site survey and design sketches.</li> <li>2) Carry out simple design calculations.</li> <li>3) Apply design codes and standards to meet authority's requirements.</li> <li>4) Conduct site construction verification works.</li> <li>5) Check job progress of draughtsman.</li> <li>6) Adhere to design schedule and work progress.</li> </ol>	<b><u>Civil Construction Executive</u></b> <ol style="list-style-type: none"> <li>1) Issue site work requirements.</li> <li>2) Site coordination of civil construction project works.</li> <li>3) Organise civil construction sub-contractors site work activities.</li> <li>4) Organise civil materials receipt on site.</li> <li>5) Organise civil equipment usage on site.</li> </ol>	<b><u>Mechanical Construction Executive</u></b> <ol style="list-style-type: none"> <li>1) Issue site work requirements.</li> <li>2) Site coordination of mechanical construction project works.</li> <li>3) Organise mechanical construction sub-contractors site work activities.</li> <li>4) Organise mechanical materials receipt on site.</li> <li>5) Organise mechanical equipment usage on site.</li> </ol>
LEVEL 4	<b><u>Design Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Supervise design office draughting works.</li> <li>2) Supervise site draughting works.</li> <li>3) Apply design codes and standards to meet authority's requirements.</li> <li>4) Monitor job progress of draughtsman.</li> <li>5) Adhere to design schedule and work progress.</li> </ol>	<b><u>Civil Construction Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Interpret site work requirements.</li> <li>2) Site supervision of civil construction project works.</li> <li>3) Check civil construction sub-contractors site work activities.</li> <li>4) Manage day-to-day site work technical issues.</li> <li>5) Coordinate civil materials receipt on site.</li> <li>6) Coordinate civil equipment usage on site.</li> </ol>	<b><u>Mechanical Construction Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Interpret site work requirements.</li> <li>2) Site supervision of mechanical construction project works.</li> <li>3) Check mechanical construction sub-contractors site work activities.</li> <li>4) Manage day-to-day site work technical issues.</li> <li>5) Coordinate mechanical materials receipt on site.</li> <li>6) Coordinate mechanical equipment usage on site.</li> </ol>



AREA	Coal-fired Power Plant – Project (Engineering)	Coal-fired Power Plant – Project (Civil Construction)	Coal-fired Power Plant – Project (Mechanical Construction)
LEVEL 3	<b><u>Draftsman</u></b> <ol style="list-style-type: none"> <li>1) Carry out draughting works.</li> <li>2) Carry out site draughting works.</li> <li>3) Apply design codes and standards to meet authority's requirements.</li> <li>4) Adhere to design schedule and work progress.</li> </ol>	<b><u>Civil Construction Technician</u></b> <ol style="list-style-type: none"> <li>1) Carry out civil construction project works.</li> <li>2) Lead workers to execute civil construction works.</li> <li>3) Instruct civil construction sub-contractors site work activities.</li> <li>4) Address day-to-day site work technical issues.</li> <li>5) Report site work activities.</li> </ol>	<b><u>Mechanical Construction Technician</u></b> <ol style="list-style-type: none"> <li>1) Carry out mechanical construction project works.</li> <li>2) Lead workers to execute mechanical construction works.</li> <li>3) Instruct mechanical construction sub-contractors site work activities.</li> <li>4) Address day-to-day site work technical issues.</li> <li>5) Report site work activities.</li> </ol>
LEVEL 2	<b><u>Junior Draftsman</u></b> <ol style="list-style-type: none"> <li>1) Carry out draughting works.</li> <li>2) Carry out site draughting works.</li> <li>3) Apply design codes and standards to meet authority's requirements.</li> <li>4) Adhere to design schedule and work progress.</li> </ol>	<b><u>Junior Civil Construction Technician</u></b> <ol style="list-style-type: none"> <li>1) Assist in execution of civil construction project works.</li> <li>2) Execute site civil construction works.</li> <li>3) Conduct site civil work testing.</li> <li>4) Contribute to team effort by to deliver results as required.</li> </ol>	<b><u>Junior Mechanical Construction Technician</u></b> <ol style="list-style-type: none"> <li>1) Assist in execution of mechanical construction project works.</li> <li>2) Execute site mechanical construction works.</li> <li>3) Conduct site mechanical work testing.</li> <li>4) Contribute to team effort by to deliver results as required.</li> </ol>
LEVEL 1	No Level	No Level	No Level

Table 4.52: List of Responsibilities for Group 351 Based on Table 4.7 and 4.8 (2 of 38)

AREA	Coal-fired Power Plant – Project (Electric and Instrument Construction)	Coal-fired Power Plant – Project (Health, Safety and Environment)	Coal-fired Power Plant – Operation
LEVEL 8	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage E&amp;I construction project office.</li> <li>2) Lead a team of E&amp;I construction organization.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage HSE project office.</li> <li>2) Lead a team of HSE organization.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Station Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the coal-fired power station electricity production.</li> <li>2) Responsible for station production and plant integrity.</li> <li>3) Develop station work policies; HSE and Quality Policies.</li> <li>4) Issue performance targets to heads of department.</li> <li>5) Liaise with head office on budget for station production and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.</li> </ol>
LEVEL 7	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate E&amp;I construction project activities.</li> <li>2) Manage E&amp;I construction project engineers and technicians.</li> <li>3) Manage E&amp;I construction sub-contractors work progress.</li> </ol>	<b><u>Health, Safety &amp; Environment Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage HSE in construction project.</li> <li>2) Manage HSE program with staffs and sub-contractor's manpower.</li> <li>3) Review safety incidences in project construction activities.</li> </ol>	<b><u>Operation Manager</u></b> <ol style="list-style-type: none"> <li>1) Manager coal-fired plant operation staff.</li> <li>2) Coordinate with system operator (NLDC) on plant production requirements.</li> <li>3) Communicate with management and system operator on plant outage and production restriction.</li> </ol>

AREA	Coal-fired Power Plant – Project (Electric and Instrument Construction)	Coal-fired Power Plant – Project (Health, Safety and Environment)	Coal-fired Power Plant – Operation
	4) Review site construction work changes. 5) Assign job activities to engineers 6) Monitor project schedule and work progress	4) Monitor HSE implementation by various project construction departments.	4) Control operations budget and production cost.
LEVEL 6	<b><u>Electric and Instrument Construction Engineer</u></b> 1) Oversee E&I construction project activities. 2) Supervise E&I construction project technicians. 3) Monitor E&I construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.	<b><u>Health, Safety and Environment Engineer</u></b> 1) Develop HSE Plan to meet the organization and statutory requirements. 2) Carry out incidences trending and analysis. 3) Recommend HSE programs to address plant safety concerns. 4) Carry out closure of safety audit disposition. 5) Prepare safety walkabout schedule.	<b><u>Operation Engineer</u></b> 1) Assist Operation Manager to manage coal-fired plant operation staff. 2) Review plant availability for reporting to system operator (NLDC). 3) Plan on plant outage. 4) Explore production restriction. 5) Handle operations budget.
LEVEL 5	<b><u>Electric and Instrument Construction Executive</u></b> 1) Issue site work requirements. 2) Site coordination of E&I construction project works. 3) Organise E&I construction sub-contractors site work activities. 4) Organise E&I materials receipt on site.	<b><u>Safety Officer</u></b> 1) Execute HSE programs to meet the organisation and statutory requirements. 2) Carry out accident investigation. 3) Report safety and health reportable cases to DOSH as per requirements. 4) Monitor safety enforcements and penalty scheme.	<b><u>Shift Manager</u></b> 1) Manage shift personnel in the operation of coal-fired power plant. 2) Issue PTW and control of maintenance works. 3) Check plant availability for reporting to system operator (NLDC). 4) Investigate production restriction.

AREA	Coal-fired Power Plant – Project (Electric and Instrument Construction)	Coal-fired Power Plant – Project (Health, Safety and Environment)	Coal-fired Power Plant – Operation
	5) Organise E&I equipment usage on site.		5) Carry out system troubleshooting.
LEVEL 4	<b><u>Electric &amp; Instrument Construction Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Interpret site work requirements.</li> <li>2) Site supervision of E&amp;I construction project works.</li> <li>3) Check E&amp;I construction sub-contractors site work activities.</li> <li>4) Manage day-to-day site work technical issues.</li> <li>5) Coordinate E&amp;I materials receipt on site.</li> <li>6) Coordinate E&amp;I equipment usage on site.</li> </ol>	<b><u>Safety Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Assist Safety Officer to execute HSE programmes to meet the organisation and statutory requirements.</li> <li>2) Organise accident investigation.</li> <li>3) Prepare accident report for safety and health reportable cases to DOSH as per requirements.</li> <li>4) Carry out safety enforcements and penalty scheme.</li> </ol>	<b><u>Panel Controller</u></b> <ol style="list-style-type: none"> <li>1) Operate coal-fired power plant control panel.</li> <li>2) Carry out plant start-up and shutdown operation.</li> <li>3) Carry out equipment troubleshooting.</li> <li>4) Monitor PTW and coordinate maintenance works.</li> </ol>
LEVEL 3	<b><u>Electric and Instrument Construction Technician</u></b> <ol style="list-style-type: none"> <li>1) Carry out E&amp;I construction project works.</li> <li>2) Lead workers to execute E&amp;I construction works.</li> <li>3) Instruct E&amp;I construction sub-contractors site work activities.</li> <li>4) Address day-to-day site work technical issues.</li> <li>5) Report site work activities.</li> </ol>	No Level	<b><u>Plant Operator</u></b> <ol style="list-style-type: none"> <li>1) Carry out coal-fired power plant machinery operation.</li> <li>2) Isolate/ normalise equipment/ system for maintenance works.</li> <li>3) Execute periodic testing of equipment.</li> <li>4) Check and report equipment abnormal operation.</li> </ol>

AREA	Coal-fired Power Plant – Project (Electric and Instrument Construction)	Coal-fired Power Plant – Project (Health, Safety and Environment)	Coal-fired Power Plant – Operation
LEVEL 2	<b><u>Junior Electric and Instrument Construction Technician</u></b> 1) Assist in execution of E&I construction project works. 2) Execute site E&I construction works. 3) Conduct site E&I work testing. 4) Contribute to team effort by to deliver results as required.	No Level	No Level
LEVEL 1	No Level	No Level	No Level

Table 4.53: List of Responsibilities for Group 351 based on Table 4.8 (3 of 38)

AREA	Coal-Fired Power Plant – Maintenance (Boiler)	Coal-Fired Power Plant – Maintenance (Turbine)	Coal-Fired Power Plant – Maintenance (Electrical)
LEVEL 8	<b><u>Station Manager</u></b> 1) Manage the coal-fired power station electricity production. 2) Responsible for station production and plant integrity. 3) Develop station work policies; HSE and Quality Policies. 4) Issue performance targets to heads of department. 5) Liaise with head office on budget for station production and new projects. 6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.	<b><u>Station Manager</u></b> 1) Manage the coal-fired power station electricity production. 2) Responsible for station production and plant integrity. 3) Develop station work policies; HSE and Quality Policies. 4) Issue performance targets to heads of department. 5) Liaise with head office on budget for station production and new projects. 6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.	<b><u>Station Manager</u></b> 1) Manage the coal-fired power station electricity production. 2) Responsible for station production and plant integrity. 3) Develop station work policies; HSE and Quality Policies. 4) Issue performance targets to heads of department. 5) Liaise with head office on budget for station production and new projects. 6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.
LEVEL 7	<b><u>Mechanical Maintenance Manager</u></b> 1) Manage the coal-fired power station mechanical maintenance department. 2) Responsible for station mechanical maintenance and plant integrity. 3) Manage implementation of station work policies; HSE and Quality Policies.	<b><u>Mechanical Maintenance Manager</u></b> 1) Manage the coal-fired power station mechanical maintenance department. 2) Responsible for station mechanical maintenance and plant integrity. 3) Manage implementation of station work policies; HSE and Quality Policies.	<b><u>Electrical &amp; Instrumentation Maintenance Manager</u></b> 1) Manage the coal-fired power station E&I maintenance department. 2) Responsible for station E&I maintenance and plant integrity.

AREA	Coal-Fired Power Plant – Maintenance (Boiler)	Coal-Fired Power Plant – Maintenance (Turbine)	Coal-Fired Power Plant – Maintenance (Electrical)
	<ul style="list-style-type: none"> <li>4) Manage performance targets of mechanical maintenance department.</li> <li>5) Review budget for station mechanical maintenance and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for mechanical maintenance departments to implement those decisions.</li> </ul>	<ul style="list-style-type: none"> <li>4) Manage performance targets of mechanical maintenance department.</li> <li>5) Review budget for station mechanical maintenance and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for mechanical maintenance departments to implement those decisions.</li> </ul>	<ul style="list-style-type: none"> <li>3) Manage implementation of station work policies; HSE and Quality Policies.</li> <li>4) Manage performance targets of E&amp;I maintenance department.</li> <li>5) Review budget for station E&amp;I maintenance and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for E&amp;I maintenance departments to implement those decisions.</li> </ul>
LEVEL 6	<b><u>Boiler Maintenance Engineer</u></b> <ul style="list-style-type: none"> <li>1) Manage the coal-fired power station boiler maintenance department.</li> <li>2) Responsible for station boiler and its auxiliary's maintenance and plant integrity.</li> <li>3) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform troubleshooting on boiler and its auxiliary's equipment.</li> <li>5) Execute boiler section performance targets.</li> </ul>	<b><u>Turbine Maintenance Engineer</u></b> <ul style="list-style-type: none"> <li>1) Manage the coal-fired power station turbine maintenance department.</li> <li>2) Responsible for station turbine and its auxiliary's maintenance and plant integrity.</li> <li>3) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform troubleshooting on turbine and its auxiliary's equipment.</li> <li>5) Execute turbine section performance targets.</li> </ul>	<b><u>Electrical Maintenance Engineer</u></b> <ul style="list-style-type: none"> <li>1) Manage the coal-fired power station turbine maintenance department.</li> <li>2) Responsible for station turbine and its auxiliary's maintenance and plant integrity.</li> <li>3) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform troubleshooting on turbine and its auxiliary's equipment.</li> <li>5) Execute turbine section performance targets.</li> </ul>

AREA	Coal-Fired Power Plant – Maintenance (Boiler)	Coal-Fired Power Plant – Maintenance (Turbine)	Coal-Fired Power Plant – Maintenance (Electrical)
	6) Control boiler section budget for maintenance and new projects. 7) Implement decision and direction for boiler maintenance section.	6) Control turbine section budget for maintenance and new projects. 7) Implement decision and direction for turbine maintenance section.	6) Control turbine section budget for maintenance and new projects. 7) Implement decision and direction for turbine maintenance section.
LEVEL 5	<b><u>Boiler Maintenance Technical Assistant</u></b> 1) Provide technical support for boiler and its auxiliary's maintenance and plant integrity. 2) Execute implementation of station work policies; HSE and Quality Policies. 3) Perform troubleshooting on boiler and its auxiliary's equipment. 4) Perform boiler section budget for maintenance and new projects. 5) Implement decision and direction for boiler maintenance section.	<b><u>Turbine Maintenance Technical Assistant</u></b> 1) Provide technical support for turbine and its auxiliary's maintenance and plant integrity. 2) Execute implementation of station work policies; HSE and Quality Policies. 3) Perform troubleshooting on turbine and its auxiliary's equipment. 4) Perform turbine section budget for maintenance and new projects. 5) Implement decision and direction for turbine maintenance section.	<b><u>Electrical Maintenance Technical Assistant</u></b> 1) Provide technical support for electrical maintenance and plant integrity. 2) Execute implementation of station work policies; HSE and Quality Policies. 3) Perform troubleshooting on electrical equipment. 4) Perform electrical section budget for maintenance and new projects. 5) Implement decision and direction for electrical maintenance section.
LEVEL 4	<b><u>Boiler Maintenance Foreman</u></b> 1) Supervise technicians in carrying out boiler and its auxiliary's maintenance works. 2) Supervise contractor's works in carrying-out boiler and its auxiliary's maintenance works.	<b><u>Turbine Maintenance Foreman</u></b> 1) Supervise technicians in carrying out turbine and its auxiliary's maintenance works.	<b><u>Electrical Chargeman</u></b> 1) Supervise technicians in carrying out electrical maintenance works. 2) Supervise contractor's works in carrying-out electrical maintenance works.



AREA	Coal-Fired Power Plant – Maintenance (Boiler)	Coal-Fired Power Plant – Maintenance (Turbine)	Coal-Fired Power Plant – Maintenance (Electrical)
	<ul style="list-style-type: none"> <li>3) Monitor boiler maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform basic troubleshooting on boiler and its auxiliary's equipment.</li> <li>5) Implement decision and direction for boiler maintenance section.</li> </ul>	<ul style="list-style-type: none"> <li>2) Supervise contractor's works in carrying-out turbine and its auxiliary's maintenance works.</li> <li>3) Monitor turbine maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform basic troubleshooting on turbine and its auxiliary's equipment.</li> <li>5) Implement decision and direction for turbine maintenance section.</li> </ul>	<ul style="list-style-type: none"> <li>3) Carry out electrical isolation/ de-isolation of electrical equipment.</li> <li>4) Monitor electrical maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> <li>5) Perform basic troubleshooting on electrical equipment.</li> <li>6) Implement decision and direction for electrical maintenance section.</li> </ul>
LEVEL 3	<b><u>Boiler Maintenance Technician</u></b> <ul style="list-style-type: none"> <li>1) Carry out boiler and its auxiliary's maintenance work.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Control of boiler maintenance tools and equipment.</li> <li>4) Perform basic troubleshooting on boiler and its auxiliary's equipment.</li> <li>5) Implement decision and direction for boiler maintenance section.</li> </ul>	<b><u>Turbine Maintenance Technician</u></b> <ul style="list-style-type: none"> <li>1) Carry out turbine and its auxiliary's maintenance work.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Control of turbine maintenance tools and equipment.</li> <li>4) Perform basic troubleshooting on turbine and its auxiliary's equipment.</li> <li>5) Implement decision and direction for turbine maintenance section.</li> </ul>	<b><u>Electrical Maintenance Technician</u></b> <ul style="list-style-type: none"> <li>1) Carry out electrical maintenance work.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Control of electrical maintenance tools and equipment.</li> <li>4) Perform basic troubleshooting on electrical equipment.</li> <li>5) Implement decision and direction for electrical maintenance section.</li> </ul>

AREA	Coal-Fired Power Plant – Maintenance (Boiler)	Coal-Fired Power Plant – Maintenance (Turbine)	Coal-Fired Power Plant – Maintenance (Electrical)
LEVEL 2	<b><u>Junior Boiler Maintenance Technician</u></b> 1) Assist technician in carrying out boiler and its auxiliary's maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Maintain boiler maintenance tools and equipment. 4) Implement decision and direction for boiler maintenance section.	<b><u>Junior Turbine Maintenance Technician</u></b> 1) Assist technician in carrying out turbine and its auxiliary's maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Maintain turbine maintenance tools and equipment. 4) Implement decision and direction for turbine maintenance section.	<b><u>Junior Electrical Maintenance Technician</u></b> 1) Assist technician in carrying out electrical maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Maintain electrical maintenance tools and equipment. 4) Implement decision and direction for electrical maintenance section.
LEVEL 1	No Level	No Level	No Level

Table 4.54: List of Responsibilities for Group 351 Based on Table 4.8 and 4.9 (4 of 38)

AREA	Coal-Fired Power Plant – Maintenance (Instrument)	Coal-fired Power Plant – Support Services (Health, Safety and Environment)	Coal-fired Power Plant – Support Services (Chemist)
LEVEL 8	<b><u>Station Manager</u></b> 1) Manage the coal-fired power station electricity production. 2) Responsible for station production and plant integrity. 3) Develop station work policies; HSE and Quality Policies. 4) Issue performance targets to heads of department. 5) Liaise with head office on budget for station production and new projects. 6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.	<b><u>Station Manager</u></b> 1) Manage the coal-fired power station electricity production. 2) Responsible for station production and plant integrity. 3) Develop station work policies; HSE and Quality Policies. 4) Issue performance targets to heads of department. 5) Liaise with head office on budget for station production and new projects. 6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.	<b><u>Station Manager</u></b> 1) Manage the coal-fired power station electricity production. 2) Responsible for station production and plant integrity. 3) Develop station work policies; HSE and Quality Policies. 4) Issue performance targets to heads of department. 5) Liaise with head office on budget for station production and new projects. 6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.
LEVEL 7	<b><u>Electrical &amp; Instrumentation Maintenance Manager</u></b> 1) Manage the coal-fired power station E&I maintenance department. 2) Responsible for station E&I maintenance and plant integrity.	<b><u>Health, Safety &amp; Environment Manager</u></b> 1) Manage HSE activities in coal-fired power plant. 2) Manage HSE programme with staffs and sub-contractor's manpower. 3) Review safety incidences in power plant.	<b><u>Chief Chemist</u></b> 1) Manage laboratory activities in coal-fired power plant. 2) Develop monitoring programmes on waste effluent and flue gas emission to meet statutory requirements.

AREA	Coal-Fired Power Plant – Maintenance (Instrument)	Coal-fired Power Plant – Support Services (Health, Safety and Environment)	Coal-fired Power Plant – Support Services (Chemist)
	<ul style="list-style-type: none"> <li>3) Manage implementation of station work policies; HSE and Quality Policies.</li> <li>4) Manage performance targets of E&amp;I maintenance department.</li> <li>5) Review budget for station E&amp;I maintenance and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for E&amp;I maintenance departments to implement those decisions.</li> </ul>	<ul style="list-style-type: none"> <li>4) Monitor HSE implementation by various power plant departments.</li> <li>5) Develop HSE rules and regulations to meet statutory requirements.</li> <li>6) Manage performance targets of HSE department.</li> <li>7) Review budget for station HSE programme.</li> <li>8) Make strategic decision and provide necessary leadership and direction for HSE departments to implement those decisions.</li> </ul>	<ul style="list-style-type: none"> <li>3) Manage performance targets of laboratory department.</li> <li>4) Review budget for station laboratory and new projects.</li> <li>5) Make strategic decision and provide necessary leadership and direction for laboratory departments to implement those decisions.</li> </ul>
LEVEL 6	<b><u>Instrument Maintenance Engineer</u></b> <ul style="list-style-type: none"> <li>1) Manage the coal-fired power station instrument maintenance department.</li> <li>2) Responsible for station instrument maintenance and plant integrity.</li> <li>3) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform troubleshooting on instrument equipment.</li> <li>5) Execute instrument section performance targets.</li> <li>6) Control instrument section budget for maintenance and new projects.</li> </ul>	<b><u>Health, Safety &amp; Environment Engineer</u></b> <ul style="list-style-type: none"> <li>1) Implement HSE activities in coal-fired power plant.</li> <li>2) Conduct HSE programme with staffs and sub-contractor's manpower.</li> <li>3) Investigate safety incidences in power plant.</li> <li>4) Monitor HSE implementation by various power plant departments.</li> <li>5) Implement HSE rules and regulations to meet statutory requirements.</li> <li>6) Monitor performance targets of HSE department.</li> </ul>	<b><u>Chemist</u></b> <ul style="list-style-type: none"> <li>1) Monitor laboratory activities in coal-fired power plant.</li> <li>2) Implement monitoring programmes on waste effluent and flue gas emission to meet statutory requirements.</li> <li>3) Monitor performance targets of laboratory department.</li> <li>4) Control budget for station laboratory and new projects.</li> <li>5) Implement decision and direction for laboratory section.</li> </ul>

AREA	Coal-Fired Power Plant – Maintenance (Instrument)	Coal-fired Power Plant – Support Services (Health, Safety and Environment)	Coal-fired Power Plant – Support Services (Chemist)
	7) Implement decision and direction for instrument maintenance section.	7) Control budget for station HSE programme. 8) Implement decision and direction for HSE section.	
LEVEL 5	<b><u>Instrument Maintenance Technical Assistant</u></b> 1) Provide technical support for instrument maintenance and plant integrity. 2) Execute implementation of station work policies; HSE and Quality Policies. 3) Perform troubleshooting on instrument equipment. 4) Perform instrument section budget for maintenance and new projects. 5) Implement decision and direction for instrument maintenance section.	<b><u>Safety Officer</u></b> 1) Execute HSE programmes to meet the organization and statutory requirements. 2) Carry out accident investigation. 3) Report safety and health reportable cases to DOSH as per requirements. 4) Monitor safety enforcements and penalty scheme.	<b><u>Lab Analyst</u></b> 1) Analyse coal-fired power plant process samples. 2) Analyse waste effluent and flue gas emission samples. 3) Maintain laboratory equipment. 4) Implement decision and direction for laboratory section as per management requirements.
LEVEL 4	<b><u>Instrument Maintenance Foreman</u></b> 1) Supervise technicians in carrying out instrument maintenance works. 2) Supervise contractor's works in carrying out instrument maintenance works. 3) Monitor instrument maintenance technicians in the implementation of	<b><u>Safety Supervisor</u></b> 1) Assist Safety Officer to execute HSE programmes to meet the organisation and statutory requirements. 2) Organize accident investigation.	<b><u>Assistant Lab Analyst</u></b> 1) Assist Lab Analyst in analysing coal-fired power plant process samples. 2) Assist Lab Analyst in analysing waste effluent and flue gas emission samples. 3) Maintain laboratory equipment.

AREA	Coal-Fired Power Plant – Maintenance (Instrument)	Coal-fired Power Plant – Support Services (Health, Safety and Environment)	Coal-fired Power Plant – Support Services (Chemist)
	station work policies; HSE and Quality Policies. 4) Perform basic troubleshooting on instrument equipment. 5) Implement decision and direction for instrument maintenance section.	3) Prepare accident report for safety and health reportable cases to DOSH as per requirements. 4) Carry out safety enforcements and penalty scheme.	4) Implement decision and direction for laboratory section as per management requirements.
LEVEL 3	<b><u>Instrument Maintenance Technician</u></b> 1) Carry out instrument maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Control of instrument maintenance tools and equipment. 4) Perform basic troubleshooting on instrument equipment. 5) Implement decision and direction for instrument maintenance section.	No Level	<b><u>Sampling Operator</u></b> 1) Collect coal-fired power plant process samples. 2) Collect waste effluent and flue gas emission samples. 3) Implement decision and direction for laboratory section as per management requirements.
LEVEL 2	No Level	No Level	No Level
LEVEL 1	No Level	No Level	No Level

Table 4.55: List of Responsibilities for Group 351 Based on Table 4.10 (5 of 38)

AREA	Combined-cycle Power Plant – Project (Engineering)	Combined-cycle Power Plant – Project (Civil Construction)	Combined-cycle Power Plant – Project (Mechanical Construction)
LEVEL 8	<b><u>Engineering Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage engineering project office.</li> <li>2) Lead multidisciplinary design engineers.</li> <li>3) Develop business proposal for new project.</li> <li>4) Manage design of new or rejuvenation of combined-cycle power plant.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage civil construction project office.</li> <li>2) Lead a team of civil construction organisation.</li> <li>3) Approve site construction work changes.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage mechanical construction project office.</li> <li>2) Lead a team of mechanical construction organization.</li> <li>3) Approve site construction work changes.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>
LEVEL 7	<b><u>Design Office Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage design office.</li> <li>2) Lead design office engineers and draughtsman.</li> <li>3) Review detailed design works by engineers.</li> </ol>	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate civil construction project activities.</li> <li>2) Manage civil construction project engineers and technicians.</li> </ol>	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate mechanical construction project activities.</li> <li>2) Manage mechanical construction project engineers and technicians.</li> </ol>

AREA	Combined-cycle Power Plant – Project (Engineering)	Combined-cycle Power Plant – Project (Civil Construction)	Combined-cycle Power Plant – Project (Mechanical Construction)
	4) Assign design activities to discipline engineers. 5) Monitor design work schedule and work progress.	3) Manage civil construction sub-contractors work progress. 4) Review site construction work changes. 5) Assign job activities to engineers. 6) Monitor project schedule and work progress.	3) Manage mechanical construction sub-contractors work progress. 4) Review site construction work changes. 5) Assign job activities to engineers. 6) Monitor project schedule and work progress.
LEVEL 6	<b><u>Design Engineer</u></b> 1) Review design sketches. 2) Carry out design calculations. 3) Review design codes and standards to meet authority's requirements. 4) Monitor site construction verification works. 5) Assign job activities to draughtsman. 6) Check design schedule and work progress.	<b><u>Civil Construction Engineer</u></b> 1) Oversee civil construction project activities. 2) Supervise civil construction project technicians. 3) Monitor civil construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.	<b><u>Mechanical Construction Engineer</u></b> 1) Oversee mechanical construction project activities. 2) Supervise mechanical construction project technicians. 3) Monitor mechanical construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.
LEVEL 5	<b><u>Design Executive</u></b> 1) Carry out site survey and design sketches. 2) Carry out simple design calculations. 3) Apply design codes and standards to meet authority's requirements. 4) Conduct site construction verification works.	<b><u>Civil Construction Executive</u></b> 1) Issue site work requirements. 2) Site coordination of civil construction project works. 3) Organise civil construction sub-contractors site work activities. 4) Organise civil materials receipt on site.	<b><u>Mechanical Construction Executive</u></b> 1) Issue site work requirements. 2) Site coordination of mechanical construction project works. 3) Organise mechanical construction sub-contractors site work activities.



AREA	Combined-cycle Power Plant – Project (Engineering)	Combined-cycle Power Plant – Project (Civil Construction)	Combined-cycle Power Plant – Project (Mechanical Construction)
	5) Check job progress of draughtsman. 6) Adhere to design schedule and work progress.	5) Organise civil equipment usage on site.	4) Organise mechanical materials receipt on site. 5) Organise mechanical equipment usage on site.
LEVEL 4	<b><u>Design Supervisor</u></b> 1) Supervise design office draughting works. 2) Supervise site draughting works. 3) Apply design codes and standards to meet authority's requirements. 4) Monitor job progress of draughtsman. 5) Adhere to design schedule and work progress.	<b><u>Civil Construction Supervisor</u></b> 1) Interpret site work requirements. 2) Site supervision of civil construction project works. 3) Check civil construction sub-contractors site work activities. 4) Manage day-to-day site work technical issues. 5) Coordinate civil materials receipt on site. 6) Coordinate civil equipment usage on site.	<b><u>Mechanical Construction Supervisor</u></b> 1) Interpret site work requirements. 2) Site supervision of mechanical construction project works. 3) Check mechanical construction sub-contractors site work activities. 4) Manage day-to-day site work technical issues. 5) Coordinate mechanical materials receipt on site. 6) Coordinate mechanical equipment usage on site.
LEVEL 3	<b><u>Draftsman</u></b> 1) Confirm project requirements 2) Arrange project requirements in programming sequence 3) Encode project requirements by converting work flow information into computer language	<b><u>Civil Construction Technician</u></b> 1) Confirm project requirements 2) Arrange project requirements in programming sequence 3) Encode project requirements by converting work flow information into computer language	<b><u>Mechanical Construction Technician</u></b> 1) Carry out mechanical construction project works. 2) Lead workers to execute mechanical construction works. 3) Instruct mechanical construction sub-contractors site work activities.

AREA	Combined-cycle Power Plant – Project (Engineering)	Combined-cycle Power Plant – Project (Civil Construction)	Combined-cycle Power Plant – Project (Mechanical Construction)
	4) Confirm program operation by conducting tests 5) Document operating instructions 6) Document program development and revisions 7) Contribute to team effort by accomplishing related results as needed	4) Confirm program operation by conducting tests 5) Document operating instructions 6) Document program development and revisions 7) Contribute to team effort by accomplishing related results as needed	4) Address day-to-day site work technical issues. 5) Report site work activities.
LEVEL 2	<b><u>Junior Draftsman</u></b> 1) Carry out draughting works. 2) Carry out site draughting works. 3) Apply design codes and standards to meet authority's requirements. 4) Adhere to design schedule and work progress.	<b><u>Junior Civil Construction Technician</u></b> 1) Assist in execution of civil construction project works. 2) Execute site civil construction works. 3) Conduct site civil work testing. 4) Contribute to team effort by to deliver results as required.	<b><u>Junior Mechanical Construction Technician</u></b> 1) Assist in execution of mechanical construction project works. 2) Execute site mechanical construction works. 3) Conduct site mechanical work testing. 4) Contribute to team effort by to deliver results as required.
LEVEL 1	No Level	No Level	No Level

Table 4.56: List of Responsibilities for Group 351 Based on Table 4.10 and 4.11 (6 of 38)

AREA	Combined-cycle Power Plant – Project (Electric and Instrument Construction)	Combined-cycle Power Plant – Project (Health, Safety and Environment Construction)	Combined-cycle Power Plant – Operation
LEVEL 8	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage E&amp;I construction project office.</li> <li>2) Lead a team of E&amp;I construction organization.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage HSE project office.</li> <li>2) Lead a team of HSE organisation.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Station Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the combined-cycle power station electricity production.</li> <li>2) Responsible for station production and plant integrity.</li> <li>3) Develop station work policies; HSE and Quality Policies.</li> <li>4) Issue performance targets to heads of department.</li> <li>5) Liaise with head office on budget for station production and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.</li> </ol>
LEVEL 7	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate E&amp;I construction project activities.</li> <li>2) Manage E&amp;I construction project engineers and technicians.</li> </ol>	<b><u>Health, Safety &amp; Environment Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage HSE in construction project.</li> <li>2) Manage HSE programme with staffs and sub-contractor's manpower.</li> <li>3) Review safety incidences in project construction activities.</li> </ol>	<b><u>Operation Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage combined-cycle power plant operation staff.</li> <li>2) Coordinate with system operator (NLDC) on plant production requirements</li> </ol>

AREA	Combined-cycle Power Plant – Project (Electric and Instrument Construction)	Combined-cycle Power Plant – Project (Health, Safety and Environment Construction)	Combined-cycle Power Plant – Operation
	3) Manage E&I construction sub-contractors work progress. 4) Review site construction work changes. 5) Assign job activities to engineers 6) Monitor project schedule and work progress	4) Monitor HSE implementation by various project construction departments.	3) Communicate with management and system operator on plant outage and production restriction. 4) Control operations budget and production cost.
LEVEL 6	<b><u>Electric and Instrument Construction Engineer</u></b> 1) Oversee E&I construction project activities. 2) Supervise E&I construction project technicians. 3) Monitor E&I construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.	<b><u>Health, Safety &amp; Environment Engineer</u></b> 1) Develop HSE Plan to meet the organization and statutory requirements. 2) Carry out incidences trending and analysis. 3) Recommend HSE programmes to address plant safety concerns. 4) Carry out closure of safety audit disposition. 5) Prepare safety walkabout schedule.	<b><u>Operation Engineer</u></b> 1) Assist Operation Manager to manage combined-cycle plant operation staff. 2) Review plant availability for reporting to system operator (NLDC). 3) Plan on plant outage. 4) Explore production restriction. 5) Handle operations budget.
LEVEL 5	<b><u>Electric &amp; Instrument Construction Executive</u></b> 1) Issue site work requirements. 2) Site coordination of E&I construction project works.	<b><u>Safety Officer</u></b> 1) Execute HSE programmes to meet the organization and statutory requirements. 2) Carry out accident investigation.	<b><u>Operation Executive</u></b> 1) Assist Operation Engineer in making sure the generation facilities are in good working condition and at its optimum capacity

AREA	Combined-cycle Power Plant – Project (Electric and Instrument Construction)	Combined-cycle Power Plant – Project (Health, Safety and Environment Construction)	Combined-cycle Power Plant – Operation
	3) Organise E&I construction sub-contractors site work activities. 4) Organise E&I materials receipt on site. 5) Organise E&I equipment usage on site.	3) Report safety and health reportable cases to DOSH as per requirements. 4) Monitor safety enforcements and penalty scheme.	2) Monitoring and regulated the power output and quality is following the power generation handbook (TNB) and Malaysia electricity acts and regulations 3) Responsible to communicate with NLDC on the generation status and outage 4) Work together with Operation engineer in planning the generation and outage, following the demands, fuel capacity etc. 5) Prepare documents for power status report, incidents, test procedure according to Energy Commission 6) Identified site components required through design and as built technical drawing 7) Familiar with electrical test equipment and measurement as procedures. 8) Utilize measuring and diagnostic tools to adjust and/or troubleshoot problem
LEVEL 4	<u><b>Electric and Instrument Construction Supervisor</b></u> 1) Interpret site work requirements.	<u><b>Safety Supervisor</b></u> 1) Assist Safety Officer to execute HSE programs to meet the organisation and statutory requirements.	<u><b>Panel Controller</b></u> 1) Operate combined-cycle power plant control panel.

AREA	Combined-cycle Power Plant – Project (Electric and Instrument Construction)	Combined-cycle Power Plant – Project (Health, Safety and Environment Construction)	Combined-cycle Power Plant – Operation
	2) Site supervision of E&I construction project works. 3) Check E&I construction sub-contractors site work activities. 4) Manage day-to-day site work technical issues. 5) Coordinate E&I materials receipt on site. 6) Coordinate E&I equipment usage on site.	2) Organise accident investigation. 3) Prepare accident report for safety and health reportable cases to DOSH as per requirements. 4) Carry out safety enforcements and penalty scheme.	2) Carry out plant start-up and shutdown operation. 3) Carry out equipment troubleshooting. 4) Monitor PTW and coordinate maintenance works.
LEVEL 3	<b><u>Electric and Instrument Technician</u></b> 1) Carry out E&I construction project works. 2) Lead workers to execute E&I construction works. 3) Instruct E&I construction sub-contractors site work activities. 4) Address day-to-day site work technical issues. 5) Report site work activities.	No Level	<b><u>Plant Operator</u></b> 1) Carry out combined-cycle power plant machinery operation. 2) Isolate/ normalise equipment/ system for maintenance works. 3) Execute periodic testing of equipment. 4) Check and report equipment abnormal operation.
LEVEL 2	<b><u>Junior Electric and Instrument Technician</u></b> 1) Assist in execution of E&I construction project works. 2) Execute site E&I construction works.	No Level	<b><u>Junior Plant Operator</u></b> 1) Carry out combined-cycle power plant machinery operation.

<b>AREA</b>	<b>Combined-cycle Power Plant – Project (Electric and Instrument Construction)</b>	<b>Combined-cycle Power Plant – Project (Health, Safety and Environment Construction)</b>	<b>Combined-cycle Power Plant – Operation</b>
	3) Conduct site E&I work testing. 4) Contribute to team effort by to deliver results as required.		2) Isolate/ normalise equipment/ system for maintenance works. 3) Execute periodic testing of equipment. 4) Check and report equipment abnormal operation.
<b>LEVEL 1</b>	No Level	No Level	No Level

Table 4.57: List of Responsibilities for Group 351 Based on Table 4.11 (7 of 38)

AREA	Combined-cycle Power Plant – Maintenance (Boiler)	Combined-cycle Power Plant – Maintenance (Turbine)	Combined-cycle Power Plant – Maintenance (Electrical)
LEVEL 8	<b><u>Station Manager</u></b> 1) Manage the combined-cycle power station electricity production. 2) Responsible for station production and plant integrity. 3) Develop station work policies; HSE and Quality Policies. 4) Issue performance targets to heads of department. 5) Liaise with head office on budget for station production and new projects. 6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.	<b><u>Station Manager</u></b> 1) Manage the combined-cycle power station electricity production. 2) Responsible for station production and plant integrity. 3) Develop station work policies; HSE and Quality Policies. 4) Issue performance targets to heads of department. 5) Liaise with head office on budget for station production and new projects. 6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.	<b><u>Station Manager</u></b> 1) Manage the combined-cycle power station electricity production. 2) Responsible for station production and plant integrity. 3) Develop station work policies; HSE and Quality Policies. 4) Issue performance targets to heads of department. 5) Liaise with head office on budget for station production and new projects. 6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.
LEVEL 7	<b><u>Mechanical Maintenance Manager</u></b> 1) Manage the combined-cycle power station mechanical maintenance department. 2) Responsible for station mechanical maintenance and plant integrity.	<b><u>Mechanical Maintenance Manager</u></b> 1) Manage the combined-cycle power station mechanical maintenance department. 2) Responsible for station mechanical maintenance and plant integrity.	<b><u>Electrical Maintenance Manager</u></b> 1) Manage the combined-cycle power station E&I maintenance department. 2) Responsible for station E&I maintenance and plant integrity.



AREA	Combined-cycle Power Plant – Maintenance (Boiler)	Combined-cycle Power Plant – Maintenance (Turbine)	Combined-cycle Power Plant – Maintenance (Electrical)
	3) Manage implementation of station work policies; HSE and Quality Policies. 4) Manage performance targets of mechanical maintenance department. 5) Review budget for station mechanical maintenance and new projects. 6) Make strategic decision and provide necessary leadership and direction for mechanical maintenance departments to implement those decisions.	3) Manage implementation of station work policies; HSE and Quality Policies. 4) Manage performance targets of mechanical maintenance department. 5) Review budget for station mechanical maintenance and new projects. 6) Make strategic decision and provide necessary leadership and direction for mechanical maintenance departments to implement those decisions.	3) Manage implementation of station work policies; HSE and Quality Policies. 4) Manage performance targets of E&I maintenance department. 5) Review budget for station E&I maintenance and new projects. 6) Make strategic decision and provide necessary leadership and direction for E&I maintenance departments to implement those decisions.
LEVEL 6	<b><u>Boiler Maintenance Engineer</u></b> 1) Manage the combined-cycle power station boiler maintenance department. 2) Responsible for station boiler and its auxiliary's maintenance and plant integrity. 3) Execute implementation of station work policies; HSE and Quality Policies. 4) Perform troubleshooting on boiler and its auxiliary's equipment. 5) Execute boiler section performance targets.	<b><u>Turbine Maintenance Engineer</u></b> 1) Manage the combined-cycle power station turbine maintenance department. 2) Responsible for station turbine and its auxiliary's maintenance and plant integrity. 3) Execute implementation of station work policies; HSE and Quality Policies. 4) Perform troubleshooting on turbine and its auxiliary's equipment. 5) Execute turbine section performance targets.	<b><u>Electrical Maintenance Engineer</u></b> 1) Manage the combined-cycle power station turbine maintenance department. 2) Responsible for station turbine and its auxiliary's maintenance and plant integrity. 3) Execute implementation of station work policies; HSE and Quality Policies. 4) Perform troubleshooting on turbine and its auxiliary's equipment. 5) Execute turbine section performance targets.

AREA	Combined-cycle Power Plant – Maintenance (Boiler)	Combined-cycle Power Plant – Maintenance (Turbine)	Combined-cycle Power Plant – Maintenance (Electrical)
	6) Control boiler section budget for maintenance and new projects. 7) Implement decision and direction for boiler maintenance section.	6) Control turbine section budget for maintenance and new projects. 7) Implement decision and direction for turbine maintenance section.	6) Control turbine section budget for maintenance and new projects. 7) Implement decision and direction for turbine maintenance section.
LEVEL 5	<b><u>Boiler Maintenance Technical Assistant</u></b> 1) Provide technical support for boiler and its auxiliary's maintenance and plant integrity. 2) Execute implementation of station work policies; HSE and Quality Policies. 3) Perform troubleshooting on boiler and its auxiliary's equipment. 4) Perform boiler section budget for maintenance and new projects. 5) Implement decision and direction for boiler maintenance section.	<b><u>Turbine Maintenance Technical Assistant</u></b> 1) Provide technical support for turbine and its auxiliary's maintenance and plant integrity. 2) Execute implementation of station work policies; HSE and Quality Policies. 3) Perform troubleshooting on turbine and its auxiliary's equipment. 4) Perform turbine section budget for maintenance and new projects. 5) Implement decision and direction for turbine maintenance section.	<b><u>Electrical Maintenance Technical Assistant</u></b> 1) Provide technical support for electrical maintenance and plant integrity. 2) Execute implementation of station work policies; HSE and Quality Policies. 3) Perform troubleshooting on electrical equipment. 4) Perform electrical section budget for maintenance and new projects. 5) Implement decision and direction for electrical maintenance section.
LEVEL 4	<b><u>Boiler Maintenance Foreman</u></b> 1) Supervise technicians in carrying-out boiler and its auxiliary's maintenance works.	<b><u>Turbine Maintenance Foreman</u></b> 1) Supervise technicians in carrying-out turbine and its auxiliary's maintenance works.	<b><u>Electrical Chargeman</u></b> 1) Supervise technicians in carrying-out electrical maintenance works. 2) Supervise contractor's works in carrying-out electrical maintenance works.

AREA	Combined-cycle Power Plant – Maintenance (Boiler)	Combined-cycle Power Plant – Maintenance (Turbine)	Combined-cycle Power Plant – Maintenance (Electrical)
	<ul style="list-style-type: none"> <li>2) Supervise contractor's works in carrying-out boiler and its auxiliary's maintenance works.</li> <li>3) Monitor boiler maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform basic troubleshooting on boiler and its auxiliary's equipment.</li> <li>5) Implement decision and direction for boiler maintenance section.</li> </ul>	<ul style="list-style-type: none"> <li>2) Supervise contractor's works in carrying-out turbine and its auxiliary's maintenance works.</li> <li>3) Monitor turbine maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform basic troubleshooting on turbine and its auxiliary's equipment.</li> <li>5) Implement decision and direction for turbine maintenance section.</li> </ul>	<ul style="list-style-type: none"> <li>3) Carry out electrical isolation/ de-isolation of electrical equipment.</li> <li>4) Monitor electrical maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> <li>5) Perform basic troubleshooting on electrical equipment.</li> <li>6) Implement decision and direction for electrical maintenance section.</li> </ul>
LEVEL 3	<b><u>Boiler Maintenance Technician</u></b> <ul style="list-style-type: none"> <li>1) Carry out boiler and its auxiliary's maintenance work.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Control of boiler maintenance tools and equipment.</li> <li>4) Perform basic troubleshooting on boiler and its auxiliary's equipment.</li> <li>5) Implement decision and direction for boiler maintenance section.</li> </ul>	<b><u>Turbine Maintenance Technician</u></b> <ul style="list-style-type: none"> <li>1) Carry out turbine and its auxiliary's maintenance work.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Control of turbine maintenance tools and equipment.</li> <li>4) Perform basic troubleshooting on turbine and its auxiliary's equipment.</li> <li>5) Implement decision and direction for turbine maintenance section.</li> </ul>	<b><u>Electrical Maintenance Technician</u></b> <ul style="list-style-type: none"> <li>1) Carry out electrical maintenance works.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Control of electrical maintenance tools and equipment.</li> <li>4) Perform basic troubleshooting on electrical equipment.</li> <li>5) Implement decision and direction for electrical maintenance section.</li> </ul>

AREA	Combined-cycle Power Plant – Maintenance (Boiler)	Combined-cycle Power Plant – Maintenance (Turbine)	Combined-cycle Power Plant – Maintenance (Electrical)
LEVEL 2	<b><u>Junior Boiler Maintenance Technician</u></b> 1) Assist technician in carrying out boiler and its auxiliary's maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Maintain boiler maintenance tools and equipment. 4) Implement decision and direction for boiler maintenance section.	<b><u>Junior Turbine Maintenance Technician</u></b> 1) Assist technician in carrying out turbine and its auxiliary's maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Maintain turbine maintenance tools and equipment. 4) Implement decision and direction for turbine maintenance section.	<b><u>Junior Electrical Maintenance Technician</u></b> 1) Assist technician in carrying out electrical maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Maintain electrical maintenance tools and equipment. 4) Implement decision and direction for electrical maintenance section.
LEVEL 1	No Level	No Level	No Level

Table 4.58: List of Responsibilities for Group 351 Based on Table 4.11 and 4.12 (8 of 38)

AREA	Combined-cycle Power Plant – Maintenance (Instrument)	Combined-cycle Power Plant – Support Services (Health, Safety and Environment)	Combined-cycle Power – Support Services (Chemist)
LEVEL 8	<b><u>Station Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the combined-cycle power station electricity production.</li> <li>2) Responsible for station production and plant integrity.</li> <li>3) Develop station work policies; HSE and Quality Policies.</li> <li>4) Issue performance targets to heads of department.</li> <li>5) Liaise with head office on budget for station production and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.</li> </ol>	<b><u>Station Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the combined-cycle power station electricity production.</li> <li>2) Responsible for station production and plant integrity.</li> <li>3) Develop station work policies; HSE and Quality Policies.</li> <li>4) Issue performance targets to heads of department.</li> <li>5) Liaise with head office on budget for station production and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.</li> </ol>	<b><u>Station Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the combined-cycle power station electricity production.</li> <li>2) Responsible for station production and plant integrity.</li> <li>3) Develop station work policies; HSE and Quality Policies.</li> <li>4) Issue performance targets to heads of department.</li> <li>5) Liaise with head office on budget for station production and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.</li> </ol>
LEVEL 7	<b><u>Instrument Maintenance Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the combined-cycle power station E&amp;I maintenance department.</li> <li>2) Responsible for station E&amp;I maintenance and plant integrity.</li> <li>3) Manage implementation of station work policies; HSE and Quality Policies.</li> </ol>	<b><u>Health, Safety &amp; Environment Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage HSE activities in combined-cycle power plant.</li> <li>2) Manage HSE program with staffs and sub-contractor's manpower.</li> <li>3) Review safety incidences in power plant.</li> </ol>	<b><u>Chief Chemist</u></b> <ol style="list-style-type: none"> <li>1) Manage laboratory activities in combined-cycle power plant.</li> <li>2) Develop monitoring programs on waste effluent and flue gas emission to meet statutory requirements.</li> </ol>

AREA	Combined-cycle Power Plant – Maintenance (Instrument)	Combined-cycle Power Plant – Support Services (Health, Safety and Environment)	Combined-cycle Power – Support Services (Chemist)
	<ul style="list-style-type: none"> <li>4) Manage performance targets of E&amp;I maintenance department.</li> <li>5) Review budget for station E&amp;I maintenance and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for E&amp;I maintenance departments to implement those decisions.</li> </ul>	<ul style="list-style-type: none"> <li>4) Monitor HSE implementation by various power plant departments.</li> <li>5) Develop HSE rules and regulations to meet statutory requirements.</li> <li>6) Manage performance targets of HSE department.</li> <li>7) Review budget for station HSE programme.</li> <li>8) Make strategic decision and provide necessary leadership and direction for HSE departments to implement those decisions.</li> </ul>	<ul style="list-style-type: none"> <li>3) Manage performance targets of laboratory department.</li> <li>4) Review budget for station laboratory and new projects.</li> <li>5) Make strategic decision and provide necessary leadership and direction for laboratory departments to implement those decisions.</li> </ul>
LEVEL 6	<b><u>Instrument Maintenance Engineer</u></b> <ul style="list-style-type: none"> <li>1) Manage the combined-cycle power station instrument maintenance department.</li> <li>2) Responsible for station instrument maintenance and plant integrity.</li> <li>3) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform troubleshooting on instrument equipment.</li> <li>5) Execute instrument section performance targets.</li> <li>6) Control instrument section budget for maintenance and new projects.</li> </ul>	<b><u>Health, Safety &amp; Environment Engineer</u></b> <ul style="list-style-type: none"> <li>1) Implement HSE activities in combined-cycle plant.</li> <li>2) Conduct HSE programme with staffs and sub-contractor's manpower.</li> <li>3) Investigate safety incidences in power plant.</li> <li>4) Monitor HSE implementation by various power plant departments.</li> <li>5) Implement HSE rules and regulations to meet statutory requirements.</li> <li>6) Monitor performance targets of HSE department.</li> </ul>	<b><u>Chemist</u></b> <ul style="list-style-type: none"> <li>1) Monitor laboratory activities in combined-cycle power plant.</li> <li>2) Implement monitoring programs on waste effluent and flue gas emission to meet statutory requirements.</li> <li>3) Monitor performance targets of laboratory department.</li> <li>4) Control budget for station laboratory and new projects.</li> <li>5) Implement decision and direction for laboratory section.</li> </ul>

AREA	Combined-cycle Power Plant – Maintenance (Instrument)	Combined-cycle Power Plant – Support Services (Health, Safety and Environment)	Combined-cycle Power – Support Services (Chemist)
	7) Implement decision and direction for instrument maintenance section.	7) Control budget for station HSE programme. 8) Implement decision and direction for HSE section.	
LEVEL 5	<b><u>Instrument Maintenance Technical Assistant</u></b> <ol style="list-style-type: none"> <li>1) Provide technical support for instrument maintenance and plant integrity.</li> <li>2) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>3) Perform troubleshooting on instrument equipment.</li> <li>4) Perform instrument section budget for maintenance and new projects.</li> <li>5) Implement decision and direction for instrument maintenance section.</li> </ol>	<b><u>Safety Officer</u></b> <ol style="list-style-type: none"> <li>1) Execute HSE programmes to meet the organization and statutory requirements.</li> <li>2) Carry out accident investigation.</li> <li>3) Report safety and health reportable cases to DOSH as per requirements.</li> <li>4) Monitor safety enforcements and penalty scheme.</li> </ol>	<b><u>Lab Analyst</u></b> <ol style="list-style-type: none"> <li>1) Analyse combined-cycle power plant process samples.</li> <li>2) Analyse waste effluent and flue gas emission samples.</li> <li>3) Maintain laboratory equipment.</li> <li>4) Implement decision and direction for laboratory section as per management requirements.</li> </ol>
LEVEL 4	<b><u>Instrument Maintenance Foreman</u></b> <ol style="list-style-type: none"> <li>1) Supervise technicians in carrying-out instrument maintenance works.</li> <li>2) Supervise contractor's works in carrying-out instrument maintenance works.</li> <li>3) Monitor instrument maintenance technicians in the implementation of</li> </ol>	<b><u>Safety Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Assist Safety Officer to execute HSE programs to meet the organisation and statutory requirements.</li> <li>2) Organise accident investigation.</li> </ol>	<b><u>Assistant Lab Analyst</u></b> <ol style="list-style-type: none"> <li>1) Assist Lab Analyst in analysing combined-cycle power plant process samples.</li> <li>2) Assist Lab Analyst in analysing waste effluent and flue gas emission samples.</li> <li>3) Maintain laboratory equipment.</li> </ol>

AREA	Combined-cycle Power Plant – Maintenance (Instrument)	Combined-cycle Power Plant – Support Services (Health, Safety and Environment)	Combined-cycle Power – Support Services (Chemist)
	station work policies; HSE and Quality Policies. 4) Perform basic troubleshooting on instrument equipment. 5) Implement decision and direction for instrument maintenance section.	3) Prepare accident report for safety and health reportable cases to DOSH as per requirements. 4) Carry out safety enforcements and penalty scheme.	4) Implement decision and direction for laboratory section as per management requirements.
LEVEL 3	<b><u>Instrument Maintenance Technician</u></b> 1) Carry out instrument maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Control of instrument maintenance tools and equipment. 4) Perform basic troubleshooting on instrument equipment. 5) Implement decision and direction for instrument maintenance section.	No Level	<b><u>Sampling Operator</u></b> 1) Collect combined-cycle power plant process samples. 2) Collect waste effluent and flue gas emission samples. 3) Implement decision and direction for laboratory section as per management requirements.
LEVEL 2	No Level	No Level	No Level
LEVEL 1	No Level	No Level	No Level



Table 4.59: List of Responsibilities for Group 351 Based on Table 4.13 (9 of 38)

AREA	Hydro-electric Power Plant – Project (Engineering)	Hydro-electric Power Plant – Project (Civil Construction)	Hydro-electric Power Plant – Project (Mechanical Construction)
LEVEL 8	<b><u>Engineering Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage engineering project office.</li> <li>2) Lead multidisciplinary design engineers.</li> <li>3) Develop business proposal for new project.</li> <li>4) Manage design of new or rejuvenation of hydro-electric power plant.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage civil construction project office.</li> <li>2) Lead a team of civil construction organization.</li> <li>3) Approve site construction work changes.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage mechanical construction project office.</li> <li>2) Lead a team of mechanical construction organization.</li> <li>3) Approve site construction work changes.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>
LEVEL 7	<b><u>Design Office Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage design office.</li> <li>2) Lead design office engineers and draughtsman.</li> </ol>	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate civil construction project activities.</li> <li>2) Manage civil construction project engineers and technicians.</li> </ol>	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate mechanical construction project activities.</li> <li>2) Manage mechanical construction project engineers and technicians.</li> </ol>

AREA	Hydro-electric Power Plant – Project (Engineering)	Hydro-electric Power Plant – Project (Civil Construction)	Hydro-electric Power Plant – Project (Mechanical Construction)
	3) Review detailed design works by engineers. 4) Assign design activities to discipline engineers. 5) Monitor design work schedule and work progress.	3) Manage civil construction sub-contractors work progress. 4) Review site construction work changes. 5) Assign job activities to engineers. 6) Monitor project schedule and work progress.	3) Manage mechanical construction sub-contractors work progress. 4) Review site construction work changes. 5) Assign job activities to engineers. 6) Monitor project schedule and work progress.
LEVEL 6	<b><u>Design Engineer</u></b> 1) Review design sketches. 2) Carry out design calculations. 3) Review design codes and standards to meet authority's requirements. 4) Monitor site construction verification works. 5) Assign job activities to draughtsman. 6) Check design schedule and work progress.	<b><u>Civil Construction Engineer</u></b> 1) Oversee civil construction project activities. 2) Supervise civil construction project technicians. 3) Monitor civil construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.	<b><u>Mechanical Construction Engineer</u></b> 1) Oversee mechanical construction project activities. 2) Supervise mechanical construction project technicians. 3) Monitor mechanical construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.
LEVEL 5	<b><u>Design Executive</u></b> 1) Carry out site survey and design sketches. 2) Carry out simple design calculations. 3) Apply design codes and standards to meet authority's requirements.	<b><u>Civil Construction Executive</u></b> 1) Issue site work requirements. 2) Site coordination of civil construction project works. 3) Organise civil construction sub-contractors site work activities.	<b><u>Mechanical Construction Executive</u></b> 1) Issue site work requirements. 2) Site coordination of mechanical construction project works. 3) Organise mechanical construction sub-contractors site work activities.

AREA	Hydro-electric Power Plant – Project (Engineering)	Hydro-electric Power Plant – Project (Civil Construction)	Hydro-electric Power Plant – Project (Mechanical Construction)
	4) Conduct site construction verification works. 5) Check job progress of draughtsman. 6) Adhere to design schedule and work progress.	4) Organise civil materials receipt on site. 5) Organise civil equipment usage on site.	4) Organise mechanical materials receipt on site. 5) Organise mechanical equipment usage on site.
LEVEL 4	<b><u>Design Supervisor</u></b> 1) Supervise design office draughting works. 2) Supervise site draughting works. 3) Apply design codes and standards to meet authority's requirements. 4) Monitor job progress of draughtsman. 5) Adhere to design schedule and work progress.	<b><u>Civil Construction Supervisor</u></b> 1) Interpret site work requirements. 2) Site supervision of civil construction project works. 3) Check civil construction sub-contractors site work activities. 4) Manage day-to-day site work technical issues. 5) Coordinate civil materials receipt on site. 6) Coordinate civil equipment usage on site.	<b><u>Mechanical Construction Supervisor</u></b> 1) Interpret site work requirements. 2) Site supervision of mechanical construction project works. 3) Check mechanical construction sub-contractors site work activities. 4) Manage day-to-day site work technical issues. 5) Coordinate mechanical materials receipt on site. 6) Coordinate mechanical equipment usage on site.
LEVEL 3	<b><u>Draftsman</u></b> 1) Carry out draughting works. 2) Carry out site draughting works. 3) Apply design codes and standards to meet authority's requirements.	<b><u>Civil Construction Technician</u></b> 1) Carry out civil construction project works. 2) Lead workers to execute civil construction works.	<b><u>Mechanical Construction Technician</u></b> 1) Carry out mechanical construction project works. 2) Lead workers to execute mechanical construction works.

AREA	Hydro-electric Power Plant – Project (Engineering)	Hydro-electric Power Plant – Project (Civil Construction)	Hydro-electric Power Plant – Project (Mechanical Construction)
	4) Adhere to design schedule and work progress.	3) Instruct civil construction sub-contractors site work activities. 4) Address day-to-day site work technical issues. 5) Report site work activities.	3) Instruct mechanical construction sub-contractors site work activities. 4) Address day-to-day site work technical issues. 5) Report site work activities.
LEVEL 2	<b><u>Junior Draftsman</u></b> 1) Carry out draughting works. 2) Carry out site draughting works. 3) Apply design codes and standards to meet authority's requirements. 4) Adhere to design schedule and work progress.	<b><u>Junior Civil Construction Technician</u></b> 1) Assist in execution of civil construction project works. 2) Execute site civil construction works. 3) Conduct site civil work testing. 4) Contribute to team effort by to deliver results as required.	<b><u>Junior Mechanical Construction Technician</u></b> 1) Assist in execution of mechanical construction project works. 2) Execute site mechanical construction works. 3) Conduct site mechanical work testing. 4) Contribute to team effort by to deliver results as required.
LEVEL 1	No Level	No Level	No Level

Table 4.60: List of Responsibilities for Group 351 Based on Table 4.13 and 4.14 (10 of 38)

AREA	Hydro-electric Power Plant – Project (Electric and Instrument Construction)	Hydro-electric Power Plant – Project (Health, Safety and Environment Construction)	Hydro-electric Power Plant –Operation
LEVEL 8	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage E&amp;I construction project office.</li> <li>2) Lead a team of E&amp;I construction organization.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage HSE project office.</li> <li>2) Lead a team of HSE organisation.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Station Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the hydro-electric power station electricity production.</li> <li>2) Responsible for station production and plant integrity.</li> <li>3) Develop station work policies; HSE and Quality Policies.</li> <li>4) Issue performance targets to heads of department.</li> <li>5) Liaise with head office on budget for station production and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.</li> </ol>
LEVEL 7	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate E&amp;I construction project activities.</li> <li>2) Manage E&amp;I construction project engineers and technicians.</li> </ol>	<b><u>Health, Safety &amp; Environment Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage HSE in construction project.</li> <li>2) Manage HSE programme with staffs and sub-contractor's manpower.</li> <li>3) Review safety incidences in project construction activities.</li> </ol>	<b><u>Operation Manager</u></b> <ol style="list-style-type: none"> <li>1) Manager hydro-electric plant operation staff.</li> <li>2) Coordinate with system operator (NLDC) on plant production requirements.</li> </ol>

AREA	Hydro-electric Power Plant – Project (Electric and Instrument Construction)	Hydro-electric Power Plant – Project (Health, Safety and Environment Construction)	Hydro-electric Power Plant –Operation
	3) Manage E & I construction sub-contractors work progress. 4) Review site construction work changes. 5) Assign job activities to engineers. 6) Monitor project schedule and work progress	4) Monitor HSE implementation by various project construction departments.	3) Communicate with management and system operator on plant outage and production restriction. 4) Control operations budget and production cost.
LEVEL 6	<b><u>Electrical and Instrument Construction Engineer</u></b> 1) Oversee E&I construction project activities. 2) Supervise E&I construction project technicians. 3) Monitor E&I construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.	<b><u>Health, Safety and Environment Engineer</u></b> 1) Develop HSE Plan to meet the organization and statutory requirements. 2) Carry out incidences trending and analysis. 3) Recommend HSE programmes to address plant safety concerns. 4) Carry out closure of safety audit disposition. 5) Prepare safety walkabout schedule.	<b><u>Operation Engineer</u></b> 1) Assist Operation Manager to manage hydro-electric plant operation staff. 2) Review plant availability for reporting to system operator (NLDC). 3) Plan on plant outage. 4) Explore production restriction. 5) Handle operations budget.
LEVEL 5	<b><u>Electric and Instrument Construction Executive</u></b> 1) Issue site work requirements. 2) Site coordination of E&I construction project works.	<b><u>Safety Officer</u></b> 1) Execute HSE programmes to meet the organization and statutory requirements. 2) Carry out accident investigation.	<b><u>Shift Manager</u></b> 1) Manage shift personnel in the operation of hydro-electric power plant. 2) Issue PTW and control of maintenance works.

AREA	Hydro-electric Power Plant – Project (Electric and Instrument Construction)	Hydro-electric Power Plant – Project (Health, Safety and Environment Construction)	Hydro-electric Power Plant –Operation
	3) Organise E&I construction sub-contractors site work activities. 4) Organise E&I materials receipt on site. 5) Organise E&I equipment usage on site.	3) Report safety and health reportable cases to DOSH as per requirements. 4) Monitor safety enforcements and penalty scheme.	3) Check plant availability for reporting to system operator (NLDC). 4) Investigate production restriction. 5) Carry out system troubleshooting.
LEVEL 4	<b><u>Electric and Instrument Construction Supervisor</u></b> 1) Interpret site work requirements. 2) Site supervision of E&I construction project works. 3) Check E&I construction sub-contractors site work activities. 4) Manage day-to-day site work technical issues. 5) Coordinate E&I materials receipt on site. 6) Coordinate E&I equipment usage on site.	<b><u>Safety Supervisor</u></b> 1) Assist Safety Officer to execute HSE programs to meet the organization and statutory requirements. 2) Organise accident investigation. 3) Prepare accident report for safety and health reportable cases to DOSH as per requirements. 4) Carry out safety enforcements and penalty scheme.	<b><u>Panel Controller</u></b> 1) Operate hydro-electric power plant control panel. 2) Carry out plant start-up and shutdown operation. 3) Carry out equipment troubleshooting. 4) Monitor PTW and coordinate maintenance works.
LEVEL 3	<b><u>Electric and Instrument Construction Technician</u></b> 1) Carry out E&I construction project works. 2) Lead workers to execute E&I construction works. 3) Instruct E&I construction sub-contractors site work activities.	No Level	<b><u>Plant Operator</u></b> 1) Carry out hydro-electric power plant machinery operation. 2) Isolate/ normalise equipment/ system for maintenance works. 3) Execute periodic testing of equipment.

AREA	Hydro-electric Power Plant – Project (Electric and Instrument Construction)	Hydro-electric Power Plant – Project (Health, Safety and Environment Construction)	Hydro-electric Power Plant –Operation
	4) Address day-to-day site work technical issues. 5) Report site work activities.		4) Check and report equipment abnormal operation.
LEVEL 2	<b><u>Junior Electric &amp; Instrument Construction Technician</u></b> 1) Assist in execution of E&I construction project works. 2) Execute site E&I construction works. 3) Conduct site E&I work testing. 4) Contribute to team effort by to deliver results as required.	No Level	<b><u>Junior Plant Operator</u></b> 1) Carry out hydro-electric power plant machinery operation. 2) Isolate/ normalise equipment/ system for maintenance works. 3) Execute periodic testing of equipment. 4) Check and report equipment abnormal operation.
LEVEL 1	No Level	No Level	No Level



Table 4.61: List of Responsibilities for Group 351 based on Table 4.14 (11 of 38)

AREA	Hydro-electric Power Plant – Maintenance (Turbine)	Hydro-electric Power Plant – Maintenance (Electrical)	Hydro-electric Power Plant – Maintenance (Instrument)
LEVEL 8	<b><u>Station Manager</u></b> 1) Manage the hydro-electric power station electricity production. 2) Responsible for station production and plant integrity. 3) Develop station work policies; HSE and Quality Policies. 4) Issue performance targets to heads of department. 5) Liaise with head office on budget for station production and new projects. 6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.	<b><u>Station Manager</u></b> 1) Manage the hydro-electric power station electricity production. 2) Responsible for station production and plant integrity. 3) Develop station work policies; HSE and Quality Policies. 4) Issue performance targets to heads of department. 5) Liaise with head office on budget for station production and new projects. 6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.	<b><u>Station Manager</u></b> 1) Manage the hydro-electric power station electricity production. 2) Responsible for station production and plant integrity. 3) Develop station work policies; HSE and Quality Policies. 4) Issue performance targets to heads of department. 5) Liaise with head office on budget for station production and new projects. 6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.
LEVEL 7	<b><u>Mechanical Maintenance Manager</u></b> 1) Manage the hydro-electric power station mechanical maintenance department. 2) Responsible for station mechanical maintenance and plant integrity.	<b><u>Electrical Maintenance Manager</u></b> 1) Manage the hydro-electric power station turbine maintenance department. 2) Responsible for station turbine and its auxiliary's maintenance and plant integrity.	<b><u>Instrument Maintenance Manager</u></b> 1) Manage the hydro-electric power station E&I maintenance department. 2) Responsible for station E&I maintenance and plant integrity.

AREA	Hydro-electric Power Plant – Maintenance (Turbine)	Hydro-electric Power Plant – Maintenance (Electrical)	Hydro-electric Power Plant – Maintenance (Instrument)
	<ul style="list-style-type: none"> <li>3) Manage implementation of station work policies; HSE and Quality Policies.</li> <li>4) Manage performance targets of mechanical maintenance department.</li> <li>5) Review budget for station mechanical maintenance and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for mechanical maintenance departments to implement those decisions.</li> </ul>	<ul style="list-style-type: none"> <li>3) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform troubleshooting on turbine and its auxiliary's equipment.</li> <li>5) Execute turbine section performance targets.</li> <li>6) Control turbine section budget for maintenance and new projects.</li> <li>7) Implement decision and direction for turbine maintenance section.</li> </ul>	<ul style="list-style-type: none"> <li>3) Manage implementation of station work policies; HSE and Quality Policies.</li> <li>4) Manage performance targets of E&amp;I maintenance department.</li> <li>5) Review budget for station E&amp;I maintenance and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for E&amp;I maintenance departments to implement those decisions</li> </ul>
LEVEL 6	<u><b>Turbine Maintenance Engineer</b></u> <ul style="list-style-type: none"> <li>1) Manage the hydro-electric power station turbine maintenance department.</li> <li>2) Responsible for station turbine and its auxiliary's maintenance and plant integrity.</li> <li>3) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform troubleshooting on turbine and its auxiliary's equipment.</li> <li>5) Execute turbine section performance targets.</li> </ul>	<u><b>Electrical Maintenance Engineer</b></u> <ul style="list-style-type: none"> <li>1) Manage the hydro-electric power station turbine maintenance department.</li> <li>2) Responsible for station turbine and its auxiliary's maintenance and plant integrity.</li> <li>3) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform troubleshooting on turbine and its auxiliary's equipment.</li> <li>5) Execute turbine section performance targets.</li> </ul>	<u><b>Instrument Maintenance Engineer</b></u> <ul style="list-style-type: none"> <li>1) Manage the hydro-electric power station instrument maintenance department.</li> <li>2) Responsible for station instrument maintenance and plant integrity.</li> <li>3) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform troubleshooting on instrument equipment.</li> <li>5) Execute instrument section performance targets.</li> <li>6) Control instrument section budget for maintenance and new projects.</li> </ul>

AREA	Hydro-electric Power Plant – Maintenance (Turbine)	Hydro-electric Power Plant – Maintenance (Electrical)	Hydro-electric Power Plant – Maintenance (Instrument)
	6) Control turbine section budget for maintenance and new projects. 7) Implement decision and direction for turbine maintenance section.	6) Control turbine section budget for maintenance and new projects. 7) Implement decision and direction for turbine maintenance section.	7) Implement decision and direction for instrument maintenance section.
LEVEL 5	<b><u>Turbine Maintenance Technical Assistant</u></b> 1) Provide technical support for turbine and its auxiliary's maintenance and plant integrity. 2) Execute implementation of station work policies; HSE and Quality Policies. 3) Perform troubleshooting on turbine and its auxiliary's equipment. 4) Perform turbine section budget for maintenance and new projects. 5) Implement decision and direction for turbine maintenance section.	<b><u>Electrical Maintenance Technical Assistant</u></b> 1) Provide technical support for electrical maintenance and plant integrity. 2) Execute implementation of station work policies; HSE and Quality Policies. 3) Perform troubleshooting on electrical equipment. 4) Perform electrical section budget for maintenance and new projects. 5) Implement decision and direction for electrical maintenance section.	<b><u>Instrument Maintenance Technical Assistant</u></b> 1) Provide technical support for instrument maintenance and plant integrity. 2) Execute implementation of station work policies; HSE and Quality Policies. 3) Perform troubleshooting on instrument equipment. 4) Perform instrument section budget for maintenance and new projects. 5) Implement decision and direction for instrument maintenance section.
LEVEL 4	<b><u>Turbine Maintenance Foreman</u></b> 1) Supervise technicians in carrying out turbine and its auxiliary's maintenance works.	<b><u>Electrical Chargeman</u></b> 1) Supervise technicians in carrying out electrical maintenance works. 2) Supervise contractor's works in carrying-out electrical maintenance works.	<b><u>Instrument Maintenance Foreman</u></b> 1) Supervise technicians in carrying out instrument maintenance works. 2) Supervise contractor's works in carrying-out instrument maintenance works.

AREA	Hydro-electric Power Plant – Maintenance (Turbine)	Hydro-electric Power Plant – Maintenance (Electrical)	Hydro-electric Power Plant – Maintenance (Instrument)
	<ul style="list-style-type: none"> <li>2) Supervise contractor's works in carrying-out turbine and its auxiliary's maintenance works.</li> <li>3) Monitor turbine maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform basic troubleshooting on turbine and its auxiliary's equipment.</li> <li>5) Implement decision and direction for turbine maintenance section.</li> </ul>	<ul style="list-style-type: none"> <li>3) Carry out electrical isolation/ de-isolation of electrical equipment.</li> <li>4) Monitor electrical maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> <li>5) Perform basic troubleshooting on electrical equipment.</li> <li>6) Implement decision and direction for electrical maintenance section.</li> </ul>	<ul style="list-style-type: none"> <li>3) Monitor instrument maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform basic troubleshooting on instrument equipment.</li> <li>5) Implement decision and direction for instrument maintenance section.</li> </ul>
LEVEL 3	<b><u>Turbine Maintenance Technician</u></b> <ul style="list-style-type: none"> <li>1) Carry out turbine and its auxiliary's maintenance work.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Control of turbine maintenance tools and equipment.</li> <li>4) Perform basic troubleshooting on turbine and its auxiliary's equipment.</li> <li>5) Implement decision and direction for turbine maintenance section.</li> </ul>	<b><u>Electrical Maintenance Technician</u></b> <ul style="list-style-type: none"> <li>1) Carry out electrical maintenance works.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Control of electrical maintenance tools and equipment.</li> <li>4) Perform basic troubleshooting on electrical equipment.</li> <li>5) Implement decision and direction for electrical maintenance section.</li> </ul>	<b><u>Instrument Maintenance Technician</u></b> <ul style="list-style-type: none"> <li>1) Carry out instrument maintenance works.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Control of instrument maintenance tools and equipment.</li> <li>4) Perform basic troubleshooting on instrument equipment.</li> <li>5) Implement decision and direction for instrument maintenance section.</li> </ul>

AREA	Hydro-electric Power Plant – Maintenance (Turbine)	Hydro-electric Power Plant – Maintenance (Electrical)	Hydro-electric Power Plant – Maintenance (Instrument)
LEVEL 2	<b><u>Junior Turbine Maintenance Technician</u></b> 1) Assist technician in carrying out turbine and its auxiliary's maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Maintain turbine maintenance tools and equipment. 4) Implement decision and direction for turbine maintenance section.	<b><u>Junior Electrical Maintenance Technician</u></b> 1) Assist technician in carrying out electrical maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Maintain electrical maintenance tools and equipment. 4) Implement decision and direction for electrical maintenance section.	No Level
LEVEL 1	No Level	No Level	No Level

Table 4.62: List of Responsibilities for Group 351 Based on Table 4.15 and 4.16 (12 of 38)

AREA	Hydro-electric Power Plant – Support Services (Health, Safety and Environment)	Hydro-electric Power Plant – Support Services (Chemist)	Solar Power Plant – Project (Engineering)
LEVEL 8	<b><u>Station Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the hydro-electric power station electricity production.</li> <li>2) Responsible for station production and plant integrity.</li> <li>3) Develop station work policies; HSE and Quality Policies.</li> <li>4) Issue performance targets to heads of department.</li> <li>5) Liaise with head office on budget for station production and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.</li> </ol>	<b><u>Station Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the hydro-electric power station electricity production.</li> <li>2) Responsible for station production and plant integrity.</li> <li>3) Develop station work policies; HSE and Quality Policies.</li> <li>4) Issue performance targets to heads of department.</li> <li>5) Liaise with head office on budget for station production and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.</li> </ol>	<b><u>Engineering Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage engineering project office.</li> <li>2) Lead multi-disciplines design engineers.</li> <li>3) Develop business proposal for new project.</li> <li>4) Manage design of new or rejuvenation of solar power plant.</li> </ol>
LEVEL 7	<b><u>Health, Safety and Environment Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage HSE activities in hydro-electric power plant.</li> <li>2) Manage HSE programme with staffs and sub-contractor's manpower.</li> <li>3) Review safety incidences in power plant.</li> </ol>	<b><u>Chief Chemist</u></b> <ol style="list-style-type: none"> <li>1) Manage laboratory activities in hydro-electric power plant.</li> <li>2) Develop monitoring programs on waste effluent and flue gas emission to meet statutory requirements.</li> </ol>	<b><u>Design Office Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage design office.</li> <li>2) Lead design office engineers and draughtsman.</li> <li>3) Review detailed design works by engineers.</li> </ol>

AREA	Hydro-electric Power Plant – Support Services (Health, Safety and Environment)	Hydro-electric Power Plant – Support Services (Chemist)	Solar Power Plant – Project (Engineering)
	<ul style="list-style-type: none"> <li>4) Monitor HSE implementation by various power plant departments.</li> <li>5) Develop HSE rules and regulations to meet statutory requirements.</li> <li>6) Manage performance targets of HSE department.</li> <li>7) Review budget for station HSE program.</li> <li>8) Make strategic decision and provide necessary leadership and direction for HSE departments to implement those decisions.</li> </ul>	<ul style="list-style-type: none"> <li>3) Manage performance targets of laboratory department.</li> <li>4) Review budget for station laboratory and new projects.</li> <li>5) Make strategic decision and provide necessary leadership and direction for laboratory departments to implement those decisions.</li> </ul>	<ul style="list-style-type: none"> <li>4) Assign design activities to discipline engineers.</li> <li>5) Monitor design work schedule and work progress.</li> </ul>
LEVEL 6	<b><u>Health, Safety &amp; Environment Engineer</u></b> <ul style="list-style-type: none"> <li>1) Implement HSE activities in hydro-electric power plant.</li> <li>2) Conduct HSE programme with staffs and sub-contractor's manpower.</li> <li>3) Investigate safety incidences in power plant.</li> <li>4) Monitor HSE implementation by various power plant departments.</li> <li>5) Implement HSE rules and regulations to meet statutory requirements.</li> <li>6) Monitor performance targets of HSE department.</li> </ul>	<b><u>Chemist</u></b> <ul style="list-style-type: none"> <li>1) Monitor laboratory activities in hydro-electric power plant.</li> <li>2) Implement monitoring programmes on waste effluent and flue gas emission to meet statutory requirements.</li> <li>3) Monitor performance targets of laboratory department.</li> <li>4) Control budget for station laboratory and new projects.</li> <li>5) Implement decision and direction for laboratory section.</li> </ul>	<b><u>Design Engineer</u></b> <ul style="list-style-type: none"> <li>1) Review design sketches.</li> <li>2) Carry out design calculations.</li> <li>3) Review design codes and standards to meet authority's requirements.</li> <li>4) Monitor site construction verification works.</li> <li>5) Assign job activities to draughtsman.</li> <li>6) Check design schedule and work progress.</li> </ul>

AREA	Hydro-electric Power Plant – Support Services (Health, Safety and Environment)	Hydro-electric Power Plant – Support Services (Chemist)	Solar Power Plant – Project (Engineering)
	7) Control budget for station HSE programme. 8) Implement decision and direction for HSE section.		
LEVEL 5	<b><u>Safety Officer</u></b> 1) Execute HSE programmes to meet the organization and statutory requirements. 2) Carry out accident investigation. 3) Report safety and health reportable cases to DOSH as per requirements. 4) Monitor safety enforcements and penalty scheme.	<b><u>Lab Analyst</u></b> 1) Analyse hydro-electric power plant process samples. 2) Analyse waste effluent and flue gas emission samples. 3) Maintain laboratory equipment. 4) Implement decision and direction for laboratory section as per management requirements.	<b><u>Design Executive</u></b> 1) Carry out site survey and design sketches. 2) Carry out simple design calculations. 3) Apply design codes and standards to meet authority's requirements. 4) Conduct site construction verification works. 5) Check job progress of draughtsman. 6) Adhere to design schedule and work progress.
LEVEL 4	<b><u>Safety Supervisor</u></b> 1) Assist Safety Officer to execute HSE programmes to meet the organization and statutory requirements. 2) Organise accident investigation. 3) Prepare accident report for safety and health reportable cases to DOSH as per requirements.	<b><u>Assistant Lab Analyst</u></b> 1) Assist Lab Analyst in analysing hydro-electric power plant process samples. 2) Assist Lab Analyst in analysing waste effluent and flue gas emission samples. 3) Maintain laboratory equipment.	<b><u>Design Supervisor</u></b> 1) Supervise design office draughting works. 2) Supervise site draughting works. 3) Apply design codes and standards to meet authority's requirements. 4) Monitor job progress of draughtsman. 5) Adhere to design schedule and work progress.



AREA	Hydro-electric Power Plant – Support Services (Health, Safety and Environment)	Hydro-electric Power Plant – Support Services (Chemist)	Solar Power Plant – Project (Engineering)
	4) Carry out safety enforcements and penalty scheme.	4) Implement decision and direction for laboratory section as per management requirements.	
LEVEL 3	No Level	<b><u>Sampling Operator</u></b> 1) Collect hydro-electric power plant process samples. 2) Collect waste effluent and flue gas emission samples. 3) Implement decision and direction for laboratory section as per management requirements.	<b><u>Draftsman</u></b> 1) Carry out draughting works. 2) Carry out site draughting works. 3) Apply design codes and standards to meet authority's requirements. 4) Adhere to design schedule and work progress.
LEVEL 2	No Level	No Level	<b><u>Junior Draftsman</u></b> 1) Carry out draughting works. 2) Carry out site draughting works. 3) Apply design codes and standards to meet authority's requirements. 4) Adhere to design schedule and work progress.
LEVEL 1	No Level	No Level	No Level

Table 4.63: List of Responsibilities for Group 351 Based on Table 4.16 (13 of 38)

AREA	Solar Power Plant – Project (Mechanical Construction)	Solar Power Plant – Project (Electric and Instrument Construction)	Solar Power Plant – Project (Health, Safety and Environment Construction)
LEVEL 8	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage mechanical construction project office.</li> <li>2) Lead a team of mechanical construction organization.</li> <li>3) Approve site construction work changes.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage E&amp;I construction project office.</li> <li>2) Lead a team of E&amp;I construction organization.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage HSE project office.</li> <li>2) Lead a team of HSE organisation.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>
LEVEL 7	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate mechanical construction project activities.</li> <li>2) Manage mechanical construction project engineers and technicians.</li> </ol>	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate E&amp;I construction project activities.</li> <li>2) Manage E&amp;I construction project engineers and technicians.</li> </ol>	<b><u>Health, Safety &amp; Environment Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage HSE in construction project.</li> <li>2) Manage HSE program with staffs and sub-contractor's manpower.</li> <li>3) Review safety incidences in project construction activities.</li> </ol>

AREA	Solar Power Plant – Project (Mechanical Construction)	Solar Power Plant – Project (Electric and Instrument Construction)	Solar Power Plant – Project (Health, Safety and Environment Construction)
	3) Manage mechanical construction sub-contractors work progress. 4) Review site construction work changes. 5) Assign job activities to engineers. 6) Monitor project schedule and work progress.	3) Manage E&I construction sub-contractors work progress. 4) Review site construction work changes. 5) Assign job activities to engineers. 6) Monitor project schedule and work progress	4) Monitor HSE implementation by various project construction departments.
LEVEL 6	<b><u>Mechanical Construction Engineer</u></b> 1) Oversee mechanical construction project activities. 2) Supervise mechanical construction project technicians. 3) Monitor mechanical construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.	<b><u>Electrical and Instrument Construction Engineer</u></b> 1) Oversee E&I construction project activities. 2) Supervise E&I construction project technicians. 3) Monitor E&I construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.	<b><u>Health, Safety and Environment Engineer</u></b> 1) Develop HSE Plan to meet the organization and statutory requirements. 2) Carry out incidences trending and analysis. 3) Recommend HSE programmes to address plant safety concerns. 4) Carry out closure of safety audit disposition. 5) Prepare safety walkabout schedule.
LEVEL 5	<b><u>Mechanical Construction Executive</u></b> 1) Issue site work requirements. 2) Site coordination of mechanical construction project works. 3) Organise mechanical construction sub-contractors site work activities.	<b><u>Electrical and Instrument Construction Executive</u></b> 1) Issue site work requirements. 2) Site coordination of E&I construction project works.	<b><u>Safety Officer</u></b> 1) Execute HSE programmes to meet the organization and statutory requirements. 2) Carry out accident investigation. 3) Report safety and health reportable cases to DOSH as per requirements.

AREA	Solar Power Plant – Project (Mechanical Construction)	Solar Power Plant – Project (Electric and Instrument Construction)	Solar Power Plant – Project (Health, Safety and Environment Construction)
	4) Organise mechanical materials receipt on site. 5) Organise mechanical equipment usage on site.	3) Organise E&I construction sub-contractors site work activities. 4) Organise E&I materials receipt on site. 5) Organise E&I equipment usage on site.	4) Monitor safety enforcements and penalty scheme.
LEVEL 4	<b><u>Mechanical Construction Supervisor</u></b> 1) Interpret site work requirements. 2) Site supervision of mechanical construction project works. 3) Check mechanical construction sub-contractors site work activities. 4) Manage day-to-day site work technical issues. 5) Coordinate mechanical materials receipt on site. 6) Coordinate mechanical equipment usage on site.	<b><u>Electrical &amp; Instrument Construction Supervisor</u></b> 1) Interpret site work requirements. 2) Site supervision of E&I construction project works. 3) Check E&I construction sub-contractors site work activities. 4) Manage day-to-day site work technical issues. 5) Coordinate E&I materials receipt on site. 6) Coordinate E&I equipment usage on site.	<b><u>Safety Supervisor</u></b> 1) Assist Safety Officer to execute HSE programmes to meet the organisation and statutory requirements. 2) Organise accident investigation. 3) Prepare accident report for safety and health reportable cases to DOSH as per requirements. 4) Carry out safety enforcements and penalty scheme.
LEVEL 3	<b><u>Mechanical Construction Technician</u></b> 1) Carry out mechanical construction project works. 2) Lead workers to execute mechanical construction works. 3) Instruct mechanical construction sub-contractors site work activities.	<b><u>Electrical and Instrument Construction Technician</u></b> 1) Carry out E&I construction project works. 2) Lead workers to execute E&I construction works. 3) Instruct E&I construction sub-contractors site work activities.	No Level

AREA	Solar Power Plant – Project (Mechanical Construction)	Solar Power Plant – Project (Electric and Instrument Construction)	Solar Power Plant – Project (Health, Safety and Environment Construction)
	4) Address day-to-day site work technical issues. 5) Report site work activities.	4) Address day-to-day site work technical issues. 5) Report site work activities.	
LEVEL 2	<b><u>Junior Mechanical Construction Technician</u></b> 1) Assist in execution of mechanical construction project works. 2) Execute site mechanical construction works. 3) Conduct site mechanical work testing. 4) Contribute to team effort by to deliver results as required.	<b><u>Junior Electrical and Instrument Construction Technician</u></b> 1) Assist in execution of E&I construction project works. 2) Execute site E&I construction works. 3) Conduct site E&I work testing. 4) Contribute to team effort by to deliver results as required.	No Level
LEVEL 1	No Level	No Level	No Level

Table 4.64: List of Responsibilities for Group 351 Based on Table 4.17 (14 of 38)

AREA	Solar Power Plant – Operation	Solar Power Plant – Maintenance (Mechanical)	Solar Power Plant – Maintenance (Electrical and Instrument Maintenance)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	<b><u>Plant Manager</u></b> 1) Manager solar power plant operation staff. 2) Coordinate with system operator (NLDC) on plant production requirements. 3) Communicate with management and system operator on plant outage and production restriction. 4) Control operations budget and production cost.	<b><u>Plant Manager</u></b> 1) Manage the solar power station mechanical maintenance department. 2) Responsible for station mechanical maintenance and plant integrity. 3) Manage implementation of station work policies; HSE and Quality Policies. 4) Manage performance targets of mechanical maintenance department. 5) Review budget for station mechanical maintenance and new projects. 6) Make strategic decision and provide necessary leadership and direction for mechanical maintenance departments to implement those decisions.	<b><u>Plant Manager</u></b> 1) Manage the solar power station E&I maintenance department. 2) Responsible for station E&I maintenance and plant integrity. 3) Manage implementation of station work policies; HSE and Quality Policies. 4) Manage performance targets of E&I maintenance department. 5) Review budget for station E&I maintenance and new projects. 6) Make strategic decision and provide necessary leadership and direction for E&I maintenance departments to implement those decisions.
LEVEL 6	<b><u>Operation Engineer</u></b> 1) Assist Operation Manager to manage solar power plant operation staff.	<b><u>Mechanical Maintenance Engineer</u></b> 1) Manage the solar power station mechanical maintenance department.	<b><u>Electrical and Instrument Maintenance Engineer</u></b> 1) Manage the solar power station E&I maintenance department.

AREA	Solar Power Plant – Operation	Solar Power Plant – Maintenance (Mechanical)	Solar Power Plant – Maintenance (Electrical and Instrument Maintenance)
	<ul style="list-style-type: none"> <li>2) Review plant availability for reporting to system operator (NLDC).</li> <li>3) Plan on plant outage.</li> <li>4) Explore production restriction.</li> <li>5) Handle operations budget.</li> </ul>	<ul style="list-style-type: none"> <li>2) Responsible for mechanical and its auxiliary's maintenance and plant integrity.</li> <li>3) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform troubleshooting on turbine and its auxiliary's equipment.</li> <li>5) Implement decision and direction for mechanical maintenance section.</li> </ul>	<ul style="list-style-type: none"> <li>2) Responsible for E&amp;I and its auxiliary's maintenance and plant integrity.</li> <li>3) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform troubleshooting on turbine and its auxiliary's equipment.</li> <li>5) Implement decision and direction for E&amp;I maintenance section.</li> </ul>
LEVEL 5	<b><u>Operation Executive</u></b> <ul style="list-style-type: none"> <li>1) Assist Operation Engineer.</li> <li>2) Make sure the generation facilities are in good working condition and at its optimum capacity.</li> <li>3) Monitor and regulate the power output and quality.</li> <li>4) Responsible to communicate with NLDC on the generation status and outage</li> <li>5) Work together with Operation engineer in planning the generation and outage, following the demands, fuel capacity etc</li> </ul>	<b><u>Mechanical Maintenance Technical Assistant</u></b> <ul style="list-style-type: none"> <li>1) Provide technical support for mechanical and its auxiliary's maintenance and plant integrity.</li> <li>2) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>3) Implement decision and direction for mechanical maintenance section.</li> </ul>	<b><u>Electrical and Instrument Technical Assistant</u></b> <ul style="list-style-type: none"> <li>1) Provide technical support for electrical maintenance and plant integrity.</li> <li>2) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>3) Perform troubleshooting on electrical equipment.</li> <li>4) Perform electrical section budget for maintenance and new projects.</li> <li>5) Implement decision and direction for electrical maintenance section.</li> </ul>

AREA	Solar Power Plant – Operation	Solar Power Plant – Maintenance (Mechanical)	Solar Power Plant – Maintenance (Electrical and Instrument Maintenance)
	6) Prepare documents for power status report, incidents, test procedure according to Energy Commission 7) Identified site components required through design and as built technical drawing		
LEVEL 4	<b><u>Panel Controller</u></b> 1) Operate solar power plant control panel. 2) Carry out plant start-up and shutdown operation. 3) Carry out equipment troubleshooting. 4) Monitor PTW and coordinate maintenance works.	<b><u>Mechanical Supervisor</u></b> 1) Supervise technicians in carrying-out mechanical and its auxiliary's maintenance works. 2) Supervise contractor's works in carrying-out mechanical and its auxiliary's maintenance works. 3) Monitor turbine maintenance technicians in the implementation of station work policies; HSE and Quality Policies. 4) Implement decision and direction for mechanical maintenance section.	<b><u>Electrical and Instrument Supervisor</u></b> 1) Supervise technicians in carrying-out electrical maintenance works. 2) Supervise contractor's works in carrying-out electrical maintenance works. 3) Carry out electrical isolation/ de-isolation of electrical equipment. 4) Monitor electrical maintenance technicians in the implementation of station work policies; HSE and Quality Policies. 5) Perform basic troubleshooting on electrical equipment. 6) Implement decision and direction for electrical maintenance section.



AREA	Solar Power Plant – Operation	Solar Power Plant – Maintenance (Mechanical)	Solar Power Plant – Maintenance (Electrical and Instrument Maintenance)
LEVEL 3	<b><u>Plant Operator</u></b> <ol style="list-style-type: none"> <li>1) Carry out solar power plant machinery operation.</li> <li>2) Isolate/normalise equipment/system for maintenance works.</li> <li>3) Execute periodic testing of equipment.</li> <li>4) Check and report equipment abnormal operation.</li> </ol>	<b><u>Mechanical Technician</u></b> <ol style="list-style-type: none"> <li>1) Carry out mechanical and its auxiliary's maintenance work.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Control of mechanical maintenance tools and equipment.</li> <li>4) Perform basic troubleshooting on mechanical and its auxiliary's equipment.</li> <li>5) Implement decision and direction for mechanical maintenance section.</li> </ol>	<b><u>Electrical &amp; Instrument Technician</u></b> <ol style="list-style-type: none"> <li>1) Carry out electrical maintenance works.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Control of electrical maintenance tools and equipment.</li> <li>4) Perform basic troubleshooting on electrical equipment.</li> <li>5) Implement decision and direction for electrical maintenance section.</li> </ol>
LEVEL 2	<b><u>Junior Plant Operator</u></b> <ol style="list-style-type: none"> <li>1) Carry out solar power plant machinery operation.</li> <li>2) Isolate/normalise equipment/system for maintenance works.</li> <li>3) Execute periodic testing of equipment.</li> <li>4) Check and report equipment abnormal operation.</li> </ol>	<b><u>Junior Mechanical Technician</u></b> <ol style="list-style-type: none"> <li>1) Assist technician in carrying-out mechanical and its auxiliary's maintenance works.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Maintain mechanical maintenance tools and equipment.</li> <li>4) Implement decision and direction for mechanical maintenance section.</li> </ol>	<b><u>Junior Electrical and Instrument Technician</u></b> <ol style="list-style-type: none"> <li>1) Assist technician in carrying-out electrical maintenance works.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Maintain electrical maintenance tools and equipment.</li> <li>4) Implement decision and direction for electrical maintenance section.</li> </ol>

<b>AREA</b>	<b>Solar Power Plant – Operation</b>	<b>Solar Power Plant – Maintenance (Mechanical)</b>	<b>Solar Power Plant – Maintenance (Electrical and Instrument Maintenance)</b>
LEVEL 1	No Level	No Level	No Level

Table 4.65: List of Responsibilities for Group 351 Based on Table 4.17 and 4.18 (15 of 38)

AREA	Solar Power Plant – Support Services (Health Safety and Environment)	Bio-mass Power Plant – Project (Engineering)	Bio-mass Power Plant – Project (Civil Construction)
LEVEL 8	Not Available	<b><u>Engineering Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage engineering project office.</li> <li>2) Lead multi-disciplines design engineers.</li> <li>3) Develop business proposal for new project.</li> <li>4) Manage design of new or rejuvenation of bio-mass power plant.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage civil construction project office.</li> <li>2) Lead a team of civil construction organisation.</li> <li>3) Approve site construction work changes.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>
LEVEL 7	<b><u>Plant Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage HSE activities in solar power plant.</li> <li>2) Manage HSE program with staffs and sub-contractor's manpower.</li> <li>3) Review safety incidences in power plant.</li> </ol>	<b><u>Design Office Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage design office.</li> <li>2) Lead design office engineers and draughtsman.</li> <li>3) Review detailed design works by engineers.</li> </ol>	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate civil construction project activities.</li> <li>2) Manage civil construction project engineers and technicians.</li> <li>3) Manage civil construction sub-contractors work progress.</li> </ol>

AREA	Solar Power Plant – Support Services (Health Safety and Environment)	Bio-mass Power Plant – Project (Engineering)	Bio-mass Power Plant – Project (Civil Construction)
	4) Monitor HSE implementation by various power plant departments. 5) Develop HSE rules and regulations to meet statutory requirements. 6) Manage performance targets of HSE department. 7) Review budget for station HSE programme. 8) Make strategic decision and provide necessary leadership and direction for HSE departments to implement those decisions.	4) Assign design activities to discipline engineers. 5) Monitor design work schedule and work progress.	4) Review site construction work changes. 5) Assign job activities to engineers. 6) Monitor project schedule and work progress.
LEVEL 6	No Level	<b><u>Design Engineer</u></b> 1) Review design sketches. 2) Carry out design calculations. 3) Review design codes and standards to meet authority's requirements. 4) Monitor site construction verification works. 5) Assign job activities to draughtsman. 6) Check design schedule and work progress.	<b><u>Civil Construction Engineer</u></b> 1) Oversee civil construction project activities. 2) Supervise civil construction project technicians. 3) Monitor civil construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.
LEVEL 5	<b><u>Safety Officer</u></b>	<b><u>Design Executive</u></b> 1) Carry out site survey and design sketches.	<b><u>Civil Construction Executive</u></b> 1) Issue site work requirements.

AREA	Solar Power Plant – Support Services (Health Safety and Environment)	Bio-mass Power Plant – Project (Engineering)	Bio-mass Power Plant – Project (Civil Construction)
	1) Execute HSE programmes to meet the organization and statutory requirements. 2) Carry out accident investigation. 3) Report safety and health reportable cases to DOSH as per requirements. 4) Monitor safety enforcements and penalty scheme.	2) Carry out simple design calculations. 3) Apply design codes and standards to meet authority's requirements. 4) Conduct site construction verification works. 5) Check job progress of draughtsman. 6) Adhere to design schedule and work progress.	2) Site coordination of civil construction project works. 3) Organise civil construction sub-contractors site work activities. 4) Organise civil materials receipt on site. 5) Organise civil equipment usage on site.
LEVEL 4	<b><u>Safety Supervisor</u></b> 1) Assist Safety Officer to execute HSE programs to meet the organization and statutory requirements. 2) Organise accident investigation. 3) Prepare accident report for safety and health reportable cases to DOSH as per requirements. 4) Carry out safety enforcements and penalty scheme.	<b><u>Design Supervisor</u></b> 1) Supervise design office draughting works. 2) Supervise site draughting works. 3) Apply design codes and standards to meet authority's requirements. 4) Monitor job progress of draughtsman. 5) Adhere to design schedule and work progress.	<b><u>Civil Construction Supervisor</u></b> 1) Interpret site work requirements. 2) Site supervision of civil construction project works. 3) Check civil construction sub-contractors site work activities. 4) Manage day-to-day site work technical issues. 5) Coordinate civil materials receipt on site. 6) Coordinate civil equipment usage on site.
LEVEL 3	No Level	<b><u>Draftsman</u></b> 1) Carry out draughting works. 2) Carry out site draughting works. 3) Apply design codes and standards to meet authority's requirements.	<b><u>Civil Construction Technician</u></b> 1) Carry out civil construction project works. 2) Lead workers to execute civil construction works.

AREA	Solar Power Plant – Support Services (Health Safety and Environment)	Bio-mass Power Plant – Project (Engineering)	Bio-mass Power Plant – Project (Civil Construction)
		4) Adhere to design schedule and work progress.	3) Instruct civil construction sub-contractors site work activities. 4) Address day-to-day site work technical issues. 5) Report site work activities.
LEVEL 2	No Level	<b><u>Junior Draftsman</u></b> 1) Carry out draughting works. 2) Carry out site draughting works. 3) Apply design codes and standards to meet authority's requirements. 4) Adhere to design schedule and work progress.	<b><u>Junior Civil Construction Technician</u></b> 1) Assist in execution of civil construction project works. 2) Execute site civil construction works. 3) Conduct site civil work testing. 4) Contribute to team effort by to deliver results as required.
LEVEL 1	No Level	No Level	No Level

Table 4.66: List of Responsibilities for Group 351 Based on Table 4.18 (16 of 38)

AREA	Bio-mass Power Plant – Project (Mechanical Construction)	Bio-mass Power Plant – Project (Electric & Instrument Construction)	Bio-mass Power Plant – Project (Health, Safety and Environment Construction)
LEVEL 8	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage mechanical construction project office.</li> <li>2) Lead a team of mechanical construction organisation.</li> <li>3) Approve site construction work changes.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage the bio-mass power station electricity production.</li> <li>2) Responsible for station production and plant integrity.</li> <li>3) Develop station work policies; HSE and Quality Policies.</li> <li>4) Issue performance targets to heads of department.</li> <li>5) Liaise with head office on budget for station production and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage the bio-mass power station electricity production.</li> <li>2) Responsible for station production and plant integrity.</li> <li>3) Develop station work policies; HSE and Quality Policies.</li> <li>4) Issue performance targets to heads of department.</li> <li>5) Liaise with head office on budget for station production and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.</li> </ol>
LEVEL 7	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate mechanical construction project activities.</li> <li>2) Manage mechanical construction project engineers and technicians.</li> </ol>	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the bio-mass power station E&amp;I maintenance department.</li> <li>2) Responsible for station E&amp;I maintenance and plant integrity.</li> </ol>	<b><u>Health, Safety and Environment Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage HSE activities in bio-mass power plant.</li> <li>2) Manage HSE programme with staffs and sub-contractor's manpower.</li> <li>3) Review safety incidences in power plant.</li> </ol>

AREA	Bio-mass Power Plant – Project (Mechanical Construction)	Bio-mass Power Plant – Project (Electric & Instrument Construction)	Bio-mass Power Plant – Project (Health, Safety and Environment Construction)
	<ul style="list-style-type: none"> <li>3) Manage mechanical construction sub-contractors work progress.</li> <li>4) Review site construction work changes.</li> <li>5) Assign job activities to engineers.</li> <li>6) Monitor project schedule and work progress.</li> </ul>	<ul style="list-style-type: none"> <li>3) Manage implementation of station work policies; HSE and Quality Policies.</li> <li>4) Manage performance targets of E&amp;I maintenance department.</li> <li>5) Review budget for station E&amp;I maintenance and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for E&amp;I maintenance departments to implement those decisions.</li> </ul>	<ul style="list-style-type: none"> <li>4) Monitor HSE implementation by various power plant departments.</li> <li>5) Develop HSE rules and regulations to meet statutory requirements.</li> <li>6) Manage performance targets of HSE department.</li> <li>7) Review budget for station HSE program.</li> <li>8) Make strategic decision and provide necessary leadership and direction for HSE departments to implement those decisions.</li> </ul>
LEVEL 6	<u><b>Mechanical Construction Engineer</b></u> <ul style="list-style-type: none"> <li>1) Oversee mechanical construction project activities.</li> <li>2) Supervise mechanical construction project technicians.</li> <li>3) Monitor mechanical construction sub-contractors work progress.</li> <li>4) Check site construction work changes.</li> <li>5) Assign job activities to technicians.</li> <li>6) Check project schedule and work progress.</li> </ul>	<u><b>Electric and Instrument Construction Engineer</b></u> <ul style="list-style-type: none"> <li>1) Manage the bio-mass power station instrument maintenance department.</li> <li>2) Responsible for station instrument maintenance and plant integrity.</li> <li>3) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform troubleshooting on instrument equipment.</li> <li>5) Execute instrument section performance targets.</li> <li>6) Control instrument section budget for maintenance and new projects.</li> </ul>	<u><b>Health, Safety and Environment Engineer</b></u> <ul style="list-style-type: none"> <li>1) Implement HSE activities in bio-mass power plant.</li> <li>2) Conduct HSE programme with staffs and sub-contractor's manpower.</li> <li>3) Investigate safety incidences in power plant.</li> <li>4) Monitor HSE implementation by various power plant departments.</li> <li>5) Implement HSE rules and regulations to meet statutory requirements.</li> <li>6) Monitor performance targets of HSE department.</li> </ul>



AREA	Bio-mass Power Plant – Project (Mechanical Construction)	Bio-mass Power Plant – Project (Electric & Instrument Construction)	Bio-mass Power Plant – Project (Health, Safety and Environment Construction)
		7) Implement decision and direction for instrument maintenance section.	7) Control budget for station HSE programme. 8) Implement decision and direction for HSE section.
LEVEL 5	<b><u>Mechanical Construction Executive</u></b> <ol style="list-style-type: none"> <li>1) Issue site work requirements.</li> <li>2) Site coordination of mechanical construction project works.</li> <li>3) Organise mechanical construction sub-contractors site work activities.</li> <li>4) Organise mechanical materials receipt on site.</li> <li>5) Organise mechanical equipment usage on site.</li> </ol>	<b><u>Electrical and Instrument Construction Executive</u></b> <ol style="list-style-type: none"> <li>1) Provide technical support for instrument maintenance and plant integrity.</li> <li>2) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>3) Perform troubleshooting on instrument equipment.</li> <li>4) Perform instrument section budget for maintenance and new projects.</li> <li>5) Implement decision and direction for instrument maintenance section.</li> </ol>	<b><u>Safety Officer</u></b> <ol style="list-style-type: none"> <li>1) Execute HSE programmes to meet the organisation and statutory requirements.</li> <li>2) Carry out accident investigation.</li> <li>3) Report safety and health reportable cases to DOSH as per requirements.</li> <li>4) Monitor safety enforcements and penalty scheme.</li> </ol>
LEVEL 4	<b><u>Mechanical Construction Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Interpret site work requirements.</li> <li>2) Site supervision of mechanical construction project works.</li> <li>3) Check mechanical construction sub-contractors site work activities.</li> </ol>	<b><u>Electric and Instrument Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Supervise technicians in carrying out instrument maintenance works.</li> <li>2) Supervise contractor's works in carrying-out instrument maintenance works.</li> <li>3) Monitor instrument maintenance technicians in the implementation of</li> </ol>	<b><u>Safety Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Assist Safety Officer to execute HSE programs to meet the organization and statutory requirements.</li> <li>2) Organize accident investigation.</li> </ol>

AREA	Bio-mass Power Plant – Project (Mechanical Construction)	Bio-mass Power Plant – Project (Electric & Instrument Construction)	Bio-mass Power Plant – Project (Health, Safety and Environment Construction)
	4) Manage day-to-day site work technical issues. 5) Coordinate mechanical materials receipt on site. 6) Coordinate mechanical equipment usage on site.	station work policies; HSE and Quality Policies. 4) Perform basic troubleshooting on instrument equipment. 5) Implement decision and direction for instrument maintenance section.	3) Prepare accident report for safety and health reportable cases to DOSH as per requirements. 4) Carry out safety enforcements and penalty scheme.
LEVEL 3	<b><u>Mechanical Construction Technician</u></b> 1) Carry out mechanical construction project works. 2) Lead workers to execute mechanical construction works. 3) Instruct mechanical construction sub-contractors site work activities. 4) Address day-to-day site work technical issues. 5) Report site work activities.	<b><u>Electrical &amp; Instrument Technician</u></b> 1) Carry out instrument maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Control of instrument maintenance tools and equipment. 4) Perform basic troubleshooting on instrument equipment. 5) Implement decision and direction for instrument maintenance section.	No Level
LEVEL 2	<b><u>Junior Mechanical Construction Technician</u></b> 1) Assist in execution of mechanical construction project works. 2) Execute site mechanical construction works. 3) Conduct site mechanical work testing.	<b><u>Junior Electrical and Instrument Construction Technician</u></b> 1) Carry out instrument maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Control of instrument maintenance tools and equipment.	No Level

<b>AREA</b>	<b>Bio-mass Power Plant – Project (Mechanical Construction)</b>	<b>Bio-mass Power Plant – Project (Electric &amp; Instrument Construction)</b>	<b>Bio-mass Power Plant – Project (Health, Safety and Environment Construction)</b>
	4) Contribute to team effort by to deliver results as required.	4) Perform basic troubleshooting on instrument equipment. 5) Implement decision and direction for instrument maintenance section.	
<b>LEVEL 1</b>	No Level	No Level	No Level

Table 4.67: List of Responsibilities for Group 351 Based on Table 4.19 (17 of 38)

AREA	Bio-mass Power Plant – Operation	Bio-mass Power Plant – Maintenance (Mechanical)	Bio-mass Power Plant – Maintenance (Electrical and Instrument)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	<b><u>Plant Manager</u></b> <ol style="list-style-type: none"> <li>1) Manager bio-mass power plant operation staff.</li> <li>2) Coordinate with system operator (NLDC) on plant production requirements.</li> <li>3) Communicate with management and system operator on plant outage and production restriction.</li> <li>4) Control operations budget and production cost.</li> </ol>	<b><u>Plant Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the bio-mass power station E&amp;I maintenance department.</li> <li>2) Responsible for station E&amp;I maintenance and plant integrity.</li> <li>3) Manage implementation of station work policies; HSE and Quality Policies.</li> <li>4) Manage performance targets of E&amp;I maintenance department.</li> <li>5) Review budget for station E&amp;I maintenance and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for E&amp;I maintenance departments to implement those decisions.</li> </ol>	<b><u>Plant Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the bio-mass power station E&amp;I maintenance department.</li> <li>2) Responsible for station E&amp;I maintenance and plant integrity.</li> <li>3) Manage implementation of station work policies; HSE and Quality Policies.</li> <li>4) Manage performance targets of E&amp;I maintenance department.</li> <li>5) Review budget for station E&amp;I maintenance and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for E&amp;I maintenance departments to implement those decisions.</li> </ol>
LEVEL 6	<b><u>Operation Engineer</u></b> <ol style="list-style-type: none"> <li>1) Assist Operation Manager to manage bio-mass power plant operation staff.</li> <li>2) Review plant availability for reporting to system operator (NLDC).</li> </ol>	<b><u>Mechanical Maintenance Engineer</u></b> <ol style="list-style-type: none"> <li>1) Manage the bio-mass power station mechanical maintenance department.</li> </ol>	<b><u>Electrical Maintenance Engineer</u></b> <ol style="list-style-type: none"> <li>1) Manage the bio-mass power station electrical maintenance department.</li> </ol>

AREA	Bio-mass Power Plant – Operation	Bio-mass Power Plant – Maintenance (Mechanical)	Bio-mass Power Plant – Maintenance (Electrical and Instrument)
	3) Plan on plant outage. 4) Explore production restriction. 5) Handle operations budget.	2) Responsible for station mechanical and its auxiliary's maintenance and plant integrity. 3) Execute implementation of station work policies; HSE and Quality Policies. 4) Perform troubleshooting on turbine and its auxiliary's equipment. 5) Execute turbine section performance targets. 6) Implement decision and direction for mechanical maintenance section.	2) Responsible for station electrical and its auxiliary's maintenance and plant integrity. 3) Execute implementation of station work policies; HSE and Quality Policies. 4) Perform troubleshooting on turbine and its auxiliary's equipment. 5) Execute turbine section performance targets. 6) Implement decision and direction for mechanical maintenance section.
LEVEL 5	<b><u>Operation Executive</u></b> 1) Assist Operation Engineer in making sure the generation facilities are in good working condition and at its optimum capacity 2) Monitor and regulated the power output and quality is following the power generation handbook (TNB) and Malaysia electricity acts and regulations 3) Responsible to communicate with NLDC on the generation status and outage	<b><u>Mechanical Maintenance Technical Assistant</u></b> 1) Provide technical support for mechanical maintenance and plant integrity. 2) Execute implementation of station work policies; HSE and Quality Policies. 3) Perform troubleshooting on electrical equipment. 4) Perform mechanical section budget for maintenance and new projects. 5) Implement decision and direction for mechanical maintenance section.	<b><u>Electrical and Instrument Maintenance Technical Assistant</u></b> 1) Provide technical support for E&I maintenance and plant integrity. 2) Execute implementation of station work policies; HSE and Quality Policies. 3) Perform troubleshooting on electrical equipment. 4) Perform electrical section budget for maintenance and new projects. 5) Implement decision and direction for electrical maintenance section.

AREA	Bio-mass Power Plant – Operation	Bio-mass Power Plant – Maintenance (Mechanical)	Bio-mass Power Plant – Maintenance (Electrical and Instrument)
	<ul style="list-style-type: none"> <li>4) Work together with Operation engineer in planning the generation and outage, following the demands, fuel capacity etc</li> <li>5) Prepare documents for power status report, incidents, test procedure according to Energy Commission</li> <li>6) Identified site components required through design and as built technical drawing</li> <li>7) Utilise measuring and diagnostic tools to adjust and / or troubleshoot problem</li> </ul>		
LEVEL 4	<b><u>Panel Controller</u></b> <ul style="list-style-type: none"> <li>1) Operate bio-mass power plant control panel.</li> <li>2) Carry out plant start-up and shutdown operation.</li> <li>3) Carry out equipment troubleshooting.</li> <li>4) Monitor PTW and coordinate maintenance works.</li> </ul>	<b><u>Mechanical Maintenance Supervisor</u></b> <ul style="list-style-type: none"> <li>1) Supervise technicians in carrying out mechanical maintenance works.</li> <li>2) Supervise contractor's works in carrying-out mechanical maintenance works.</li> <li>3) Monitor mechanical maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform basic troubleshooting on mechanical equipment.</li> <li>5) Implement decision and direction for mechanical maintenance section.</li> </ul>	<b><u>Electrical and Instrument Maintenance Supervisor</u></b> <ul style="list-style-type: none"> <li>1) Supervise technicians in carrying out electrical maintenance works.</li> <li>2) Supervise contractor's works in carrying-out electrical and instrument maintenance works.</li> <li>3) Carry out electrical isolation/ de-isolation of electrical equipment.</li> <li>4) Monitor electrical and instrument maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> </ul>

AREA	Bio-mass Power Plant – Operation	Bio-mass Power Plant – Maintenance (Mechanical)	Bio-mass Power Plant – Maintenance (Electrical and Instrument)
			5) Perform basic troubleshooting on electrical and instrument equipment. 6) Implement decision and direction for electrical and instrument maintenance section.
LEVEL 3	<b><u>Plant Operator</u></b> 1) Carry out bio-mass power plant machinery operation. 2) Isolate/normalise equipment/system for maintenance works. 3) Execute periodic testing of equipment. 4) Check and report equipment abnormal operation.	<b><u>Mechanical Maintenance Technician</u></b> 1) Carry out mechanical maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Control of mechanical maintenance tools and equipment. 4) Perform basic troubleshooting on mechanical equipment. 5) Implement decision and direction for mechanical maintenance section.	<b><u>Electrical and Instrument Maintenance Technician</u></b> 1) Carry out electrical maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Control of electrical maintenance tools and equipment. 4) Perform basic troubleshooting on electrical equipment. 5) Implement decision and direction for electrical maintenance section.
LEVEL 2	<b><u>Junior Plant Operator</u></b> 1) Carry out bio-mass power plant machinery operation. 2) Isolate/normalise equipment/system for maintenance works. 3) Execute periodic testing of equipment.	<b><u>Junior Mechanical Maintenance Technician</u></b> 1) Assist technician in carrying out mechanical maintenance works. 2) Implement station work policies; HSE and Quality Policies.	<b><u>Junior Electrical and Instrument Maintenance Technician</u></b> 1) Assist technician in carrying out electrical maintenance works. 2) Implement station work policies; HSE and Quality Policies.

<b>AREA</b>	<b>Bio-mass Power Plant – Operation</b>	<b>Bio-mass Power Plant – Maintenance (Mechanical)</b>	<b>Bio-mass Power Plant – Maintenance (Electrical and Instrument)</b>
	4) Check and report equipment abnormal operation.	3) Maintain mechanical maintenance tools and equipment. 4) Implement decision and direction for mechanical maintenance section.	3) Maintain electrical maintenance tools and equipment. 4) Implement decision and direction for electrical maintenance section.
<b>LEVEL 1</b>	No Level	No Level	No Level



Table 4.68: List of Responsibilities for Group 351 based on Table 4.20 and 4.21 (18 of 38)

AREA	Bio-mass Power Plant – Support Services (Health, Safety & Environment)	Bio-mass Power Plant – Support Services (Chemist)	Bio-gas Power Plant – Project (Engineering)
LEVEL 8	Not Available	Not Available	<b><u>Engineering Manager</u></b> 1) Manage engineering project office. 2) Lead multidisciplinary design engineers. 3) Develop business proposal for new project. 4) Manage design of new or rejuvenation of bio-gas power plant.
LEVEL 7	<b><u>Plant Manager</u></b> 1) Manage HSE activities in bio-mass power plant. 2) Manage HSE programme with staffs and sub-contractor's manpower. 3) Review safety incidences in power plant. 4) Monitor HSE implementation by various power plant departments. 5) Develop HSE rules and regulations to meet statutory requirements. 6) Manage performance targets of HSE department. 7) Review budget for station HSE programme.	<b><u>Plant Manager</u></b> 1) Manage laboratory activities in bio-mass power plant. 2) Develop monitoring programs on waste effluent and flue gas emission to meet statutory requirements. 3) Manage performance targets of laboratory department. 4) Review budget for station laboratory and new projects. 5) Make strategic decision and provide necessary leadership and direction for laboratory departments to implement those decisions.	<b><u>Design Office Manager</u></b> 1) Manage design office. 2) Lead design office engineers and draughtsman. 3) Review detailed design works by engineers. 4) Assign design activities to discipline engineers. 5) Monitor design work schedule and work progress.

AREA	Bio-mass Power Plant – Support Services (Health, Safety & Environment)	Bio-mass Power Plant – Support Services (Chemist)	Bio-gas Power Plant – Project (Engineering)
	8) Make strategic decision and provide necessary leadership and direction for HSE departments to implement those decisions.		
LEVEL 6	Not Available	<b><u>Chemist</u></b> <ol style="list-style-type: none"> <li>1) Monitor laboratory activities in bio-mass power plant.</li> <li>2) Implement monitoring programmes on waste effluent and flue gas emission to meet statutory requirements.</li> <li>3) Monitor performance targets of laboratory department.</li> <li>4) Control budget for station laboratory and new projects.</li> <li>5) Implement decision and direction for laboratory section.</li> </ol>	<b><u>Design Engineer</u></b> <ol style="list-style-type: none"> <li>1) Review design sketches.</li> <li>2) Carry out design calculations.</li> <li>3) Review design codes and standards to meet authority's requirements.</li> <li>4) Monitor site construction verification works.</li> <li>5) Assign job activities to draughtsman.</li> <li>6) Check design schedule and work progress.</li> </ol>
LEVEL 5	<b><u>Safety Officer</u></b> <ol style="list-style-type: none"> <li>1) Execute HSE programmes to meet the organization and statutory requirements.</li> <li>2) Carry out accident investigation.</li> <li>3) Report safety and health reportable cases to DOSH as per requirements.</li> </ol>	<b><u>Lab Analyst</u></b> <ol style="list-style-type: none"> <li>1) Analyse bio-mass power plant process samples.</li> <li>2) Analyse waste effluent and flue gas emission samples.</li> <li>3) Maintain laboratory equipment.</li> </ol>	<b><u>Design Executive</u></b> <ol style="list-style-type: none"> <li>1) Carry out site survey and design sketches.</li> <li>2) Carry out simple design calculations.</li> <li>3) Apply design codes and standards to meet authority's requirements.</li> <li>4) Conduct site construction verification works.</li> </ol>

AREA	Bio-mass Power Plant – Support Services (Health, Safety & Environment)	Bio-mass Power Plant – Support Services (Chemist)	Bio-gas Power Plant – Project (Engineering)
	4) Monitor safety enforcements and penalty scheme.	4) Implement decision and direction for laboratory section as per management requirements.	5) Check job progress of draughtsman. 6) Adhere to design schedule and work progress.
LEVEL 4	<b><u>Safety Supervisor</u></b> 1) Assist Safety Officer to execute HSE programmes to meet the organisation and statutory requirements. 2) Organise accident investigation. 3) Prepare accident report for safety and health reportable cases to DOSH as per requirements. 4) Carry out safety enforcements and penalty scheme.	<b><u>Assistant Lab Analyst</u></b> 1) Assist Lab Analyst in analysing bio-mass power plant process samples. 2) Assist Lab Analyst in analysing waste effluent and flue gas emission samples. 3) Maintain laboratory equipment. 4) Implement decision and direction for laboratory section as per management requirements.	<b><u>Design Supervisor</u></b> 1) Supervise design office draughting works. 2) Supervise site draughting works. 3) Apply design codes and standards to meet authority's requirements. 4) Monitor job progress of draughtsman. 5) Adhere to design schedule and work progress.
LEVEL 3	No Level	<b><u>Sampling Operator</u></b> 1) Collect bio-mass power plant process samples. 2) Collect waste effluent and flue gas emission samples. 3) Implement decision and direction for laboratory section as per management requirements.	<b><u>Draftsman</u></b> 1) Carry out draughting works. 2) Carry out site draughting works. 3) Apply design codes and standards to meet authority's requirements. 4) Adhere to design schedule and work progress.

AREA	Bio-mass Power Plant – Support Services (Health, Safety & Environment)	Bio-mass Power Plant – Support Services (Chemist)	Bio-gas Power Plant – Project (Engineering)
LEVEL 2	No Level	No Level	<b><u>Junior Draftsman</u></b> 1) Carry out draughting works. 2) Carry out site draughting works. 3) Apply design codes and standards to meet authority's requirements. 4) Adhere to design schedule and work progress.
LEVEL 1	No Level	No Level	No Level

Table 4.69: List of Responsibilities for Group 351 Based on Table 4.21 (19 of 38)

AREA	Bio-gas Power Plant – Project (Civil Construction)	Bio-gas Power Plant – Project (Mechanical Construction)	Bio-gas Power Plant – Project (Electric & Instrument Construction)
LEVEL 8	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage civil construction project office.</li> <li>2) Lead a team of civil construction organisation.</li> <li>3) Approve site construction work changes.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage mechanical construction project office.</li> <li>2) Lead a team of mechanical construction organization.</li> <li>3) Approve site construction work changes.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage E&amp;I construction project office.</li> <li>2) Lead a team of E&amp;I construction organization.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>
LEVEL 7	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate civil construction project activities.</li> <li>2) Manage civil construction project engineers and technicians.</li> </ol>	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate mechanical construction project activities.</li> <li>2) Manage mechanical construction project engineers and technicians.</li> </ol>	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate E&amp;I construction project activities.</li> <li>2) Manage E&amp;I construction project engineers and technicians.</li> </ol>

AREA	Bio-gas Power Plant – Project (Civil Construction)	Bio-gas Power Plant – Project (Mechanical Construction)	Bio-gas Power Plant – Project (Electric & Instrument Construction)
	3) Manage civil construction sub-contractors work progress. 4) Review site construction work changes. 5) Assign job activities to engineers. 6) Monitor project schedule and work progress.	3) Manage mechanical construction sub-contractors work progress. 4) Review site construction work changes. 5) Assign job activities to engineers. 6) Monitor project schedule and work progress.	3) Manage E&I construction sub-contractors work progress. 4) Review site construction work changes. 5) Assign job activities to engineers. 6) Monitor project schedule and work progress.
LEVEL 6	<b><u>Civil Construction Engineer</u></b> 1) Oversee civil construction project activities. 2) Supervise civil construction project technicians. 3) Monitor civil construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.	<b><u>Mechanical Construction Engineer</u></b> 1) Oversee mechanical construction project activities. 2) Supervise mechanical construction project technicians. 3) Monitor mechanical construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.	<b><u>Electric and Instrument Construction Engineer</u></b> 1) Oversee E&I construction project activities. 2) Supervise E&I construction project technicians. 3) Monitor E&I construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.
LEVEL 5	<b><u>Civil Construction Executive</u></b> 1) Issue site work requirements. 2) Site coordination of civil construction project works. 3) Organise civil construction sub-contractors site work activities.	<b><u>Mechanical Construction Executive</u></b> 1) Issue site work requirements. 2) Site coordination of mechanical construction project works. 3) Organise mechanical construction sub-contractors site work activities.	<b><u>Electric and Instrument Construction Executive</u></b> 1) Issue site work requirements. 2) Site coordination of E&I construction project works.

AREA	Bio-gas Power Plant – Project (Civil Construction)	Bio-gas Power Plant – Project (Mechanical Construction)	Bio-gas Power Plant – Project (Electric & Instrument Construction)
	4) Organise civil materials receipt on site. 5) Organise civil equipment usage on site.	4) Organise mechanical materials receipt on site. 5) Organise mechanical equipment usage on site.	3) Organise E&I construction sub-contractors site work activities. 4) Organise E&I materials receipt on site. 5) Organise E&I equipment usage on site.
LEVEL 4	<b><u>Civil Construction Supervisor</u></b> 1) Interpret site work requirements. 2) Site supervision of civil construction project works. 3) Check civil construction sub-contractors site work activities. 4) Manage day-to-day site work technical issues. 5) Coordinate civil materials receipt on site. 6) Coordinate civil equipment usage on site.	<b><u>Mechanical Construction Supervisor</u></b> 1) Interpret site work requirements. 2) Site supervision of mechanical construction project works. 3) Check mechanical construction sub-contractors site work activities. 4) Manage day-to-day site work technical issues. 5) Coordinate mechanical materials receipt on site. 6) Coordinate mechanical equipment usage on site.	<b><u>Electric and Instrument Construction Supervisor</u></b> 1) Interpret site work requirements. 2) Site supervision of E&I construction project works. 3) Check E&I construction sub-contractors site work activities. 4) Manage day-to-day site work technical issues. 5) Coordinate E&I materials receipt on site. 6) Coordinate E&I equipment usage on site.
LEVEL 3	<b><u>Civil Construction Technician</u></b> 1) Carry out civil construction project works. 2) Lead workers to execute civil construction works. 3) Instruct civil construction sub-contractors site work activities.	<b><u>Mechanical Construction Technician</u></b> 1) Carry out mechanical construction project works. 2) Lead workers to execute mechanical construction works. 3) Instruct mechanical construction sub-contractors site work activities.	<b><u>Electrical and Instrument Construction Technical</u></b> 1) Carry out E&I construction project works. 2) Lead workers to execute E&I construction works. 3) Instruct E&I construction sub-contractors site work activities.

AREA	Bio-gas Power Plant – Project (Civil Construction)	Bio-gas Power Plant – Project (Mechanical Construction)	Bio-gas Power Plant – Project (Electric & Instrument Construction)
	4) Address day-to-day site work technical issues. 5) Report site work activities.	4) Address day-to-day site work technical issues. 5) Report site work activities.	4) Address day-to-day site work technical issues. 5) Report site work activities.
LEVEL 2	<b><u>Junior Civil Construction Technician</u></b> 1) Assist in execution of civil construction project works. 2) Execute site civil construction works. 3) Conduct site civil work testing. 4) Contribute to team effort by to deliver results as required.	<b><u>Junior Mechanical Construction Technician</u></b> 1) Assist in execution of mechanical construction project works. 2) Execute site mechanical construction works. 3) Conduct site mechanical work testing. 4) Contribute to team effort by to deliver results as required.	<b><u>Junior Electrical and Instrument Construction Technical</u></b> 1) Assist in execution of E&I construction project works. 2) Execute site E&I construction works. 3) Conduct site E&I work testing. 4) Contribute to team effort by to deliver results as required.
LEVEL 1	No Level	No Level	No Level



Table 4.70: List of Responsibilities for Group 351 Based on Table 4.21 and 4.22 (20 of 38)

AREA	Bio-gas Power Plant – Project (Health, Safety and Environment Construction)	Bio-gas Power Plant – Operation	Bio-gas Power Plant – Maintenance (Mechanical)
LEVEL 8	<b><u>Project Director</u></b> 1) Manage HSE project office. 2) Lead a team of HSE organisation. 3) Present proposal to client and stakeholder on financial standing and team readiness. 4) Perform regular meeting with client, third parties, and project manager to report progress. 5) Build strong relationship with client. 6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.	Not Available	Not Available
LEVEL 7	<b><u>Health, Safety and Environment Manager</u></b> 1) Manage HSE in construction project. 2) Manage HSE program with staffs and sub-contractor's manpower. 3) Review safety incidences in project construction activities. 4) Monitor HSE implementation by various project construction departments.	<b><u>Plant Manager</u></b> 1) Manager bio-gas power plant operation staff. 2) Coordinate with system operator (NLDC) on plant production requirements. 3) Communicate with management and system operator on plant outage and production restriction.	<b><u>Plant Manager</u></b> 1) Manage the bio-gas power station mechanical maintenance department. 2) Responsible for station mechanical maintenance and plant integrity. 3) Manage implementation of station work policies; HSE and Quality Policies. 4) Manage performance targets of mechanical maintenance department.

AREA	Bio-gas Power Plant – Project (Health, Safety and Environment Construction)	Bio-gas Power Plant – Operation	Bio-gas Power Plant – Maintenance (Mechanical)
		4) Control operations budget and production cost.	5) Review budget for station mechanical maintenance and new projects. 6) Make strategic decision and provide necessary leadership and direction for mechanical maintenance departments to implement those decisions.
LEVEL 6	<b><u>Health, Safety and Environment Engineer</u></b> 1) Develop HSE Plan to meet the organization and statutory requirements. 2) Carry out incidences trending and analysis. 3) Recommend HSE programmes to address plant safety concerns. 4) Carry out closure of safety audit disposition. 5) Prepare safety walkabout schedule.	<b><u>Operation Engineer</u></b> 1) Assist Operation Manager to manage bio-gas power plant operation staff. 2) Review plant availability for reporting to system operator (NLDC). 3) Plan on plant outage. 4) Explore production restriction. 5) Handle operations budget.	<b><u>Mechanical Engineer</u></b> 1) Manage the bio-gas power station mechanical maintenance department. 2) Responsible for station mechanical and its auxiliary's maintenance and plant integrity. 3) Execute implementation of station work policies; HSE and Quality Policies. 4) Perform troubleshooting on mechanical and its auxiliary's equipment. 5) Execute mechanical section performance targets. 6) Implement decision and direction for mechanical maintenance section .

AREA	Bio-gas Power Plant – Project (Health, Safety and Environment Construction)	Bio-gas Power Plant – Operation	Bio-gas Power Plant – Maintenance (Mechanical)
LEVEL 5	<b><u>Safety Officer</u></b> <ol style="list-style-type: none"> <li>1) Execute HSE programs to meet the organisation and statutory requirements.</li> <li>2) Carry out accident investigation.</li> <li>3) Report safety and health reportable cases to DOSH as per requirements.</li> <li>4) Monitor safety enforcements and penalty scheme.</li> </ol>	<b><u>Operation Executive</u></b> <ol style="list-style-type: none"> <li>1) Manage shift personnel in the operation of bio-gas power plant.</li> <li>2) Issue PTW and control of maintenance works.</li> <li>3) Check plant availability for reporting to system operator (NLDC).</li> <li>4) Investigate production restriction.</li> <li>5) Carry out system troubleshooting.</li> </ol>	<b><u>Mechanical Maintenance Technical Assistant</u></b> <ol style="list-style-type: none"> <li>1) Provide technical support for mechanical and its auxiliary's maintenance and plant integrity.</li> <li>2) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>3) Perform troubleshooting on turbine and its auxiliary's equipment.</li> <li>4) Implement decision and direction for mechanical maintenance section.</li> </ol>
LEVEL 4	<b><u>Safety Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Assist Safety Officer to execute HSE programs to meet the organisation and statutory requirements.</li> <li>2) Organise accident investigation.</li> <li>3) Prepare accident report for safety and health reportable cases to DOSH as per requirements.</li> <li>4) Carry out safety enforcements and penalty scheme.</li> </ol>	<b><u>Panel Controller</u></b> <ol style="list-style-type: none"> <li>1) Operate bio-gas power plant control panel.</li> <li>2) Carry out plant start-up and shutdown operation.</li> <li>3) Carry out equipment troubleshooting.</li> <li>4) Monitor PTW and coordinate maintenance works.</li> </ol>	<b><u>Mechanical Maintenance Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Supervise technicians in carrying-out mechanical and its auxiliary's maintenance works.</li> <li>2) Supervise contractor's works in carrying-out mechanical and its auxiliary's maintenance works.</li> <li>3) Monitor mechanical maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> <li>4) Implement decision and direction for mechanical maintenance section.</li> </ol>

AREA	Bio-gas Power Plant – Project (Health, Safety and Environment Construction)	Bio-gas Power Plant – Operation	Bio-gas Power Plant – Maintenance (Mechanical)
LEVEL 3	No Level	<b><u>Plant Operator</u></b> <ol style="list-style-type: none"> <li>1) Carry out bio-gas power plant machinery operation.</li> <li>2) Isolate/normalise equipment/system for maintenance works.</li> <li>3) Execute periodic testing of equipment.</li> <li>4) Check and report equipment abnormal operation.</li> </ol>	<b><u>Mechanical Maintenance Technician</u></b> <ol style="list-style-type: none"> <li>1) Carry out mechanical and its auxiliary's maintenance work.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Control of mechanical maintenance tools and equipment.</li> <li>4) Perform basic troubleshooting on mechanical and its auxiliary's equipment.</li> <li>5) Implement decision and direction for turbine maintenance section.</li> </ol>
LEVEL 2	No Level	<b><u>Junior Plant Operator</u></b> <ol style="list-style-type: none"> <li>1) Carry out bio-gas power plant machinery operation.</li> <li>2) Isolate/normalise equipment/system for maintenance works.</li> <li>3) Execute periodic testing of equipment.</li> <li>4) Check and report equipment abnormal operation.</li> </ol>	<b><u>Junior Mechanical Technician</u></b> <ol style="list-style-type: none"> <li>1) Assist technician in carrying-out mechanical and its auxiliary's maintenance works.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Maintain mechanical maintenance tools and equipment.</li> <li>4) Implement decision and direction for mechanical maintenance section.</li> </ol>
LEVEL 1	No Level	No Level	No Level

Table 4.71: List of Responsibilities for Group 351 Based on Table 4.22 and 4.23 (21 of 38)

AREA	Bio-gas Power Plant – Maintenance (Electrical and Instrument)	Bio-gas Power Plant – Support Services (Health, Safety and Environment)	Bio-gas Power Plant – Support Services (Chemist)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	<b><u>Plant Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the bio-gas power station E&amp;I maintenance department.</li> <li>2) Responsible for station E&amp;I maintenance and plant integrity.</li> <li>3) Manage implementation of station work policies; HSE and Quality Policies.</li> <li>4) Manage performance targets of E&amp;I maintenance department.</li> <li>5) Review budget for station E&amp;I maintenance and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for E&amp;I maintenance departments to implement those decisions</li> </ol>	Not Available	<b><u>Plant Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage laboratory activities in bio-gas power plant.</li> <li>2) Develop monitoring programmes on waste effluent and flue gas emission to meet statutory requirements.</li> <li>3) Manage performance targets of laboratory department.</li> <li>4) Review budget for station laboratory and new projects.</li> <li>5) Make strategic decision and provide necessary leadership and direction for laboratory departments to implement those decisions.</li> </ol>
LEVEL 6	<b><u>Electrical Maintenance Engineer</u></b> <ol style="list-style-type: none"> <li>1) Manage the bio-gas power station E&amp;I maintenance department.</li> <li>2) Responsible for station E&amp;I maintenance and plant integrity.</li> </ol>	Not Available	<b><u>Chemist</u></b> <ol style="list-style-type: none"> <li>1) Monitor laboratory activities in bio-gas power plant.</li> </ol>

AREA	Bio-gas Power Plant – Maintenance (Electrical and Instrument)	Bio-gas Power Plant – Support Services (Health, Safety and Environment)	Bio-gas Power Plant – Support Services (Chemist)
	3) Execute implementation of station work policies; HSE and Quality Policies. 4) Perform troubleshooting on E&I equipment. 5) Execute E&I section performance targets. 6) Control instrument section budget for maintenance and new projects. 7) Implement decision and direction for instrument maintenance section.		2) Implement monitoring programmes on waste effluent and flue gas emission to meet statutory requirements. 3) Monitor performance targets of laboratory department. 4) Control budget for station laboratory and new projects. 5) Implement decision and direction for laboratory section.
LEVEL 5	<u><b>Electrical and Instrument Technical Assistant</b></u> 1) Provide technical support for E&I maintenance and plant integrity. 2) Execute implementation of station work policies; HSE and Quality Policies. 3) Perform troubleshooting on instrument equipment. 4) Perform instrument section budget for maintenance and new projects. Implement decision and direction for instrument maintenance section.	<u><b>Safety Officer</b></u> 1) Execute HSE programmes to meet the organization and statutory requirements. 2) Carry out accident investigation. 3) Report safety and health reportable cases to DOSH as per requirements. 4) Monitor safety enforcements and penalty scheme.	<u><b>Lab Analyst</b></u> 1) Analyse bio-gas power plant process samples. 2) Analyse waste effluent and flue gas emission samples. 3) Maintain laboratory equipment. 4) Implement decision and direction for laboratory section as per management requirements.

AREA	Bio-gas Power Plant – Maintenance (Electrical and Instrument)	Bio-gas Power Plant – Support Services (Health, Safety and Environment)	Bio-gas Power Plant – Support Services (Chemist)
LEVEL 4	<b><u>Electric and Instrument Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Supervise technicians in carrying-out E&amp;I maintenance works.</li> <li>2) Supervise contractor's works in carrying-out E&amp;I maintenance works.</li> <li>3) Monitor E&amp;I maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform basic troubleshooting on E&amp;I equipment.</li> <li>5) Implement decision and direction for E&amp;I maintenance section.</li> </ol>	<b><u>Safety Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Assist Safety Officer to execute HSE programs to meet the organisation and statutory requirements.</li> <li>2) Organise accident investigation.</li> <li>3) Prepare accident report for safety and health reportable cases to DOSH as per requirements.</li> <li>4) Carry out safety enforcements and penalty scheme.</li> </ol>	<b><u>Assistant Lab Analyst</u></b> <ol style="list-style-type: none"> <li>1) Assist Lab Analyst in analysing bio-gas power plant process samples.</li> <li>2) Assist Lab Analyst in analysing waste effluent and flue gas emission samples.</li> <li>3) Maintain laboratory equipment.</li> <li>4) Implement decision and direction for laboratory section as per management requirements.</li> </ol>
LEVEL 3	<b><u>Electric and Instrument Technician</u></b> <ol style="list-style-type: none"> <li>1) Carry out E&amp;I maintenance works.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Control of E&amp;I maintenance tools and equipment.</li> <li>4) Perform basic troubleshooting on i E&amp;I equipment.</li> <li>5) Implement decision and direction for E&amp;I maintenance section.</li> </ol>	No Level	<b><u>Sampling Operator</u></b> <ol style="list-style-type: none"> <li>1) Collect bio-gas power plant process samples.</li> <li>2) Collect waste effluent and flue gas emission samples.</li> <li>3) Implement decision and direction for laboratory section as per management requirements.</li> </ol>

AREA	Bio-gas Power Plant – Maintenance (Electrical and Instrument)	Bio-gas Power Plant – Support Services (Health, Safety and Environment)	Bio-gas Power Plant – Support Services (Chemist)
LEVEL 2	<b><u>Junior Electrical and Instrument Technician</u></b> 1) Carry out E&I maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Control of E&I maintenance tools and equipment. 4) Perform basic troubleshooting on E&I equipment. 5) Implement decision and direction for E&I maintenance section.	No Level	No Level
LEVEL 1	No Level	No Level	No level



Table 4.72: List of Responsibilities for Group 351 Based on Table 4.24 (22 of 38)

AREA	Geo-thermal Power Plant – Project (Engineering)	Geo-thermal Power Plant – Project (Civil Construction)	Geo-thermal Power Plant– Project (Mechanical Construction)
LEVEL 8	<b><u>Engineering Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage engineering project office.</li> <li>2) Lead multidisciplinary design engineers.</li> <li>3) Develop business proposal for new project.</li> <li>4) Manage design of new or rejuvenation of geo-thermal power plant.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage civil construction project office.</li> <li>2) Lead a team of civil construction organisation.</li> <li>3) Approve site construction work changes.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage mechanical construction project office.</li> <li>2) Lead a team of mechanical construction organization.</li> <li>3) Approve site construction work changes.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>
LEVEL 7	<b><u>Design Office Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage design office.</li> <li>2) Lead design office engineers and draughtsman.</li> <li>3) Review detailed design works by engineers.</li> </ol>	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate civil construction project activities.</li> <li>2) Manage civil construction project engineers and technicians.</li> </ol>	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate mechanical construction project activities.</li> <li>2) Manage mechanical construction project engineers and technicians.</li> </ol>

AREA	Geo-thermal Power Plant – Project (Engineering)	Geo-thermal Power Plant – Project (Civil Construction)	Geo-thermal Power Plant– Project (Mechanical Construction)
	4) Assign design activities to discipline engineers. 5) Monitor design work schedule and work progress.	3) Manage civil construction sub-contractors work progress. 4) Review site construction work changes. 5) Assign job activities to engineers. 6) Monitor project schedule and work progress.	3) Manage mechanical construction sub-contractors work progress. 4) Review site construction work changes. 5) Assign job activities to engineers. 6) Monitor project schedule and work progress.
LEVEL 6	<b><u>Design Engineer</u></b> 1) Review design sketches. 2) Carry out design calculations. 3) Review design codes and standards to meet authority's requirements. 4) Monitor site construction verification works. 5) Assign job activities to draughtsman. 6) Check design schedule and work progress.	<b><u>Civil Construction Engineer</u></b> 1) Oversee civil construction project activities. 2) Supervise civil construction project technicians. 3) Monitor civil construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.	<b><u>Mechanical Construction Engineer</u></b> 1) Oversee mechanical construction project activities. 2) Supervise mechanical construction project technicians. 3) Monitor mechanical construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.
LEVEL 5	<b><u>Design Executive</u></b> 1) Carry out site survey and design sketches. 2) Carry out simple design calculations. 3) Apply design codes and standards to meet authority's requirements. 4) Conduct site construction verification works.	<b><u>Civil Construction Executive</u></b> 1) Issue site work requirements. 2) Site coordination of civil construction project works. 3) Organise civil construction sub-contractors site work activities. 4) Organise civil materials receipt on site.	<b><u>Mechanical Construction Executive</u></b> 1) Issue site work requirements. 2) Site coordination of mechanical construction project works. 3) Organise mechanical construction sub-contractors site work activities.

AREA	Geo-thermal Power Plant – Project (Engineering)	Geo-thermal Power Plant – Project (Civil Construction)	Geo-thermal Power Plant– Project (Mechanical Construction)
	5) Check job progress of draughtsman. 6) Adhere to design schedule and work progress.	5) Organise civil equipment usage on site.	4) Organise mechanical materials receipt on site. 5) Organise mechanical equipment usage on site.
LEVEL 4	<b><u>Design Supervisor</u></b> 1) Supervise design office draughting works. 2) Supervise site draughting works. 3) Apply design codes and standards to meet authority's requirements. 4) Monitor job progress of draughtsman. 5) Adhere to design schedule and work progress.	<b><u>Civil Construction Supervisor</u></b> 1) Interpret site work requirements. 2) Site supervision of civil construction project works. 3) Check civil construction sub-contractors site work activities. 4) Manage day-to-day site work technical issues. 5) Coordinate civil materials receipt on site. 6) Coordinate civil equipment usage on site.	<b><u>Mechanical Construction Supervisor</u></b> 1) Interpret site work requirements. 2) Site supervision of mechanical construction project works. 3) Check mechanical construction sub-contractors site work activities. 4) Manage day-to-day site work technical issues. 5) Coordinate mechanical materials receipt on site. 6) Coordinate mechanical equipment usage on site.
LEVEL 3	<b><u>Draftsman</u></b> 1) Confirm project requirements 2) Arrange project requirements in programming sequence 3) Encode project requirements by converting work flow information into computer language	<b><u>Civil Construction Technician</u></b> 1) Confirm project requirements 2) Arrange project requirements in programming sequence 3) Encode project requirements by converting work flow information into computer language	<b><u>Mechanical Construction Technician</u></b> 1) Carry out mechanical construction project works. 2) Lead workers to execute mechanical construction works. 3) Instruct mechanical construction sub-contractors site work activities.

AREA	Geo-thermal Power Plant – Project (Engineering)	Geo-thermal Power Plant – Project (Civil Construction)	Geo-thermal Power Plant– Project (Mechanical Construction)
	4) Confirm program operation by conducting tests 5) Document operating instructions 6) Document program development and revisions 7) Contribute to team effort by accomplishing related results as needed	4) Confirm program operation by conducting tests 5) Document operating instructions 6) Document program development and revisions 7) Contribute to team effort by accomplishing related results as needed	4) Address day-to-day site work technical issues. 5) Report site work activities.
LEVEL 2	<b><u>Junior Draftsman</u></b> 1) Carry out draughting works. 2) Carry out site draughting works. 3) Apply design codes and standards to meet authority's requirements. 4) Adhere to design schedule and work progress.	<b><u>Junior Civil Construction Technician</u></b> 1) Assist in execution of civil construction project works. 2) Execute site civil construction works. 3) Conduct site civil work testing. 4) Contribute to team effort by to deliver results as required.	<b><u>Junior Mechanical Construction Technician</u></b> 1) Assist in execution of mechanical construction project works. 2) Execute site mechanical construction works. 3) Conduct site mechanical work testing. 4) Contribute to team effort by to deliver results as required.
LEVEL 1	No Level	No Level	No Level

Table 4.73: List of Responsibilities for Group 351 Based on Table 4.24 and 4.25 (23 of 38)

AREA	Geo-thermal Power Plant– Project (Electric and Instrument Construction)	Geo-thermal Power Plant– Project (Health, Safety and Environment Construction)	Geo-thermal Power Plant – Operation
LEVEL 8	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage E&amp;I construction project office.</li> <li>2) Lead a team of E&amp;I construction organisation.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage HSE project office.</li> <li>2) Lead a team of HSE organisation.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	Not Available
LEVEL 7	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate E&amp;I construction project activities.</li> <li>2) Manage E&amp;I construction project engineers and technicians.</li> <li>3) Manage E&amp;I construction sub-contractors work progress.</li> <li>4) Review site construction work changes.</li> </ol>	<b><u>Health, Safety and Environment Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage HSE in construction project.</li> <li>2) Manage HSE programme with staffs and sub-contractor's manpower.</li> <li>3) Review safety incidences in project construction activities.</li> <li>4) Monitor HSE implementation by various project construction departments.</li> </ol>	<b><u>Plant Manager</u></b> <ol style="list-style-type: none"> <li>1) Manager geo-thermal plant operation staff.</li> <li>2) Coordinate with system operator (NLDC) on plant production requirements.</li> <li>3) Communicate with management and system operator on plant outage and production restriction.</li> </ol>

AREA	Geo-thermal Power Plant– Project (Electric and Instrument Construction)	Geo-thermal Power Plant– Project (Health, Safety and Environment Construction)	Geo-thermal Power Plant – Operation
	5) Assign job activities to engineers. 6) Monitor project schedule and work progress.		4) Control operations budget and production cost.
LEVEL 6	<b><u>Electric and Instrument Construction Engineer</u></b> 1) Oversee E&I construction project activities. 2) Supervise E&I construction project technicians. 3) Monitor E&I construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.	<b><u>Health, Safety and Environment Engineer</u></b> 1) Develop HSE Plan to meet the organisation and statutory requirements. 2) Carry out incidences trending and analysis. 3) Recommend HSE programmes to address plant safety concerns. 4) Carry out closure of safety audit disposition. 5) Prepare safety walkabout schedule.	<b><u>Operation Engineer</u></b> 1) Assist Operation Manager to manage geo-thermal plant operation staff. 2) Review plant availability for reporting to system operator (NLDC). 3) Plan on plant outage. 4) Explore production restriction. 5) Handle operations budget.
LEVEL 5	<b><u>Electric and Instrument Construction Executive</u></b> 1) Issue site work requirements. 2) Site coordination of E&I construction project works. 3) Organise E&I construction sub-contractors site work activities. 4) Organise E&I materials receipt on site. 5) Organise E&I equipment usage on site.	<b><u>Safety Officer</u></b> 1) Execute HSE programmes to meet the organization and statutory requirements. 2) Carry out accident investigation. 3) Report safety and health reportable cases to DOSH as per requirements. 4) Monitor safety enforcements and penalty scheme.	<b><u>Operation Executive</u></b> 1) Manage shift personnel in the operation of geo-thermal power plant. 2) Issue PTW and control of maintenance works. 3) Check plant availability for reporting to system operator (NLDC). 4) Investigate production restriction. 5) Carry out system troubleshooting.

AREA	Geo-thermal Power Plant– Project (Electric and Instrument Construction)	Geo-thermal Power Plant– Project (Health, Safety and Environment Construction)	Geo-thermal Power Plant – Operation
LEVEL 4	<b><u>Electric and Instrument Construction Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Interpret site work requirements.</li> <li>2) Site supervision of E&amp;I construction project works.</li> <li>3) Check E&amp;I construction sub-contractors site work activities.</li> <li>4) Manage day-to-day site work technical issues.</li> <li>5) Coordinate E&amp;I materials receipt on site.</li> <li>6) Coordinate E&amp;I equipment usage on site.</li> </ol>	<b><u>Safety Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Assist Safety Officer to execute HSE programs to meet the organisation and statutory requirements.</li> <li>2) Organise accident investigation.</li> <li>3) Prepare accident report for safety and health reportable cases to DOSH as per requirements.</li> <li>4) Carry out safety enforcements and penalty scheme.</li> </ol>	<b><u>Panel Controller</u></b> <ol style="list-style-type: none"> <li>1) Operate geo-thermal power plant control panel.</li> <li>2) Carry out plant start-up and shutdown operation.</li> <li>3) Carry out equipment troubleshooting.</li> <li>4) Monitor PTW and coordinate maintenance works.</li> </ol>
LEVEL 3	<b><u>Electric and Instrument Construction Technician</u></b> <ol style="list-style-type: none"> <li>1) Carry out E&amp;I construction project works.</li> <li>2) Lead workers to execute E&amp;I construction works.</li> <li>3) Instruct E&amp;I construction sub-contractors site work activities.</li> <li>4) Address day-to-day site work technical issues.</li> <li>5) Report site work activities.</li> </ol>	No Level	<b><u>Plant Operator</u></b> <ol style="list-style-type: none"> <li>1) Carry out geo-thermal power plant machinery operation.</li> <li>2) Isolate/normalise equipment/system for maintenance works.</li> <li>3) Execute periodic testing of equipment.</li> <li>4) Check and report equipment abnormal operation.</li> </ol>

AREA	Geo-thermal Power Plant– Project (Electric and Instrument Construction)	Geo-thermal Power Plant– Project (Health, Safety and Environment Construction)	Geo-thermal Power Plant – Operation
LEVEL 2	<b><u>Junior Electric and Instrument Technician</u></b> 1) Assist in execution of E&I construction project works. 2) Execute site E&I construction works. 3) Conduct site E&I work testing. 4) Contribute to team effort by to deliver results as required.	No Level	<b><u>Junior Plant Operator</u></b> 1) Carry out geo-thermal power plant machinery operation. 2) Isolate/normalise equipment/system for maintenance works. 3) Execute periodic testing of equipment. 4) Check and report equipment abnormal operation.
LEVEL 1	No level	No level	No Level



Table 4.74: List of Responsibilities for Group 351 Based on Table 4.25 (24 of 38)

AREA	Geo-thermal Power Plant – Maintenance (Mechanical)	Geo-thermal Power Plant – Maintenance (Electrical and Instrument)	Geo-thermal Power Plant – Support Services (Health, Safety & Environment)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	<b><u>Plant Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the geo-thermal power station mechanical maintenance department.</li> <li>2) Responsible for station mechanical maintenance and plant integrity.</li> <li>3) Manage implementation of station work policies; HSE and Quality Policies.</li> <li>4) Manage performance targets of mechanical maintenance department.</li> <li>5) Review budget for station mechanical maintenance and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for mechanical maintenance departments to implement those decisions.</li> </ol>	<b><u>Plant Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the geo-thermal power station E&amp;I maintenance department.</li> <li>2) Responsible for station E&amp;I maintenance and plant integrity.</li> <li>3) Manage implementation of station work policies; HSE and Quality Policies.</li> <li>4) Manage performance targets of E&amp;I maintenance department.</li> <li>5) Review budget for station E&amp;I maintenance and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for E&amp;I maintenance departments to implement those decisions.</li> </ol>	<b><u>Plant Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage HSE activities in solar power plant.</li> <li>2) Manage HSE programme with staffs and sub-contractor's manpower.</li> <li>3) Review safety incidences in power plant.</li> <li>4) Monitor HSE implementation by various power plant departments.</li> <li>5) Develop HSE rules and regulations to meet statutory requirements.</li> <li>6) Manage performance targets of HSE department.</li> <li>7) Review budget for station HSE program.</li> <li>8) Make strategic decision and provide necessary leadership and direction for HSE departments to implement those decisions.</li> </ol>
LEVEL 6	<b><u>Mechanical Engineer</u></b> <ol style="list-style-type: none"> <li>1) Manage the geo-thermal power station mechanical maintenance department.</li> </ol>	<b><u>Electrical Engineer</u></b> <ol style="list-style-type: none"> <li>1) Manage the geo-thermal power station E&amp;I maintenance department.</li> </ol>	Not Available

AREA	Geo-thermal Power Plant – Maintenance (Mechanical)	Geo-thermal Power Plant – Maintenance (Electrical and Instrument)	Geo-thermal Power Plant – Support Services (Health, Safety & Environment)
	<ul style="list-style-type: none"> <li>2) Responsible for mechanical and its auxiliary's maintenance and plant integrity.</li> <li>3) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform troubleshooting on turbine and its auxiliary's equipment.</li> <li>5) Implement decision and direction for mechanical maintenance section.</li> </ul>	<ul style="list-style-type: none"> <li>2) Responsible for E&amp;I and its auxiliary's maintenance and plant integrity.</li> <li>3) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform troubleshooting on turbine and its auxiliary's equipment.</li> <li>5) Implement decision and direction for E&amp;I maintenance section.</li> </ul>	
LEVEL 5	<b><u>Mechanical Technical Assistant</u></b> <ul style="list-style-type: none"> <li>1) Provide technical support for mechanical and its auxiliary's maintenance and plant integrity.</li> <li>2) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>3) Implement decision and direction for mechanical maintenance section.</li> </ul>	<b><u>Electrical and Instrument Technical Assistant</u></b> <ul style="list-style-type: none"> <li>1) Provide technical support for electrical maintenance and plant integrity.</li> <li>2) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>3) Perform troubleshooting on electrical equipment.</li> <li>4) Perform electrical section budget for maintenance and new projects.</li> <li>5) Implement decision and direction for electrical maintenance section.</li> </ul>	<b><u>Safety Officer</u></b> <ul style="list-style-type: none"> <li>1) Execute HSE programmes to meet the organization and statutory requirements.</li> <li>2) Carry out accident investigation.</li> <li>3) Report safety and health reportable cases to DOSH as per requirements.</li> <li>4) Monitor safety enforcements and penalty scheme.</li> </ul>

AREA	Geo-thermal Power Plant – Maintenance (Mechanical)	Geo-thermal Power Plant – Maintenance (Electrical and Instrument)	Geo-thermal Power Plant – Support Services (Health, Safety & Environment)
LEVEL 4	<b><u>Mechanical Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Supervise technicians in carrying out mechanical and its auxiliary's maintenance works.</li> <li>2) Supervise contractor's works in carrying-out mechanical and its auxiliary's maintenance works.</li> <li>3) Monitor mechanical maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> <li>4) Implement decision and direction for mechanical maintenance section.</li> </ol>	<b><u>Electrical and Instrument Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Supervise technicians in carrying out electrical maintenance works.</li> <li>2) Supervise contractor's works in carrying out electrical maintenance works.</li> <li>3) Carry out electrical isolation/de-isolation of electrical equipment.</li> <li>4) Monitor electrical maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> <li>5) Perform basic troubleshooting on electrical equipment.</li> <li>6) Implement decision and direction for electrical maintenance section.</li> </ol>	<b><u>Safety Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Assist Safety Officer to execute HSE programmes to meet the organization and statutory requirements.</li> <li>2) Organise accident investigation.</li> <li>3) Prepare accident report for safety and health reportable cases to DOSH as per requirements.</li> <li>4) Carry out safety enforcements and penalty scheme.</li> </ol>
LEVEL 3	<b><u>Mechanical Technician</u></b> <ol style="list-style-type: none"> <li>1) Carry out mechanical and its auxiliary's maintenance work.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Control of mechanical maintenance tools and equipment.</li> <li>4) Perform basic troubleshooting on mechanical and its auxiliary's equipment.</li> </ol>	<b><u>Electrical and Instrument Technician</u></b> <ol style="list-style-type: none"> <li>1) Carry out electrical maintenance works.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Control of electrical maintenance tools and equipment.</li> <li>4) Perform basic troubleshooting on electrical equipment.</li> </ol>	No Level

AREA	Geo-thermal Power Plant – Maintenance (Mechanical)	Geo-thermal Power Plant – Maintenance (Electrical and Instrument)	Geo-thermal Power Plant – Support Services (Health, Safety & Environment)
	5) Implement decision and direction for mechanical maintenance section.	5) Implement decision and direction for electrical maintenance section.	
LEVEL 2	<b><u>Junior Mechanical Technician</u></b> 1) Assist technician in carrying out mechanical and its auxiliary's maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Maintain mechanical maintenance tools and equipment. 4) Implement decision and direction for mechanical maintenance section.	<b><u>Junior Electrical and Instrument Technician</u></b> 1) Assist technician in carrying out electrical maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Maintain electrical maintenance tools and equipment. 4) Implement decision and direction for electrical maintenance section.	No Level
LEVEL 1	No Level	No Level	No Level

Table 4.75: List of Responsibilities for Group 351 Based on Table 4.26 and 4.27 (25 of 38)

AREA	Geo-thermal Power Plant – Support Services (Chemist)	Overhead Transmission – Project (Civil Construction)	Overhead Transmission – Project (Mechanical Construction)
LEVEL 8	Not Available	Not Available	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage mechanical construction project office.</li> <li>2) Lead a team of mechanical construction organisation.</li> <li>3) Approve site construction work changes.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>
LEVEL 7	<b><u>Plant Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage laboratory activities in geo-thermal power plant.</li> <li>2) Develop monitoring programmes on waste effluent and flue gas emission to meet statutory requirements.</li> </ol>	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate civil construction project activities.</li> <li>2) Manage civil construction project engineers and technicians.</li> </ol>	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate mechanical construction project activities.</li> <li>2) Manage mechanical construction project engineers and technicians.</li> </ol>

AREA	Geo-thermal Power Plant – Support Services (Chemist)	Overhead Transmission – Project (Civil Construction)	Overhead Transmission – Project (Mechanical Construction)
	3) Manage performance targets of laboratory department. 4) Review budget for station laboratory and new projects. 5) Make strategic decision and provide necessary leadership and direction for laboratory departments to implement those decisions.	3) Manage civil construction sub-contractors work progress. 4) Review site construction work changes. 5) Assign job activities to engineers. 6) Monitor project schedule and work progress.	3) Manage mechanical construction sub-contractors work progress. 4) Review site construction work changes. 5) Assign job activities to engineers. 6) Monitor project schedule and work progress.
LEVEL 6	<b><u>Chemist</u></b> 1) Monitor laboratory activities geo-thermal power plant. 2) Implement monitoring programs on waste effluent and flue gas emission to meet statutory requirements. 3) Monitor performance targets of laboratory department. 4) Control budget for station laboratory and new projects. 5) Implement decision and direction for laboratory section.	<b><u>Civil Construction Engineer</u></b> 1) Oversee civil construction project activities. 2) Supervise civil construction project technicians. 3) Monitor civil construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.	<b><u>Mechanical Construction Engineer</u></b> 1) Oversee mechanical construction project activities. 2) Supervise mechanical construction project technicians. 3) Monitor mechanical construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.
LEVEL 5	<b><u>Lab Analyst</u></b> 1) Analyse geo-thermal power plant process samples.	<b><u>Civil Construction Executive</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations	<b><u>Mechanical Construction Executive</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations

AREA	Geo-thermal Power Plant – Support Services (Chemist)	Overhead Transmission – Project (Civil Construction)	Overhead Transmission – Project (Mechanical Construction)
	2) Analyse waste effluent and flue gas emission samples. 3) Maintain laboratory equipment. 4) Implement decision and direction for laboratory section as per management requirements.	3) Project management activities 4) Project administration activities associated with a specific Market Sector of a Business Unit. 5) Build strong relationship with client	3) Project management activities 4) Project administration activities associated with a specific Market Sector of a Business Unit. 5) Build strong relationship with client
LEVEL 4	<b><u>Assistant Lab Analyst</u></b> 1) Assist Lab Analyst in analysing geo-thermal power plant process samples. 2) Assist Lab Analyst in analysing waste effluent and flue gas emission samples. 3) Maintain laboratory equipment. 4) Implement decision and direction for laboratory section as per management requirements.	<b><u>Civil Construction Supervisor</u></b> 1) Interpret site work requirements. 2) Site supervision of civil construction project works. 3) Check civil construction sub-contractors site work activities. 4) Manage day-to-day site work technical issues. 5) Coordinate civil materials receipt on site. 6) Coordinate civil equipment usage on site.	<b><u>Mechanical Construction Supervisor</u></b> 1) Interpret site work requirements. 2) Site supervision of mechanical construction project works. 3) Check mechanical construction sub-contractors site work activities. 4) Manage day-to-day site work technical issues. 5) Coordinate mechanical materials receipt on site. 6) Coordinate mechanical equipment usage on site.
LEVEL 3	<b><u>Sampling Operator</u></b> 1) Collect geo-thermal power plant process samples. 2) Collect waste effluent and flue gas emission samples.	<b><u>Civil Construction Technician</u></b> 1) Carry out civil construction project works. 2) Lead workers to execute civil construction works.	<b><u>Mechanical Construction Technician</u></b> 1) Carry out mechanical construction project works. 2) Lead workers to execute mechanical construction works.

AREA	Geo-thermal Power Plant – Support Services (Chemist)	Overhead Transmission – Project (Civil Construction)	Overhead Transmission – Project (Mechanical Construction)
	3) Implement decision and direction for laboratory section as per management requirements.	3) Instruct civil construction sub-contractors site work activities. 4) Address day-to-day site work technical issues. 5) Report site work activities.	3) Instruct mechanical construction sub-contractors site work activities. 4) Address day-to-day site work technical issues. 5) Report site work activities.
LEVEL 2	No Level	<b><u>Junior Civil Construction Technician</u></b> 1) Assist in execution of civil construction project works. 2) Execute site civil construction works. 3) Conduct site civil work testing. 4) Contribute to team effort by to deliver results as required.	<b><u>Junior Mechanical Construction Technician</u></b> 1) Assist in execution of mechanical construction project works. 2) Execute site mechanical construction works. 3) Conduct site mechanical work testing. 4) Contribute to team effort by to deliver results as required.
LEVEL 1	No Level	No Level	No Level



Table 4.76: List of Responsibilities for Group 351 Based on Table 4.27 and 4.28 (26 of 38)

AREA	Overhead Transmission – Project (Instrument and Control Construction)	Overhead Transmission – Operation	Overhead Transmission – Maintenance (Civil and Mechanical)
LEVEL 8	<b><u>Project Director</u></b> 1) Manage instrument and control project office. 2) Lead a team of instrument and control organisation. 3) Present proposal to client and stakeholder on financial standing and team readiness. 4) Perform regular meeting with client, third parties, and project manager to report progress. 5) Build strong relationship with client. 6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.	Not Available	Not Available
LEVEL 7	<b><u>Project Manager</u></b> 1) Coordinate instrument and control project activities. 2) Manage instrument and control project engineers and technicians. 3) Manage instrument and control sub-contractors work progress.	<b><u>Operation Manager</u></b> 1) Manage the overhead transmission station operation department. 2) Responsible for station operation and plant integrity. 3) Manage implementation of station work policies; HSE and Quality Policies.	<b><u>Maintenance Manager</u></b> 1) Manage the solar power station civil & mechanical maintenance department. 2) Responsible for station civil and mechanical maintenance and plant integrity.

AREA	Overhead Transmission – Project (Instrument and Control Construction)	Overhead Transmission – Operation	Overhead Transmission – Maintenance (Civil and Mechanical)
	4) Review site construction work changes. 5) Assign job activities to engineers. 6) Monitor project schedule and work progress	4) Manage performance targets of operation department. 5) Review budget for operation and new projects. 6) Make strategic decision and provide necessary leadership and direction for operation departments to implement those decisions.	3) Manage implementation of station work policies; HSE and Quality Policies. 4) Manage performance targets of civil & mechanical maintenance department. 5) Review budget for station civil & mechanical maintenance and new projects. 6) Make strategic decision and provide necessary leadership and direction for civil and mechanical maintenance departments to implement those decisions.
LEVEL 6	<b><u>Instrument and Control Construction Engineer</u></b> 1) Oversee instrument and control construction project activities. 2) Supervise instrument and control construction project technicians. 3) Monitor instrument and control construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.	<b><u>Operation Engineer</u></b> 1) Assist Operation Manager to manage overhead transmission operation staff. 2) Review plant availability for reporting to system operator (NLDC). 3) Plan on plant outage. 4) Explore production restriction. 5) Handle operations budget.	<b><u>Civil and Mechanical Engineer</u></b> 1) Manage the solar power station civil & mechanical maintenance department. 2) Responsible for civil and mechanical and its auxiliary's maintenance and plant integrity. 3) Execute implementation of station work policies; HSE and Quality Policies. 4) Perform troubleshooting on turbine and its auxiliary's equipment. 5) Implement decision and direction for civil and mechanical maintenance section.

AREA	Overhead Transmission – Project (Instrument and Control Construction)	Overhead Transmission – Operation	Overhead Transmission – Maintenance (Civil and Mechanical)
LEVEL 5	<b><u>Instrument and Control Construction Executive</u></b> <ol style="list-style-type: none"> <li>1) Issue site work requirements.</li> <li>2) Site coordination of instrument and control construction project works.</li> <li>3) Organise instrument and control construction sub-contractors site work activities.</li> <li>4) Organise instrument and control materials receipt on site.</li> <li>5) Organise instrument and control equipment usage on site.</li> </ol>	<b><u>Shift Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage shift personnel in the operation of overhead transmission.</li> <li>2) Issue PTW and control of maintenance works.</li> <li>3) Check plant availability for reporting to system operator (NLDC).</li> <li>4) Investigate production restriction.</li> <li>5) Carry out system troubleshooting.</li> </ol>	<b><u>Civil and Mechanical Technical Assistant</u></b> <ol style="list-style-type: none"> <li>1) Provide technical support for civil &amp; mechanical maintenance and plant integrity.</li> <li>2) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>3) Perform troubleshooting on civil &amp; mechanical equipment.</li> <li>4) Perform civil and mechanical section budget for maintenance and new projects.</li> <li>5) Implement decision and direction for civil and mechanical maintenance section.</li> </ol>
LEVEL 4	<b><u>Instrument and Control Construction Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Interpret site work requirements.</li> <li>2) Site supervision of instrument and control construction project works.</li> <li>3) Check instrument and control construction sub-contractors site work activities.</li> <li>4) Manage day-to-day site work technical issues.</li> <li>5) Coordinate instrument and control materials receipt on site.</li> </ol>	<b><u>Panel Controller</u></b> <ol style="list-style-type: none"> <li>1) Operate overhead transmission control panel.</li> <li>2) Carry out plant start-up and shutdown operation.</li> <li>3) Carry out equipment troubleshooting.</li> <li>4) Monitor PTW and coordinate maintenance works.</li> </ol>	<b><u>Civil and Mechanical Foreman</u></b> <ol style="list-style-type: none"> <li>1) Supervise technicians in carrying-out civil and mechanical maintenance works.</li> <li>2) Supervise contractor's works in carrying out civil and mechanical maintenance works.</li> <li>3) Carry out civil and mechanical isolation/de-isolation of electrical equipment.</li> <li>4) Monitor civil and mechanical maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> </ol>

AREA	Overhead Transmission – Project (Instrument and Control Construction)	Overhead Transmission – Operation	Overhead Transmission – Maintenance (Civil and Mechanical)
	6) Coordinate instrument and control equipment usage on site.		5) Perform basic troubleshooting on electrical equipment. 6) Implement decision and direction for civil and mechanical maintenance section.
LEVEL 3	<b><u>Instrument and Control Construction Technician</u></b> <ol style="list-style-type: none"> <li>1) Carry out instrument and control construction project works.</li> <li>2) Lead workers to execute instrument and control construction works.</li> <li>3) Instruct instrument and control construction sub-contractors site work activities.</li> <li>4) Address day-to-day site work technical issues.</li> <li>5) Report site work activities.</li> </ol>	<b><u>Plant Operator</u></b> <ol style="list-style-type: none"> <li>1) Carry out overhead transmission machinery operation.</li> <li>2) Isolate/normalise equipment/system for maintenance works.</li> <li>3) Execute periodic testing of equipment.</li> <li>4) Check and report equipment abnormal operation.</li> </ol>	<b><u>Civil and Mechanical Technician</u></b> <ol style="list-style-type: none"> <li>1) Carry out civil and mechanical maintenance works.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Control of civil and mechanical maintenance tools and equipment.</li> <li>4) Perform basic troubleshooting on civil and mechanical equipment.</li> <li>5) Implement decision and direction for civil and mechanical maintenance section.</li> </ol>
LEVEL 2	<b><u>Junior Instrument and Control Technician</u></b> <ol style="list-style-type: none"> <li>1) Assist in execution of instrument and control construction project works.</li> <li>2) Execute site instrument and control construction works.</li> <li>3) Conduct site instrument and control work testing.</li> </ol>	<b><u>Junior Plant Operator</u></b> <ol style="list-style-type: none"> <li>1) Carry out overhead transmission machinery operation.</li> <li>2) Isolate/normalise equipment/system for maintenance works.</li> <li>3) Execute periodic testing of equipment.</li> </ol>	<b><u>Junior Civil and Mechanical Technician</u></b> <ol style="list-style-type: none"> <li>1) Assist technician in carrying-out civil and mechanical maintenance works.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Maintain civil and mechanical maintenance tools and equipment.</li> </ol>

<b>AREA</b>	<b>Overhead Transmission – Project (Instrument and Control Construction)</b>	<b>Overhead Transmission – Operation</b>	<b>Overhead Transmission – Maintenance (Civil and Mechanical)</b>
	4) Contribute to team effort by to deliver results as required.	4) Check and report equipment abnormal operation.	4) Implement decision and direction for civil and mechanical maintenance section.
<b>LEVEL 1</b>	No level	No Level	No Level

Table 4.77: List of Responsibilities for Group 351 Based on Table 4.28 and 4.29 (27 of 38)

AREA	Overhead Transmission – Maintenance (Instrument and Control)	Sub-marine Transmission – project (Civil Construction)	Sub-marine Transmission – project (Mechanical Construction)
LEVEL 8	Not Available	Not Available	<b><u>Project Director</u></b> 1) Manage mechanical construction project office. 2) Lead a team of mechanical construction organization. 3) Approve site construction work changes. 4) Present proposal to client and stakeholder on financial standing and team readiness. 5) Perform regular meeting with client, third parties, and project manager to report progress. 6) Build strong relationship with client. 7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.
LEVEL 7	<b><u>Maintenance Manager</u></b> 1) Manage the overhead transmission instrument and control maintenance department. 2) Responsible for instrument & control maintenance and plant integrity.	<b><u>Project Manager</u></b> 1) Coordinate civil construction project activities. 2) Manage civil construction project engineers and technicians.	<b><u>Project Manager</u></b> 1) Coordinate mechanical construction project activities. 2) Manage mechanical construction project engineers and technicians.

AREA	Overhead Transmission – Maintenance (Instrument and Control)	Sub-marine Transmission – project (Civil Construction)	Sub-marine Transmission – project (Mechanical Construction)
	3) Manage implementation of station work policies; HSE and Quality Policies. 4) Manage performance targets of instrument and control maintenance department. 5) Review budget for instrument and control maintenance and new projects. 6) Make strategic decision and provide necessary leadership and direction for instrument and control maintenance departments to implement those decisions.	3) Manage civil construction sub-contractors work progress. 4) Review site construction work changes. 5) Assign job activities to engineers. 6) Monitor project schedule and work progress.	3) Manage mechanical construction sub-contractors work progress. 4) Review site construction work changes. 5) Assign job activities to engineers. 6) Monitor project schedule and work progress.
LEVEL 6	<b><u>Instrument and Control Engineer</u></b> 1) Manage the overhead transmission instrument and control maintenance department. 2) Responsible for instrument & control and its auxiliary's maintenance and plant integrity. 3) Execute implementation of station work policies; HSE and Quality Policies. 4) Perform troubleshooting on instrument & control and its auxiliary's equipment. 5) Implement decision and direction for instrument and control maintenance section.	<b><u>Civil Construction Engineer</u></b> 1) Oversee civil construction project activities. 2) Supervise civil construction project technicians. 3) Monitor civil construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.	<b><u>Mechanical Construction Engineer</u></b> 1) Oversee mechanical construction project activities. 2) Supervise mechanical construction project technicians. 3) Monitor mechanical construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.

AREA	Overhead Transmission – Maintenance (Instrument and Control)	Sub-marine Transmission – project (Civil Construction)	Sub-marine Transmission – project (Mechanical Construction)
LEVEL 5	<b><u>Instrument and Control Technical Assistant</u></b> <ol style="list-style-type: none"> <li>1) Provide technical support for instrument &amp; control maintenance and plant integrity.</li> <li>2) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>3) Perform troubleshooting on instrument and control equipment.</li> <li>4) Perform instrument and control section budget for maintenance and new projects.</li> <li>5) Implement decision and direction for instrument &amp; control maintenance section.</li> </ol>	<b><u>Civil Construction Executive</u></b> <ol style="list-style-type: none"> <li>1) Provide leadership.</li> <li>2) Oversight for the day-to-day operations</li> <li>3) Project management activities</li> <li>4) Project administration activities associated with a specific Market Sector of a Business Unit.</li> <li>5) Build strong relationship with client</li> </ol>	<b><u>Mechanical Construction Executive</u></b> <ol style="list-style-type: none"> <li>1) Provide leadership.</li> <li>2) Oversight for the day-to-day operations</li> <li>3) Project management activities</li> <li>4) Project administration activities associated with a specific Market Sector of a Business Unit.</li> <li>5) Build strong relationship with client</li> </ol>
LEVEL 4	<b><u>Instrument and Control Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Supervise technicians in carrying out instrument and control maintenance works.</li> <li>2) Supervise contractor's works in carrying-out instrument and control maintenance works.</li> <li>3) Carry out instrument &amp; control isolation/de-isolation of electrical equipment.</li> <li>4) Monitor instrument and control maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> </ol>	<b><u>Civil Construction Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Interpret site work requirements.</li> <li>2) Site supervision of civil construction project works.</li> <li>3) Check civil construction sub-contractors site work activities.</li> <li>4) Manage day-to-day site work technical issues.</li> <li>5) Coordinate civil materials receipt on site.</li> <li>6) Coordinate civil equipment usage on site.</li> </ol>	<b><u>Mechanical Construction Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Interpret site work requirements.</li> <li>2) Site supervision of mechanical construction project works.</li> <li>3) Check mechanical construction sub-contractors site work activities.</li> <li>4) Manage day-to-day site work technical issues.</li> <li>5) Coordinate mechanical materials receipt on site.</li> <li>6) Coordinate mechanical equipment usage on site.</li> </ol>



AREA	Overhead Transmission – Maintenance (Instrument and Control)	Sub-marine Transmission – project (Civil Construction)	Sub-marine Transmission – project (Mechanical Construction)
	5) Perform basic troubleshooting on electrical equipment. 6) Implement decision and direction for instrument and control maintenance section.		
LEVEL 3	<b><u>Instrument and Control Technician</u></b> 1) Carry out instrument and control maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Control of instrument and control maintenance tools and equipment. 4) Perform basic troubleshooting on instrument and control equipment. 5) Implement decision and direction for instrument and control maintenance section.	<b><u>Civil Construction Technician</u></b> 1) Carry out civil construction project works. 2) Lead workers to execute civil construction works. 3) Instruct civil construction sub-contractors site work activities. 4) Address day-to-day site work technical issues. 5) Report site work activities.	<b><u>Mechanical Construction Technician</u></b> 1) Carry out mechanical construction project works. 2) Lead workers to execute mechanical construction works. 3) Instruct mechanical construction sub-contractors site work activities. 4) Address day-to-day site work technical issues. 5) Report site work activities.
LEVEL 2	<b><u>Junior Instrument and Control Technician</u></b> 1) Assist technician in carrying-out instrument and control maintenance works. 2) Implement station work policies; HSE and Quality Policies.	<b><u>Junior Civil Construction Technician</u></b> 1) Assist in execution of civil construction project works. 2) Execute site civil construction works. 3) Conduct site civil work testing.	<b><u>Junior Mechanical Construction Technician</u></b> 1) Assist in execution of mechanical construction project works. 2) Execute site mechanical construction works.

<b>AREA</b>	<b>Overhead Transmission – Maintenance (Instrument and Control)</b>	<b>Sub-marine Transmission – project (Civil Construction)</b>	<b>Sub-marine Transmission – project (Mechanical Construction)</b>
	3) Maintain instrument and control maintenance tools and equipment. 4) Implement decision and direction for instrument and control maintenance section.	4) Contribute to team effort by to deliver results as required.	3) Conduct site mechanical work testing. 4) Contribute to team effort by to deliver results as required.
<b>LEVEL 1</b>	No Level	No Level	No Level

Table 4.78: List of Responsibilities for Group 351 Based on Table 4.29 and 4.30 (28 of 38)

AREA	Sub-marine Transmission – project (Instrument and Control Construction)	Sub-marine Transmission – Operation	Sub-marine Transmission – Maintenance (Civil and Mechanical)
LEVEL 8	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage instrument and control project office.</li> <li>2) Lead a team of instrument and control organisation.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	Not Available	Not Available
LEVEL 7	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate instrument and control project activities.</li> <li>2) Manage instrument and control project engineers and technicians.</li> <li>3) Manage instrument and control sub-contractors work progress.</li> </ol>	<b><u>Plant Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the sub-marine transmission station operation department.</li> <li>2) Responsible for station operation and plant integrity.</li> <li>3) Manage implementation of station work policies; HSE and Quality Policies.</li> </ol>	<b><u>Maintenance Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the sub-marine transmission station civil and mechanical maintenance department.</li> <li>2) Responsible for station civil and mechanical maintenance and plant integrity.</li> </ol>

AREA	Sub-marine Transmission – project (Instrument and Control Construction)	Sub-marine Transmission – Operation	Sub-marine Transmission – Maintenance (Civil and Mechanical)
	4) Review site construction work changes. 5) Assign job activities to engineers. 6) Monitor project schedule and work progress	4) Manage performance targets of operation department. 5) Review budget for operation and new projects. 6) Make strategic decision and provide necessary leadership and direction for operation departments to implement those decisions.	3) Manage implementation of station work policies; HSE and Quality Policies. 4) Manage performance targets of civil & mechanical maintenance department. 5) Review budget for station civil and mechanical maintenance and new projects. 6) Make strategic decision and provide necessary leadership and direction for civil and mechanical maintenance departments to implement those decisions.
LEVEL 6	<b><u>Instrument and Control Construction Engineer</u></b> 1) Oversee instrument and control construction project activities. 2) Supervise instrument and control construction project technicians. 3) Monitor instrument and control construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.	<b><u>Operation Engineer</u></b> 1) Assist Operation Manager to manage sub-marine transmission operation staff. 2) Review plant availability for reporting to system operator (NLDC). 3) Plan on plant outage. 4) Explore production restriction. 5) Handle operations budget.	<b><u>Civil and Mechanical Engineer</u></b> 1) Manage the sub-marine transmission station civil and mechanical maintenance department. 2) Responsible for civil and mechanical and its auxiliary's maintenance and plant integrity. 3) Execute implementation of station work policies; HSE and Quality Policies. 4) Perform troubleshooting on turbine and its auxiliary's equipment. 5) Implement decision and direction for civil and mechanical maintenance section.

AREA	Sub-marine Transmission – project (Instrument and Control Construction)	Sub-marine Transmission – Operation	Sub-marine Transmission – Maintenance (Civil and Mechanical)
LEVEL 5	<b><u>Instrument and Control Construction Executive</u></b> <ol style="list-style-type: none"> <li>1) Issue site work requirements.</li> <li>2) Site coordination of instrument and control construction project works.</li> <li>3) Organise instrument and control construction sub-contractors site work activities.</li> <li>4) Organise instrument and control materials receipt on site.</li> <li>5) Organise instrument and control equipment usage on site.</li> </ol>	<b><u>Shift Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage shift personnel in the operation of sub-marine transmission.</li> <li>2) Issue PTW and control of maintenance works.</li> <li>3) Check plant availability for reporting to system operator (NLDC).</li> <li>4) Investigate production restriction.</li> <li>5) Carry out system troubleshooting.</li> </ol>	<b><u>Civil and Mechanical Technical Assistant</u></b> <ol style="list-style-type: none"> <li>1) Provide technical support for civil and mechanical maintenance and plant integrity.</li> <li>2) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>3) Perform troubleshooting on civil and mechanical equipment.</li> <li>4) Perform civil and mechanical section budget for maintenance and new projects.</li> <li>5) Implement decision and direction for civil and mechanical maintenance section.</li> </ol>
LEVEL 4	<b><u>Instrument and Control Construction Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Interpret site work requirements.</li> <li>2) Site supervision of instrument and control construction project works.</li> <li>3) Check instrument and control construction sub-contractors site work activities.</li> <li>4) Manage day-to-day site work technical issues.</li> <li>5) Coordinate instrument and control materials receipt on site.</li> </ol>	<b><u>Panel Controller</u></b> <ol style="list-style-type: none"> <li>1) Operate sub-marine transmission control panel.</li> <li>2) Carry out plant start-up and shutdown operation.</li> <li>3) Carry out equipment troubleshooting.</li> <li>4) Monitor PTW and coordinate maintenance works.</li> </ol>	<b><u>Civil and Mechanical Foreman</u></b> <ol style="list-style-type: none"> <li>1) Supervise technicians in carrying-out civil and mechanical maintenance works.</li> <li>2) Supervise contractor's works in carrying-out civil and mechanical maintenance works.</li> <li>3) Carry out civil and mechanical isolation/de-isolation of electrical equipment.</li> <li>4) Monitor civil and mechanical maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> </ol>

AREA	Sub-marine Transmission – project (Instrument and Control Construction)	Sub-marine Transmission – Operation	Sub-marine Transmission – Maintenance (Civil and Mechanical)
	6) Coordinate instrument and control equipment usage on site.		5) Perform basic troubleshooting on electrical equipment. 6) Implement decision and direction for civil and mechanical maintenance section.
LEVEL 3	<b><u>Instrument and Control Construction Technician</u></b> <ol style="list-style-type: none"> <li>1) Carry out instrument and control construction project works.</li> <li>2) Lead workers to execute instrument and control construction works.</li> <li>3) Instruct instrument and control construction sub-contractors site work activities.</li> <li>4) Address day-to-day site work technical issues.</li> <li>5) Report site work activities.</li> </ol>	<b><u>Plant Operator</u></b> <ol style="list-style-type: none"> <li>1) Carry out sub-marine transmission machinery operation.</li> <li>2) Isolate/normalise equipment/system for maintenance works.</li> <li>3) Execute periodic testing of equipment.</li> <li>4) Check and report equipment abnormal operation.</li> </ol>	<b><u>Civil and Mechanical Technician</u></b> <ol style="list-style-type: none"> <li>1) Carry out civil and mechanical maintenance works.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Control of civil and mechanical maintenance tools and equipment.</li> <li>4) Perform basic troubleshooting on civil and mechanical equipment.</li> <li>5) Implement decision and direction for civil and mechanical maintenance section.</li> </ol>
LEVEL 2	<b><u>Junior Instrument and Control Technician</u></b> <ol style="list-style-type: none"> <li>1) Assist in execution of instrument and control construction project works.</li> <li>2) Execute site instrument and control construction works.</li> <li>3) Conduct site instrument and control work testing.</li> </ol>	<b><u>Junior Plant Operator</u></b> <ol style="list-style-type: none"> <li>1) Carry out sub-marine transmission machinery operation.</li> <li>2) Isolate/ normalise equipment/system for maintenance works.</li> <li>3) Execute periodic testing of equipment.</li> </ol>	<b><u>Junior Civil and Mechanical Technician</u></b> <ol style="list-style-type: none"> <li>1) Assist technician in carrying-out civil and mechanical maintenance works.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Maintain civil and mechanical maintenance tools and equipment.</li> </ol>

<b>AREA</b>	<b>Sub-marine Transmission – project (Instrument and Control Construction)</b>	<b>Sub-marine Transmission – Operation</b>	<b>Sub-marine Transmission – Maintenance (Civil and Mechanical)</b>
	4) Contribute to team effort by to deliver results as required.	4) Check and report equipment abnormal operation.	4) Implement decision and direction for civil and mechanical maintenance section.
<b>LEVEL 1</b>	No level	No Level	No level

Table 4.79: List of Responsibilities for Group 351 Based on Table 4.30 and 4.31 (29 of 38)

AREA	Sub-marine Transmission – Maintenance (Instrument and Control)	Distribution: Sub-station – Project (Engineering)	Distribution: Sub-station – Project (Civil Construction)
LEVEL 8	Not Available	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Creating schedules and following up with workers to ensure that each phase of a project proceeds as planned</li> <li>3) Ongoing if it appears not proceeding according to schedule or scope of work.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Creating schedules and following up with workers to ensure that each phase of a project proceeds as planned</li> <li>3) Ongoing if it appears not proceeding according to schedule or scope of work.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>
LEVEL 7	<b><u>Maintenance Manager</u></b>	<b><u>Engineering Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforcing strategies.</li> <li>2) Developing project objectives.</li> </ol>	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate civil construction project activities.</li> </ol>



AREA	Sub-marine Transmission – Maintenance (Instrument and Control)	Distribution: Sub-station – Project (Engineering)	Distribution: Sub-station – Project (Civil Construction)
	<ol style="list-style-type: none"> <li>1) Manage the sub-marine transmission instrument and control maintenance department.</li> <li>2) Responsible for instrument and control maintenance and plant integrity.</li> <li>3) Manage implementation of station work policies; HSE and Quality Policies.</li> <li>4) Manage performance targets of instrument and control maintenance department.</li> <li>5) Review budget for instrument &amp; control maintenance and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for instrument and control maintenance departments to implement those decisions.</li> </ol>	<ol style="list-style-type: none"> <li>3) Overseeing senior management staff.</li> <li>4) Coordinating with department heads.</li> <li>5) Reporting to the board of directors or members.</li> <li>6) Providing financial reports.</li> <li>7) Preparing or approving budgets.</li> <li>8) Improving productivity levels.</li> </ol>	<ol style="list-style-type: none"> <li>2) Manage civil construction project engineers and technicians.</li> <li>3) Manage civil construction sub-contractors work progress.</li> <li>4) Review site construction work changes.</li> <li>5) Assign job activities to engineers.</li> <li>6) Monitor project schedule and work progress.</li> </ol>
LEVEL 6	<b><u>Instrument and Control Engineer</u></b> <ol style="list-style-type: none"> <li>1) Manage the sub-marine transmission instrument and control maintenance department.</li> <li>2) Responsible for instrument and control and its auxiliary's maintenance and plant integrity.</li> <li>3) Execute implementation of station work policies; HSE and Quality Policies.</li> </ol>	<b><u>Design Engineer</u></b> <ol style="list-style-type: none"> <li>1) Oversee the whole operation and budgetary aspects of shows.</li> <li>2) Choosing production team.</li> <li>3) Choosing of production equipment.</li> <li>4) Producers are responsible for both the creative and financial decisions.</li> <li>5) Oversee the creation of a show from inception to broadcast.</li> </ol>	<b><u>Civil Construction Engineer</u></b> <ol style="list-style-type: none"> <li>1) Oversee civil construction project activities.</li> <li>2) Supervise civil construction project technicians.</li> <li>3) Monitor civil construction sub-contractors work progress.</li> <li>4) Check site construction work changes.</li> <li>5) Assign job activities to technicians.</li> </ol>

AREA	Sub-marine Transmission – Maintenance (Instrument and Control)	Distribution: Sub-station – Project (Engineering)	Distribution: Sub-station – Project (Civil Construction)
	4) Perform troubleshooting on instrument and control and its auxiliary's equipment. 5) Implement decision and direction for instrument and control maintenance section.		6) Check project schedule and work progress.
LEVEL 5	<b><u>Instrument and Control Technical Assistant</u></b> 1) Provide technical support for instrument and control maintenance and plant integrity. 2) Execute implementation of station work policies; HSE and Quality Policies. 3) Perform troubleshooting on instrument and control equipment. 4) Perform instrument and control section budget for maintenance and new projects. 5) Implement decision and direction for instrument and control maintenance section.	<b><u>Design Executive</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations. 3) Project management activities. 4) Project administration activities associated with a specific Market Sector of a Business Unit. 5) Build strong relationship with client.	<b><u>Civil Construction Executive</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations. 3) Project management activities. 4) Project administration activities associated with a specific Market Sector of a Business Unit. 5) Build strong relationship with client.
LEVEL 4	<b><u>Instrument and Control Supervisor</u></b> 1) Supervise technicians in carrying-out instrument and control maintenance works.	<b><u>Design Supervisor</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations 3) Project management activities	<b><u>Civil Construction Supervisor</u></b> 1) Interpret site work requirements. 2) Site supervision of civil construction project works.

AREA	Sub-marine Transmission – Maintenance (Instrument and Control)	Distribution: Sub-station – Project (Engineering)	Distribution: Sub-station – Project (Civil Construction)
	<ul style="list-style-type: none"> <li>2) Supervise contractor's works in carrying-out instrument and control maintenance works.</li> <li>3) Carry out instrument and control isolation/de-isolation of electrical equipment.</li> <li>4) Monitor instrument and control maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> <li>5) Perform basic troubleshooting on electrical equipment.</li> <li>6) Implement decision and direction for instrument and control maintenance section.</li> </ul>	<ul style="list-style-type: none"> <li>4) Project administration activities associated with a specific Market Sector of a Business Unit.</li> <li>5) Build strong relationship with client.</li> </ul>	<ul style="list-style-type: none"> <li>3) Check civil construction sub-contractors site work activities.</li> <li>4) Manage day-to-day site work technical issues.</li> <li>5) Coordinate civil materials receipt on site.</li> <li>6) Coordinate civil equipment usage on site.</li> </ul>
LEVEL 3	<b><u>Instrument and Control Technician</u></b> <ul style="list-style-type: none"> <li>1) Carry out instrument and control maintenance works.</li> <li>2) Implement station work policies; HSE and Quality Policies.</li> <li>3) Control of instrument and control maintenance tools and equipment.</li> <li>4) Perform basic troubleshooting on instrument and control equipment.</li> </ul>	<b><u>Draughtsman</u></b> <ul style="list-style-type: none"> <li>1) Confirm project requirements.</li> <li>2) Arrange project requirements in programming sequence.</li> <li>3) Encode project requirements by converting work flow information into computer language.</li> <li>4) Confirm program operation by conducting tests</li> <li>5) Document operating instructions.</li> </ul>	<b><u>Civil Construction Technician</u></b> <ul style="list-style-type: none"> <li>1) Carry out civil construction project works.</li> <li>2) Lead workers to execute civil construction works.</li> <li>3) Instruct civil construction sub-contractors site work activities.</li> <li>4) Address day-to-day site work technical issues.</li> <li>5) Report site work activities</li> </ul>

AREA	Sub-marine Transmission – Maintenance (Instrument and Control)	Distribution: Sub-station – Project (Engineering)	Distribution: Sub-station – Project (Civil Construction)
	5) Implement decision and direction for instrument and control maintenance section.	6) Document program development and revisions. 7) Contribute to team effort by accomplishing related results as needed.	
LEVEL 2	<b><u>Junior Instrument and Control Technician</u></b> 1) Assist technician in carrying out instrument and control maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Maintain instrument and control maintenance tools and equipment. 4) Implement decision and direction for instrument and control maintenance section.	<b><u>Junior Draughtsman</u></b> 1) Confirm project requirements 2) Arrange project requirements in programming sequence 3) Encode project requirements by converting work flow information into computer language 4) Confirm program operation by conducting tests 5) Document operating instructions 6) Document program development and revisions 7) Contribute to team effort by accomplishing related results as needed	<b><u>Junior Civil Construction Technician</u></b> 1) Assist in execution of civil construction project works. 2) Execute site civil construction works. 3) Conduct site civil work testing. 4) Contribute to team effort by to deliver results as required.
LEVEL 1	No level	No Level	No Level

Table 4.80: List of Responsibilities for Group 351 based on Table 4.31 (30 of 38)

AREA	Distribution: Sub-station – Project (Mechanical Construction)	Distribution: Sub-station – Project (Electric & Instrument Construction)	Distribution: Sub-station – Project (Health, Safety and Environment Construction)
LEVEL 8	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage mechanical construction project office.</li> <li>2) Lead a team of mechanical construction organisation.</li> <li>3) Approve site construction work changes.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage E&amp;I construction project office.</li> <li>2) Lead a team of E&amp;I construction organization.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Manage HSE project office.</li> <li>2) Lead a team of HSE organisation.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>
LEVEL 7	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate mechanical construction project activities.</li> <li>2) Manage mechanical construction project engineers and technicians.</li> <li>3) Manage mechanical construction sub-contractors work progress.</li> </ol>	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate E&amp;I construction project activities.</li> <li>2) Manage E&amp;I construction project engineers and technicians.</li> <li>3) Manage E &amp; I construction sub-contractors work progress.</li> </ol>	<b><u>Health, Safety and Environment Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage HSE in construction project.</li> <li>2) Manage HSE programme with staffs and sub-contractor's manpower.</li> <li>3) Review safety incidences in project construction activities.</li> </ol>

AREA	Distribution: Sub-station – Project (Mechanical Construction)	Distribution: Sub-station – Project (Electric & Instrument Construction)	Distribution: Sub-station – Project (Health, Safety and Environment Construction)
	4) Review site construction work changes. 5) Assign job activities to engineers. 6) Monitor project schedule and work progress.	4) Review site construction work changes. 5) Assign job activities to engineers 6) Monitor project schedule and work progress.	4) Monitor HSE implementation by various project construction departments.
LEVEL 6	<b><u>Mechanical Construction Engineer</u></b> 1) Oversee mechanical construction project activities. 2) Supervise mechanical construction project technicians. 3) Monitor mechanical construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.	<b><u>Electric and Instrument Construction Engineer</u></b> 1) Oversee E&I construction project activities. 2) Supervise E&I construction project technicians. 3) Monitor E&I construction sub-contractors work progress. 4) Check site construction work changes. 5) Assign job activities to technicians. 6) Check project schedule and work progress.	<b><u>Health, Safety and Environment Engineer</u></b> 1) Develop HSE Plan to meet the organization and statutory requirements. 2) Carry out incidences trending and analysis. 3) Recommend HSE programmes to address plant safety concerns. 4) Carry out closure of safety audit disposition. 5) Prepare safety walkabout schedule.
LEVEL 5	<b><u>Mechanical Construction Executive</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations 3) Project management activities 4) Project administration activities associated with a specific Market Sector of a Business Unit. 5) Build strong relationship with client	<b><u>Electric &amp; Instrument Construction Executive</u></b> 1) Issue site work requirements. 2) Site coordination of E&I construction project works. 3) Organise E&I construction sub-contractors site work activities. 4) Organise E&I materials receipt on site.	<b><u>Safety Officer</u></b> 1) Execute HSE programs to meet the organisation and statutory requirements. 2) Carry out accident investigation. 3) Report safety and health reportable cases to DOSH as per requirements. 4) Monitor safety enforcements and penalty scheme.

AREA	Distribution: Sub-station – Project (Mechanical Construction)	Distribution: Sub-station – Project (Electric & Instrument Construction)	Distribution: Sub-station – Project (Health, Safety and Environment Construction)
		5) Organise E&I equipment usage on site.	
LEVEL 4	<b><u>Mechanical Construction Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Interpret site work requirements.</li> <li>2) Site supervision of mechanical construction project works.</li> <li>3) Check mechanical construction sub-contractors site work activities.</li> <li>4) Manage day-to-day site work technical issues.</li> <li>5) Coordinate mechanical materials receipt on site.</li> <li>6) Coordinate mechanical equipment usage on site.</li> </ol>	<b><u>Electric and Instrument Construction Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Interpret site work requirements.</li> <li>2) Site supervision of E&amp;I construction project works.</li> <li>3) Check E&amp;I construction sub-contractors site work activities.</li> <li>4) Manage day-to-day site work technical issues.</li> <li>5) Coordinate E&amp;I materials receipt on site.</li> <li>6) Coordinate E&amp;I equipment usage on site.</li> </ol>	<b><u>Safety Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Assist Safety Officer to execute HSE programmes to meet the organisation and statutory requirements.</li> <li>2) Organise accident investigation.</li> <li>3) Prepare accident report for safety and health reportable cases to DOSH as per requirements.</li> <li>4) Carry out safety enforcements and penalty scheme.</li> </ol>
LEVEL 3	<b><u>Mechanical Construction Technician</u></b> <ol style="list-style-type: none"> <li>1) Carry out mechanical construction project works.</li> <li>2) Lead workers to execute mechanical construction works.</li> <li>3) Instruct mechanical construction sub-contractors site work activities.</li> <li>4) Address day-to-day site work technical issues.</li> <li>5) Report site work activities</li> </ol>	<b><u>Electric and Instrument Construction Technician</u></b> <ol style="list-style-type: none"> <li>1) Carry out E&amp;I construction project works.</li> <li>2) Lead workers to execute E&amp;I construction works.</li> <li>3) Instruct E&amp;I construction sub-contractors site work activities.</li> <li>4) Address day-to-day site work technical issues.</li> <li>5) Report site work activities.</li> </ol>	No Level

AREA	Distribution: Sub-station – Project (Mechanical Construction)	Distribution: Sub-station – Project (Electric & Instrument Construction)	Distribution: Sub-station – Project (Health, Safety and Environment Construction)
LEVEL 2	<b><u>Junior Mechanical Construction Technician</u></b> 1) Assist in execution of mechanical construction project works. 2) Execute site mechanical construction works. 3) Conduct site mechanical work testing. 4) Contribute to team effort by to deliver results as required.	<b><u>Junior Electric and Instrument Technician</u></b> 1) Assist in execution of E&I construction project works. 2) Execute site E&I construction works. 3) Conduct site E&I work testing. 4) Contribute to team effort by to deliver results as required.	No Level
LEVEL 1	No Level	No Level	No Level



Table 4.81: List of Responsibilities for Group 351 Based on Table 4.32 (31 of 38)

AREA	Distribution: Sub-station – Operation	Distribution: Sub-station – Maintenance (Civil)	Distribution: Sub-station – Maintenance (Mechanical)
LEVEL 8	Not Available	<b><u>Station Manager</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Creating schedules and following up with workers to ensure that each phase of a project proceeds as planned</li> <li>3) Ongoing if it appears not proceeding according to schedule or scope of work.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions</li> </ol>	<b><u>Station Manager</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Creating schedules and following up with workers to ensure that each phase of a project proceeds as planned</li> <li>3) Ongoing if it appears not proceeding according to schedule or scope of work.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions</li> </ol>
LEVEL 7	<b><u>Plant Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the distribution: sub-station transmission station operation department.</li> </ol>	<b><u>Civil Maintenance Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the solar power station civil maintenance department.</li> </ol>	<b><u>Mechanical Maintenance Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the solar power station mechanical maintenance department.</li> </ol>

AREA	Distribution: Sub-station – Operation	Distribution: Sub-station – Maintenance (Civil)	Distribution: Sub-station – Maintenance (Mechanical)
	<ul style="list-style-type: none"> <li>2) Responsible for station operation and plant integrity.</li> <li>3) Manage implementation of station work policies; HSE and Quality Policies.</li> <li>4) Manage performance targets of operation department.</li> <li>5) Review budget for operation and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for operation departments to implement those decisions.</li> </ul>	<ul style="list-style-type: none"> <li>2) Responsible for station civil maintenance and plant integrity.</li> <li>3) Manage implementation of station work policies; HSE and Quality Policies.</li> <li>4) Manage performance targets of civil maintenance department.</li> <li>5) Review budget for station civil maintenance and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for civil maintenance departments to implement those decisions.</li> </ul>	<ul style="list-style-type: none"> <li>2) Responsible for station mechanical maintenance and plant integrity.</li> <li>3) Manage implementation of station work policies; HSE and Quality Policies.</li> <li>4) Manage performance targets of mechanical maintenance department.</li> <li>5) Review budget for station mechanical maintenance and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for mechanical maintenance departments to implement those decisions.</li> </ul>
LEVEL 6	<u><b>Operation Engineer</b></u> <ul style="list-style-type: none"> <li>1) Assist Operation Manager to manage distribution: sub-station transmission operation staff.</li> <li>2) Review plant availability for reporting to system operator (NLDC).</li> <li>3) Plan on plant outage.</li> <li>4) Explore production restriction.</li> <li>5) Handle operations budget.</li> </ul>	<u><b>Civil Engineer</b></u> <ul style="list-style-type: none"> <li>1) Manage the solar power station civil maintenance department.</li> <li>2) Responsible for civil and its auxiliary's maintenance and plant integrity.</li> <li>3) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform troubleshooting on turbine and its auxiliary's equipment.</li> <li>5) Implement decision and direction for civil maintenance section.</li> </ul>	<u><b>Mechanical Engineer</b></u> <ul style="list-style-type: none"> <li>1) Manage the solar power station mechanical maintenance department.</li> <li>2) Responsible for mechanical and its auxiliary's maintenance and plant integrity.</li> <li>3) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform troubleshooting on turbine and its auxiliary's equipment.</li> <li>5) Implement decision and direction for mechanical maintenance section.</li> </ul>

AREA	Distribution: Sub-station – Operation	Distribution: Sub-station – Maintenance (Civil)	Distribution: Sub-station – Maintenance (Mechanical)
LEVEL 5	<b><u>Shift Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage shift personnel in the operation of distribution: sub-station transmission.</li> <li>2) Issue PTW and control of maintenance works.</li> <li>3) Check plant availability for reporting to system operator (NLDC).</li> <li>4) Investigate production restriction.</li> <li>5) Carry out system troubleshooting.</li> </ol>	<b><u>Civil Technical Assistant</u></b> <ol style="list-style-type: none"> <li>1) Provide technical support for civil maintenance and plant integrity.</li> <li>2) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>3) Perform troubleshooting on civil equipment.</li> <li>4) Perform civil section budget for maintenance and new projects.</li> <li>5) Implement decision and direction for civil maintenance section.</li> </ol>	<b><u>Mechanical Technical Assistant</u></b> <ol style="list-style-type: none"> <li>1) Provide technical support for mechanical maintenance and plant integrity.</li> <li>2) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>3) Perform troubleshooting on mechanical equipment.</li> <li>4) Perform mechanical section budget for maintenance and new projects.</li> <li>5) Implement decision and direction for mechanical maintenance section.</li> </ol>
LEVEL 4	<b><u>Panel Controller</u></b> <ol style="list-style-type: none"> <li>1) Operate distribution: sub-station transmission control panel.</li> <li>2) Carry out plant start-up and shutdown operation.</li> <li>3) Carry out equipment troubleshooting.</li> <li>4) Monitor PTW and coordinate maintenance works.</li> </ol>	<b><u>Senior Civil Technician</u></b> <ol style="list-style-type: none"> <li>1) Supervise technicians in carrying-out civil maintenance works.</li> <li>2) Supervise contractor's works in carrying out civil maintenance works.</li> <li>3) Carry out civil isolation/de-isolation of electrical equipment.</li> <li>4) Monitor civil maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> <li>5) Perform basic troubleshooting on electrical equipment.</li> </ol>	<b><u>Mechanical Foreman</u></b> <ol style="list-style-type: none"> <li>1) Supervise technicians in carrying-out mechanical maintenance works.</li> <li>2) Supervise contractor's works in carrying out mechanical maintenance works.</li> <li>3) Carry out mechanical isolation/de-isolation of electrical equipment.</li> <li>4) Monitor mechanical maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> <li>5) Perform basic troubleshooting on electrical equipment.</li> </ol>

AREA	Distribution: Sub-station – Operation	Distribution: Sub-station – Maintenance (Civil)	Distribution: Sub-station – Maintenance (Mechanical)
		6) Implement decision and direction for civil maintenance section.	6) Implement decision and direction for mechanical maintenance section.
LEVEL 3	<b><u>Plant Operator</u></b> 1) Carry out distribution: sub-station transmission machinery operation. 2) Isolate/normalise equipment/system for maintenance works. 3) Execute periodic testing of equipment. 4) Check and report equipment abnormal operation.	<b><u>Civil Technician</u></b> 1) Carry out civil maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Control of civil maintenance tools and equipment. 4) Perform basic troubleshooting on civil & mechanical equipment. 5) Implement decision and direction for civil maintenance section.	<b><u>Mechanical Technician</u></b> 1) Carry out mechanical maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Control of mechanical maintenance tools and equipment. 4) Perform basic troubleshooting on mechanical equipment. 5) Implement decision and direction for mechanical maintenance section.
LEVEL 2	<b><u>Junior Plant Operator</u></b> 1) Carry out distribution: sub-station transmission machinery operation. 2) Isolate/normalise equipment/system for maintenance works. 3) Execute periodic testing of equipment. 4) Check and report equipment abnormal operation.	<b><u>Junior Civil Technician</u></b> 1) Assist technician in carrying-out civil maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Maintain civil maintenance tools and equipment. 4) Implement decision and direction for civil maintenance section.	<b><u>Junior Mechanical Technician</u></b> 1) Assist technician in carrying-out mechanical maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Maintain mechanical maintenance tools and equipment. 4) Implement decision and direction for mechanical maintenance section.

AREA	Distribution: Sub-station – Operation	Distribution: Sub-station – Maintenance (Civil)	Distribution: Sub-station – Maintenance (Mechanical)
LEVEL 1	No Level	No Level	No Level

Table 4.82: List of Responsibilities for Group 351 Based on Table 4.33 (32 of 38)

AREA	Distribution: Sub-station – Maintenance (Electrical)	Distribution: Sub-station – Maintenance (Instrument)	Distribution: Sub-station – Support Services (Health, Safety and Environment)
LEVEL 8	<b><u>Station Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the distribution: sub-station power station electricity production.</li> <li>2) Responsible for station production and plant integrity.</li> <li>3) Develop station work policies; HSE and Quality Policies.</li> <li>4) Issue performance targets to heads of department.</li> <li>5) Liaise with head office on budget for station production and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.</li> </ol>	<b><u>Station Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the distribution: sub-station power station electricity production.</li> <li>2) Responsible for station production and plant integrity.</li> <li>3) Develop station work policies; HSE and Quality Policies.</li> <li>4) Issue performance targets to heads of department.</li> <li>5) Liaise with head office on budget for station production and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.</li> </ol>	<b><u>Station Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the distribution: sub-station power station electricity production.</li> <li>2) Responsible for station production and plant integrity.</li> <li>3) Develop station work policies; HSE and Quality Policies.</li> <li>4) Issue performance targets to heads of department.</li> <li>5) Liaise with head office on budget for station production and new projects.</li> <li>6) Make strategic decision and provide necessary leadership and direction for head of departments to implement those decisions.</li> </ol>
LEVEL 7	<b><u>Electrical Maintenance Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the distribution: sub-station power station E&amp;I maintenance department.</li> <li>2) Responsible for station E&amp;I maintenance and plant integrity.</li> <li>3) Manage implementation of station work policies; HSE and Quality Policies.</li> </ol>	<b><u>Instrument Maintenance Manager</u></b> <ol style="list-style-type: none"> <li>1) Manage the distribution: sub-station power station E&amp;I maintenance department.</li> <li>2) Responsible for station E&amp;I maintenance and plant integrity.</li> <li>3) Manage implementation of station work policies; HSE and Quality Policies.</li> </ol>	<b><u>Health, Safety and Environment Manager</u></b> <ol style="list-style-type: none"> <li>1) Implement HSE activities in distribution: sub-station power plant.</li> <li>2) Conduct HSE programme with staffs and sub-contractor's manpower.</li> <li>3) Investigate safety incidences in power plant.</li> </ol>

AREA	Distribution: Sub-station – Maintenance (Electrical)	Distribution: Sub-station – Maintenance (Instrument)	Distribution: Sub-station – Support Services (Health, Safety and Environment)
	4) Manage performance targets of E&I maintenance department. 5) Review budget for station E&I maintenance and new projects. 6) Make strategic decision and provide necessary leadership and direction for E&I maintenance departments to implement those decisions.	4) Manage performance targets of E&I maintenance department. 5) Review budget for station E&I maintenance and new projects. 6) Make strategic decision and provide necessary leadership and direction for E&I maintenance departments to implement those decisions.	4) Monitor HSE implementation by various power plant departments. 5) Implement HSE rules and regulations to meet statutory requirements. 6) Monitor performance targets of HSE department. 7) Control budget for station HSE programme. 8) Implement decision and direction for HSE section.
LEVEL 6	<b><u>Electrical Engineer</u></b> 1) Manage the distribution: sub-station power station turbine maintenance department. 2) Responsible for station turbine and its auxiliary's maintenance and plant integrity. 3) Execute implementation of station work policies; HSE and Quality Policies. 4) Perform troubleshooting on turbine and its auxiliary's equipment. 5) Execute turbine section performance targets. 6) Control turbine section budget for maintenance and new projects.	<b><u>Instrument Engineer</u></b> 1) Manage the distribution: sub-station power station instrument maintenance department. 2) Responsible for station instrument maintenance and plant integrity. 3) Execute implementation of station work policies; HSE and Quality Policies. 4) Perform troubleshooting on instrument equipment. 5) Execute instrument section performance targets. 6) Control instrument section budget for maintenance and new projects.	<b><u>Health, Safety and Environment Engineer</u></b> 1) Implement HSE activities in distribution: sub-station power plant. 2) Conduct HSE programme with staffs and sub-contractor's manpower. 3) Investigate safety incidences in power plant. 4) Monitor HSE implementation by various power plant departments. 5) Implement HSE rules and regulations to meet statutory requirements. 6) Monitor performance targets of HSE department.

AREA	Distribution: Sub-station – Maintenance (Electrical)	Distribution: Sub-station – Maintenance (Instrument)	Distribution: Sub-station – Support Services (Health, Safety and Environment)
	7) Implement decision and direction for turbine maintenance section.	7) Implement decision and direction for instrument maintenance section.	7) Control budget for station HSE programme. 8) Implement decision and direction for HSE section.
LEVEL 5	<b><u>Electrical Technical Assistant</u></b> <ol style="list-style-type: none"> <li>1) Provide technical support for electrical maintenance and plant integrity.</li> <li>2) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>3) Perform troubleshooting on electrical equipment.</li> <li>4) Perform electrical section budget for maintenance and new projects.</li> <li>5) Implement decision and direction for electrical maintenance section.</li> </ol>	<b><u>Instrument Technical Assistant</u></b> <ol style="list-style-type: none"> <li>1) Provide technical support for instrument maintenance and plant integrity.</li> <li>2) Execute implementation of station work policies; HSE and Quality Policies.</li> <li>3) Perform troubleshooting on instrument equipment.</li> <li>4) Perform instrument section budget for maintenance and new projects.</li> <li>5) Implement decision and direction for instrument maintenance section.</li> </ol>	<b><u>Safety Officer</u></b> <ol style="list-style-type: none"> <li>1) Execute HSE programmes to meet the organisation and statutory requirements.</li> <li>2) Carry out accident investigation.</li> <li>3) Report safety and health reportable cases to DOSH as per requirements.</li> <li>4) Monitor safety enforcements and penalty scheme.</li> </ol>
LEVEL 4	<b><u>Electric Chargeman</u></b> <ol style="list-style-type: none"> <li>1) Supervise technicians in carrying-out electrical maintenance works.</li> <li>2) Supervise contractor's works in carrying-out electrical maintenance works.</li> <li>3) Carry out electrical isolation/de-isolation of electrical equipment.</li> </ol>	<b><u>Instrument Foreman</u></b> <ol style="list-style-type: none"> <li>1) Supervise technicians in carrying out instrument maintenance works.</li> <li>2) Supervise contractor's works in carrying out instrument maintenance works.</li> <li>3) Monitor instrument maintenance technicians in the implementation of</li> </ol>	<b><u>Safety Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Assist Safety Officer to execute HSE programs to meet the organisation and statutory requirements.</li> <li>2) Organise accident investigation.</li> <li>3) Prepare accident report for safety and health reportable cases to DOSH as per requirements.</li> </ol>



AREA	Distribution: Sub-station – Maintenance (Electrical)	Distribution: Sub-station – Maintenance (Instrument)	Distribution: Sub-station – Support Services (Health, Safety and Environment)
	4) Monitor electrical maintenance technicians in the implementation of station work policies; HSE and Quality Policies. 5) Perform basic troubleshooting on electrical equipment. 6) Implement decision and direction for electrical maintenance section.	station work policies; HSE and Quality Policies. 4) Perform basic troubleshooting on instrument equipment. 5) Implement decision and direction for instrument maintenance section.	4) Carry out safety enforcements and penalty scheme.
LEVEL 3	<b><u>Electrical Technician</u></b> 1) Carry out electrical maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Control of electrical maintenance tools and equipment. 4) Perform basic troubleshooting on electrical equipment. 5) Implement decision and direction for electrical maintenance section.	<b><u>Instrument Technician</u></b> 1) Carry out instrument maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Control of instrument maintenance tools and equipment. 4) Perform basic troubleshooting on instrument equipment. 5) Implement decision and direction for instrument maintenance section.	No Level
LEVEL 2	<b><u>Junior Electrical Technician</u></b> 1) Assist technician in carrying-out electrical maintenance works. 2) Implement station work policies; HSE and Quality Policies.	<b><u>Junior Instrument Technician</u></b> 1) Carry out instrument maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Control of instrument maintenance tools and equipment.	No Level

<b>AREA</b>	<b>Distribution: Sub-station – Maintenance (Electrical)</b>	<b>Distribution: Sub-station – Maintenance (Instrument)</b>	<b>Distribution: Sub-station – Support Services (Health, Safety and Environment)</b>
	3) Maintain electrical maintenance tools and equipment. 4) Implement decision and direction for electrical maintenance section.	4) Perform basic troubleshooting on instrument equipment. 5) Implement decision and direction for instrument maintenance section.	
<b>LEVEL</b> 1	No Level	No Level	No Level

Table 4.83: List of Responsibilities for Group 351 Based on Table 4.33 and 4.34 (33 of 38)

AREA	Distribution: Sub-station – Support Services (Billing)	33kV/11kV Transmission – Project (Engineering)	33kV/11kV Transmission – Project (Civil Construction)
LEVEL 8	Not Available	<b><u>Engineering Manager</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Creating schedules and following up with workers to ensure that each phase of a project proceeds as planned</li> <li>3) Ongoing if it appears not proceeding according to schedule or scope of work.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Creating schedules and following up with workers to ensure that each phase of a project proceeds as planned</li> <li>3) Ongoing if it appears not proceeding according to schedule or scope of work.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions</li> </ol>
LEVEL 7	Not Available	<b><u>Design Office Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies</li> <li>2) Develop project objectives</li> </ol>	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies</li> <li>2) Develop project objectives</li> </ol>

AREA	Distribution: Sub-station – Support Services (Billing)	33kV/11kV Transmission – Project (Engineering)	33kV/11kV Transmission – Project (Civil Construction)
		3) Oversee senior management staff 4) Coordinate with department heads 5) Report to the board of directors or members 6) Provide financial reports 7) Prepare or approve budgets. 8) Improve productivity levels	3) Oversee senior management staff 4) Coordinate with department heads 5) Report to the board of directors or members 6) Provide financial reports 7) Prepare or approve budgets. 8) Improve productivity levels
LEVEL 6	Not Available	<u><b>Design Engineer</b></u> 1) Oversee the whole operation and budgetary aspects of shows 2) Choosing production team 3) Choosing of production equipment 4) Producers are responsible for both the creative and financial decisions. 5) Oversee the creation of a show from inception to broadcast	<u><b>Civil Construction Engineer</b></u> 1) Oversee the whole operation and budgetary aspects of shows 2) Choosing production team 3) Choosing of production equipment 4) Producers are responsible for both the creative and financial decisions. 5) Oversee the creation of a show from inception to broadcast
LEVEL 5	Not Available	<u><b>Design Executive</b></u> 1) Provide leadership. 2) Oversight for the day-to-day operations 3) Project management activities 4) Project administration activities associated with a specific Market Sector of a Business Unit.	<u><b>Civil Construction Executive</b></u> 1) Provide leadership. 2) Oversight for the day-to-day operations 3) Project management activities 4) Project administration activities associated with a specific Market Sector of a Business Unit.

AREA	Distribution: Sub-station – Support Services (Billing)	33kV/11kV Transmission – Project (Engineering)	33kV/11kV Transmission – Project (Civil Construction)
		5) Build strong relationship with client	5) Build strong relationship with client
LEVEL 4	Not Available	<b><u>Design Supervisor</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations 3) Project management activities 4) Project administration activities associated with a specific Market Sector of a Business Unit. 5) Build strong relationship with client	<b><u>Civil Construction Supervisor</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations 3) Project management activities 4) Project administration activities associated with a specific Market Sector of a Business Unit. 5) Build strong relationship with client
LEVEL 3	<b><u>Meter Reader</u></b> 1) Confirm project requirements 2) Arrange project requirements in programming sequence 3) Encode project requirements by converting work flow information into computer language 4) Confirm program operation by conducting tests 5) Document operating instructions 6) Document program development and revisions 7) Contribute to team effort by accomplishing related results as needed	<b><u>Draughtsman</u></b> 1) Confirm project requirements 2) Arrange project requirements in programming sequence 3) Encode project requirements by converting work flow information into computer language 4) Confirm program operation by conducting tests 5) Document operating instructions 6) Document program development and revisions 7) Contribute to team effort by accomplishing related results as needed	<b><u>Civil Construction Technician</u></b> 1) Confirm project requirements 2) Arrange project requirements in programming sequence 3) Encode project requirements by converting work flow information into computer language 4) Confirm program operation by conducting tests 5) Document operating instructions 6) Document program development and revisions 7) Contribute to team effort by accomplishing related results as needed

AREA	Distribution: Sub-station – Support Services (Billing)	33kV/11kV Transmission – Project (Engineering)	33kV/11kV Transmission – Project (Civil Construction)
LEVEL 2	<b><u>Junior Meter Reader</u></b> <ol style="list-style-type: none"> <li>1) Confirm project requirements</li> <li>2) Arrange project requirements in programming sequence</li> <li>3) Encode project requirements by converting work flow information into computer language</li> <li>4) Confirm program operation by conducting tests</li> <li>5) Document operating instructions</li> <li>6) Document program development and revisions</li> <li>7) Contribute to team effort by accomplishing related results as needed.</li> </ol>	<b><u>Junior Draughtsman</u></b> <ol style="list-style-type: none"> <li>1) Confirm project requirements</li> <li>2) Arrange project requirements in programming sequence</li> <li>3) Encode project requirements by converting work flow information into computer language</li> <li>4) Confirm program operation by conducting tests</li> <li>5) Document operating instructions</li> <li>6) Document program development and revisions</li> <li>7) Contribute to team effort by accomplishing related results as needed</li> </ol>	<b><u>Junior Civil Construction Technician</u></b> <ol style="list-style-type: none"> <li>1) Confirm project requirements</li> <li>2) Arrange project requirements in programming sequence</li> <li>3) Encode project requirements by converting work flow information into computer language</li> <li>4) Confirm program operation by conducting tests</li> <li>5) Document operating instructions</li> <li>6) Document program development and revisions</li> <li>7) Contribute to team effort by accomplishing related results as needed</li> </ol>
LEVEL 1	No Level	No Level	No Level

Table 4.84: List of Responsibilities for Group 351 Based on Table 4.34 (34 of 38)

AREA	33kV/11kV Transmission – Project (Mechanical Construction)	33kV/11kV Transmission – Project (Electric & Instrument Construction)	33kV/11kV Transmission – Project (Health, Safety and Environment Construction)
Level 8	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Creating schedules and following up with workers to ensure that each phase of a project proceeds as planned</li> <li>3) Ongoing if it appears not proceeding according to schedule or scope of work.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Creating schedules and following up with workers to ensure that each phase of a project proceeds as planned</li> <li>3) Ongoing if it appears not proceeding according to schedule or scope of work.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Creating schedules and following up with workers to ensure that each phase of a project proceeds as planned</li> <li>3) Ongoing if it appears not proceeding according to schedule or scope of work.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions</li> </ol>
Level 7	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies</li> </ol>	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies</li> </ol>	<b><u>Health, Safety and Environment Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies</li> </ol>

AREA	33kV/11kV Transmission – Project (Mechanical Construction)	33kV/11kV Transmission – Project (Electric & Instrument Construction)	33kV/11kV Transmission – Project (Health, Safety and Environment Construction)
	2) Develop project objectives 3) Oversee senior management staff 4) Coordinate with department heads 5) Report to the board of directors or members 6) Provide financial reports 7) Prepare or approving budgets. 8) Improve productivity levels	2) Develop project objectives 3) Oversee senior management staff 4) Coordinate with department heads 5) Report to the board of directors or members 6) Provide financial reports 7) Prepare or approving budgets. 8) Improve productivity levels	2) Develop project objectives 3) Oversee senior management staff 4) Coordinate with department heads 5) Report to the board of directors or members 6) Provide financial reports 7) Prepare or approving budgets. 8) Improve productivity levels
Level 6	<b><u>Mechanical Construction Engineer</u></b> 1) Oversee the whole operation and budgetary aspects of shows. 2) Choosing production team. 3) Choosing of production equipment. 4) Producers are responsible for both the creative and financial decisions. 5) Oversee the creation of a show from inception to broadcast.	<b><u>Electric and Instrument Construction Engineer</u></b> 1) Oversee the whole operation and budgetary aspects of shows. 2) Choosing production team. 3) Choosing of production equipment. 4) Producers are responsible for both the creative and financial decisions. 5) Oversee the creation of a show from inception to broadcast.	<b><u>Health, Safety and Environment Engineer</u></b> 1) Oversee the whole operation and budgetary aspects of shows. 2) Choosing production team. 3) Choosing of production equipment. 4) Producers are responsible for both the creative and financial decisions. 5) Oversee the creation of a show from inception to broadcast.
Level 5	<b><u>Mechanical Construction Executive</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations. 3) Project management activities.	<b><u>Electric and Instrument Construction Executive</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations. 3) Project management activities.	<b><u>Safety Officer</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations. 3) Project management activities.



AREA	33kV/11kV Transmission – Project (Mechanical Construction)	33kV/11kV Transmission – Project (Electric & Instrument Construction)	33kV/11kV Transmission – Project (Health, Safety and Environment Construction)
	4) Project administration activities associated with a specific Market Sector of a Business Unit. 5) Build strong relationship with client.	4) Project administration activities associated with a specific Market Sector of a Business Unit. 5) Build strong relationship with client.	4) Project administration activities associated with a specific Market Sector of a Business Unit. 5) Build strong relationship with client.
Level 4	<b><u>Mechanical Construction Supervisor</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations. 3) Project management activities. 4) Project administration activities associated with a specific Market Sector of a Business Unit. 5) Build strong relationship with client.	<b><u>Electric and Instrument Construction Supervisor</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations. 3) Project management activities. 4) Project administration activities associated with a specific Market Sector of a Business Unit. 5) Build strong relationship with client.	<b><u>Safety Supervisor</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations. 3) Project management activities. 4) Project administration activities associated with a specific Market Sector of a Business Unit. 5) Build strong relationship with client.
Level 3	<b><u>Mechanical Construction Technician</u></b> 1) Confirm project requirements. 2) Arrange project requirements in programming sequence. 3) Encode project requirements by converting work flow information into computer language. 4) Confirm program operation by conducting tests.	<b><u>Electric and Instrument Construction Technician</u></b> 1) Confirm project requirements. 2) Arrange project requirements in programming sequence. 3) Encode project requirements by converting work flow information into computer language.	No Level

AREA	33kV/11kV Transmission – Project (Mechanical Construction)	33kV/11kV Transmission – Project (Electric & Instrument Construction)	33kV/11kV Transmission – Project (Health, Safety and Environment Construction)
	5) Document operating instructions. 6) Document program development and revisions. 7) Contribute to team effort by accomplishing related results as needed.	4) Confirm program operation by conducting tests. 5) Document operating instructions. 6) Document program development and revisions. 7) Contribute to team effort by accomplishing related results as needed.	
Level 2	<b><u>Junior Mechanical Construction Technician</u></b> 1) Confirm project requirements. 2) Arrange project requirements in programming sequence. 3) Encode project requirements by converting work flow information into computer language. 4) Confirm program operation by conducting tests. 5) Document operating instructions. 6) Documenting program development and revisions. 7) Contribute to team effort by accomplishing related results as needed.	<b><u>Junior Electric &amp; Instrument Construction Technician</u></b> 1) Confirm project requirements. 2) Arrange project requirements in programming sequence. 3) Encode project requirements by converting work flow information into computer language. 4) Confirm program operation by conducting tests. 5) Document operating instructions. 6) Documenting program development and revisions. 7) Contribute to team effort by accomplishing related results as needed.	No Level

<b>AREA</b>	<b>33kV/11kV Transmission – Project (Mechanical Construction)</b>	<b>33kV/11kV Transmission – Project (Electric &amp; Instrument Construction)</b>	<b>33kV/11kV Transmission – Project (Health, Safety and Environment Construction)</b>
Level 1	No Level	No Level	No Level

Table 4.85: List of Responsibilities for Group 351 Based on Table 4.35 and 4.36 (35 of 38)

AREA	33kV/11kV Transmission – Maintenance (Electrical)	33kV/11kV Transmission – Support Services (Health, Safety and Environment)	415V/240V Transmission – Project (Engineering)
LEVEL 8	Not Available	Not Available	<b><u>Engineering Manager</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Create schedules and following up with workers to ensure that each phase of a project proceeds as planned.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>
LEVEL 7	<b><u>Electrical and Instrument Maintenance Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> </ol>	<b><u>Health, Safety &amp; Environment Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> </ol>	<b><u>Design Office Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> </ol>

AREA	33kV/11kV Transmission – Maintenance (Electrical)	33kV/11kV Transmission – Support Services (Health, Safety and Environment)	415V/240V Transmission – Project (Engineering)
	4) Coordinate with department heads. 5) Report to the board of directors or members. 6) Provide financial reports. 7) Prepare or approving budgets. 8) Improve productivity levels.	5) Report to the board of directors or members. 6) Provide financial reports. 7) Prepare or approving budgets. 8) Improve productivity levels.	5) Report to the board of directors or members. 6) Provide financial reports. 7) Prepare or approving budgets. 8) Improve productivity levels.
LEVEL 6	<b><u>Electrical and Instrument Maintenance Engineer</u></b> 1) Oversee the whole operation and budgetary aspects of shows. 2) Choose production team. 3) Choose of production equipment. 4) Producers are responsible for both the creative and financial decisions. 5) Oversee the creation of a show from inception to broadcast.	<b><u>Health, Safety &amp; Environment Engineer</u></b> 1) Oversee the whole operation and budgetary aspects of shows. 2) Choose production team. 3) Choose of production equipment. 4) Producers are responsible for both the creative and financial decisions. 5) Oversee the creation of a show from inception to broadcast.	<b><u>Design Engineer</u></b> 1) Oversee the whole operation and budgetary aspects of shows. 2) Choose production team. 3) Choose of production equipment. 4) Producers are responsible for both the creative and financial decisions. 5) Oversee the creation of a show from inception to broadcast.
LEVEL 5	<b><u>Electrical and Instrument Technical Assistant</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations. 3) Project management activities.	<b><u>Safety Officer</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations. 3) Project management activities. 4) Project administration activities associated with a specific Market Sector of a Business Unit.	<b><u>Design Executive</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations. 3) Project management activities. 4) Project administration activities associated with a specific Market Sector of a Business Unit.

AREA	33kV/11kV Transmission – Maintenance (Electrical)	33kV/11kV Transmission – Support Services (Health, Safety and Environment)	415V/240V Transmission – Project (Engineering)
	4) Project administration activities associated with a specific Market Sector of a Business Unit. 5) Build strong relationship with client.	5) Build strong relationship with client.	5) Build strong relationship with client.
LEVEL 4	<b><u>Electrical Wireman</u></b> 1) Supervise technicians in carrying-out electrical maintenance works. 2) Supervise contractor's works in carrying out electrical maintenance works. 3) Monitor electrical maintenance technicians in the implementation of station work policies; HSE and Quality Policies. 4) Perform basic troubleshooting on electrical equipment. 5) Implement decision and direction for electrical maintenance section.	<b><u>Safety Supervisor</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations. 3) Project management activities. 4) Project administration activities associated with a specific Market Sector of a Business Unit. 5) Build strong relationship with client.	<b><u>Design Supervisor</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations. 3) Project management activities. 4) Project administration activities associated with a specific Market Sector of a Business Unit. 5) Build strong relationship with client.
LEVEL 3	<b><u>Electrical Technician</u></b> 1) Confirm project requirements. 2) Arrange project requirements in programming sequence. 3) Encode project requirements by converting work flow information into computer language.	No Level	<b><u>Draughtsman</u></b> 1) Confirm project requirements. 2) Arrange project requirements in programming sequence. 3) Encode project requirements by converting work flow information into computer language.

AREA	33kV/11kV Transmission – Maintenance (Electrical)	33kV/11kV Transmission – Support Services (Health, Safety and Environment)	415V/240V Transmission – Project (Engineering)
	4) Confirm program operation by conducting tests. 5) Document operating instructions. 6) Document program development and revisions. 7) Contribute to team effort by accomplishing related results as needed.		4) Confirm program operation by conducting tests. 5) Document operating instructions. 6) Document program development and revisions. 7) Contribute to team effort by accomplishing related results as needed.
LEVEL 2	<b><u>Junior Electrical Technician</u></b> 1) Confirm project requirements. 2) Arrange project requirements in programming sequence. 3) Encode project requirements by converting work flow information into computer language. 4) Confirm program operation by conducting tests. 5) Document operating instructions. 6) Documenting program development and revisions. 7) Contribute to team effort by accomplishing related results as needed.	No Level	<b><u>Junior Draughtsman</u></b> 1) Confirm project requirements. 2) Arrange project requirements in programming sequence. 3) Encode project requirements by converting work flow information into computer language. 4) Confirm program operation by conducting tests. 5) Document operating instructions. 6) Document program development and revisions. 7) Contribute to team effort by accomplishing related results as needed.
LEVEL 1	No Level	No Level	No Level

Table 4.86: List of Responsibilities for Group 351 Based on Table 4.36 (36 of 38)

AREA	415V/240V Transmission – Project (Civil Construction)	415V/240V Transmission – Project (Mechanical Construction)	415V/240V Transmission – Project (Electric and Instrument Construction)
LEVEL 8	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Creating schedules and following up with workers to ensure that each phase of a project proceeds as planned</li> <li>3) Ongoing if it appears not proceeding according to schedule or scope of work.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Creating schedules and following up with workers to ensure that each phase of a project proceeds as planned</li> <li>3) Ongoing if it appears not proceeding according to schedule or scope of work.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> </ol>	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Creating schedules and following up with workers to ensure that each phase of a project proceeds as planned</li> <li>3) Ongoing if it appears not proceeding according to schedule or scope of work.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> </ol>
LEVEL 7	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> <li>5) Report to the board of directors or members.</li> </ol>	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> <li>5) Report to the board of directors or members.</li> </ol>	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> <li>5) Report to the board of directors or members.</li> </ol>



AREA	415V/240V Transmission – Project (Civil Construction)	415V/240V Transmission – Project (Mechanical Construction)	415V/240V Transmission – Project (Electric and Instrument Construction)
	6) Provide financial reports. 7) Prepare or approve budgets. 8) Improve productivity levels.	6) Provide financial reports. 7) Prepare or approve budgets. 8) Improve productivity levels.	6) Provide financial reports. 7) Prepare or approve budgets. 8) Improve productivity levels.
LEVEL 6	<b><u>Civil Construction Engineer</u></b> 1) Oversee the whole operation and budgetary aspects of shows. 2) Choose production team. 3) Choose of production equipment. 4) Producers are responsible for both the creative and financial decisions. 5) Oversee the creation of a show from inception to broadcast.	<b><u>Mechanical Construction Engineer</u></b> 1) Oversee the whole operation and budgetary aspects of shows. 2) Choose production team. 3) Choose of production equipment. 4) Producers are responsible for both the creative and financial decisions. 5) Oversee the creation of a show from inception to broadcast.	<b><u>Electric and Instrument Construction Engineer</u></b> 1) Oversee the whole operation and budgetary aspects of shows. 2) Choose production team. 3) Choose of production equipment. 4) Producers are responsible for both the creative and financial decisions. 5) Oversee the creation of a show from inception to broadcast.
LEVEL 5	<b><u>Civil Construction Executive</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations. 3) Project management activities. 4) Project administration activities associated with a specific Market Sector of a Business Unit. 5) Build strong relationship with client.	<b><u>Mechanical Construction Executive</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations. 3) Project management activities. 4) Project administration activities associated with a specific Market Sector of a Business Unit. 5) Build strong relationship with client.	<b><u>Electric and Instrument Construction Executive</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations. 3) Project management activities. 4) Project administration activities associated with a specific Market Sector of a Business Unit. 5) Build strong relationship with client.

AREA	415V/240V Transmission – Project (Civil Construction)	415V/240V Transmission – Project (Mechanical Construction)	415V/240V Transmission – Project (Electric and Instrument Construction)
LEVEL 4	<b><u>Civil Construction Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Provide leadership.</li> <li>2) Oversight for the day-to-day operations.</li> <li>3) Project management activities.</li> <li>4) Project administration activities associated with a specific Market Sector of a Business Unit.</li> <li>5) Build strong relationship with client.</li> </ol>	<b><u>Mechanical Construction Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Provide leadership.</li> <li>2) Oversight for the day-to-day operations.</li> <li>3) Project management activities.</li> <li>4) Project administration activities associated with a specific Market Sector of a Business Unit.</li> <li>5) Build strong relationship with client.</li> </ol>	<b><u>Electric and Instrument Construction Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Provide leadership.</li> <li>2) Oversight for the day-to-day operations.</li> <li>3) Project management activities.</li> <li>4) Project administration activities associated with a specific Market Sector of a Business Unit.</li> <li>5) Build strong relationship with client.</li> </ol>
LEVEL 3	<b><u>Civil Construction Technician</u></b> <ol style="list-style-type: none"> <li>1) Confirm project requirements.</li> <li>2) Arrange project requirements in programming sequence.</li> <li>3) Encode project requirements by converting work flow information into computer language.</li> <li>4) Confirm program operation by conducting tests.</li> <li>5) Document operating instructions.</li> <li>6) Document program development and revisions.</li> <li>7) Contribute to team effort by accomplishing related results as needed.</li> </ol>	<b><u>Mechanical Construction Technician</u></b> <ol style="list-style-type: none"> <li>1) Confirm project requirements.</li> <li>2) Arrange project requirements in programming sequence.</li> <li>3) Encode project requirements by converting work flow information into computer language.</li> <li>4) Confirm program operation by conducting tests.</li> <li>5) Document operating instructions.</li> <li>6) Document program development and revisions.</li> <li>7) Contribute to team effort by accomplishing related results as needed.</li> </ol>	<b><u>Electric and Instrument Construction Technician</u></b> <ol style="list-style-type: none"> <li>1) Confirm project requirements.</li> <li>2) Arrange project requirements in programming sequence.</li> <li>3) Encode project requirements by converting work flow information into computer language.</li> <li>4) Confirm program operation by conducting tests.</li> <li>5) Document operating instructions.</li> <li>6) Document program development and revisions.</li> <li>7) Contribute to team effort by accomplishing related results as needed.</li> </ol>

AREA	415V/240V Transmission – Project (Civil Construction)	415V/240V Transmission – Project (Mechanical Construction)	415V/240V Transmission – Project (Electric and Instrument Construction)
LEVEL 2	<b><u>Junior Civil Construction Technician</u></b> 1) Confirm project requirements. 2) Arrange project requirements in programming sequence. 3) Encode project requirements by converting work flow information into computer language. 4) Confirm program operation by conducting tests. 5) Document operating instructions. 6) Document program development and revisions. 7) Contribute to team effort by accomplishing related results as needed.	<b><u>Junior Mechanical Construction Technician</u></b> 1) Confirm project requirements. 2) Arrange project requirements in programming sequence. 3) Encode project requirements by converting work flow information into computer language. 4) Confirm program operation by conducting tests. 5) Document operating instructions. 6) Document program development and revisions. 7) Contribute to team effort by accomplishing related results as needed.	<b><u>Junior Electric and Instrument Construction Technician</u></b> 1) Confirm project requirements. 2) Arrange project requirements in programming sequence. 3) Encode project requirements by converting work flow information into computer language. 4) Confirm program operation by conducting tests. 5) Document operating instructions. 6) Document program development and revisions. 7) Contribute to team effort by accomplishing related results as needed.
LEVEL 1	No Level	No Level	No Level

Table 4.87: List of Responsibilities for Group 351 Based on Table 4.36 and 4.37 (37 of 38)

AREA	415V/240V Transmission – Project (Health, Safety and Environment Construction)	415V/240V Transmission – Maintenance (Electrical)
LEVEL 8	<b><u>Project Director</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Creating schedules and following up with workers to ensure that each phase of a project proceeds as planned.</li> <li>3) Ongoing if it appears not proceeding according to schedule or scope of work.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	Not Available
LEVEL 7	<b><u>Health, Safety and Environment Manager</u></b> <ol style="list-style-type: none"> <li>1) Oversee the whole operation and budgetary aspects of shows.</li> <li>2) Choose production team.</li> <li>3) Choose of production equipment.</li> <li>4) Producers are responsible for both the creative and financial decisions.</li> <li>5) Oversee the creation of a show from inception to broadcast.</li> </ol>	<b><u>Electrical and Instrument Maintenance Manager</u></b> <ol style="list-style-type: none"> <li>1) Oversee the whole operation and budgetary aspects of shows.</li> <li>2) Choose production team.</li> <li>3) Choose of production equipment.</li> <li>4) Producers are responsible for both the creative and financial decisions.</li> <li>5) Oversee the creation of a show from inception to broadcast.</li> </ol>

AREA	415V/240V Transmission – Project (Health, Safety and Environment Construction)	415V/240V Transmission – Maintenance (Electrical)
LEVEL 6	<b><u>Health, Safety and Environment Engineer</u></b> <ol style="list-style-type: none"> <li>1) Oversee the whole operation and budgetary aspects of shows.</li> <li>2) Choosing production team.</li> <li>3) Choosing of production equipment.</li> <li>4) Producers are responsible for both the creative and financial decisions. Oversee the creation of a show from inception to broadcast.</li> </ol>	<b><u>Electrical and Instrument Maintenance Engineer</u></b> <ol style="list-style-type: none"> <li>1) Oversee the whole operation and budgetary aspects of shows.</li> <li>2) Choosing production team.</li> <li>3) Choosing of production equipment.</li> <li>4) Producers are responsible for both the creative and financial decisions.</li> <li>5) Oversee the creation of a show from inception to broadcast.</li> </ol>
LEVEL 5	<b><u>Safety Officer</u></b> <ol style="list-style-type: none"> <li>1) Provide leadership.</li> <li>2) Oversight for the day-to-day operations.</li> <li>3) Project management activities.</li> <li>4) Project administration activities associated with a specific Market Sector of a Business Unit.</li> <li>5) Build strong relationship with client.</li> </ol>	<b><u>Electrical and Instrument Technical Assistant</u></b> <ol style="list-style-type: none"> <li>1) Provide leadership.</li> <li>2) Oversight for the day-to-day operations.</li> <li>3) Project management activities.</li> <li>4) Project administration activities associated with a specific Market Sector of a Business Unit.</li> <li>5) Build strong relationship with client.</li> </ol>
LEVEL 4	<b><u>Safety Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Provide leadership.</li> <li>2) Oversight for the day-to-day operations.</li> <li>3) Project management activities.</li> <li>4) Project administration activities associated with a specific Market Sector of a Business Unit.</li> <li>5) Build strong relationship with client.</li> </ol>	<b><u>Electrical Wireman</u></b> <ol style="list-style-type: none"> <li>1) Supervise technicians in carrying-out electrical maintenance works.</li> <li>2) Supervise contractor's works in carrying-out electrical maintenance works.</li> <li>3) Monitor electrical maintenance technicians in the implementation of station work policies; HSE and Quality Policies.</li> <li>4) Perform basic troubleshooting on electrical equipment.</li> <li>5) Implement decision and direction for electrical maintenance section.</li> </ol>

AREA	415V/240V Transmission – Project (Health, Safety and Environment Construction)	415V/240V Transmission – Maintenance (Electrical)
LEVEL 3	No Level	<b><u>Electrical Technician</u></b> 1) Carry out electrical maintenance works. 2) Implement station work policies; HSE and Quality Policies. 3) Control of electrical maintenance tools and equipment. 4) Perform basic troubleshooting on electrical equipment. 5) Implement decision and direction for electrical maintenance section.
LEVEL 2	No Level	<b><u>Junior Electrical Technician</u></b> 1) Confirm project requirements. 2) Arrange project requirements in programming sequence. 3) Encode project requirements by converting work flow information into computer language. 4) Confirm program operation by conducting tests. 5) Document operating instructions. 6) Document program development and revisions. 7) Contribute to team effort by accomplishing related results as needed.
LEVEL 1	No Level	No Level

Table 4.88: List of Responsibilities for Group 351 Based on Table 4.37 (38 of 38)

AREA	415V/240V Transmission – Support Services (Health, Safety and Environment)	415V/240V Transmission – Support Services (Billing)
Level 8	Not Available	Not Available
Level 7	<b><u>Health, Safety and Environment Manager</u></b> 1) Oversee the whole operation and budgetary aspects of shows. 2) Choose production team. 3) Choose of production equipment. 4) Producers are responsible for both the creative and financial decisions. 5) Oversee the creation of a show from inception to broadcast.	Not Available
Level 6	<b><u>Health, Safety and Environment Engineer</u></b> 1) Oversee the whole operation and budgetary aspects of shows. 2) Choosing production team. 3) Choosing of production equipment. 4) Producers are responsible for both the creative and financial decisions. 5) Oversee the creation of a show from inception to broadcast.	Not Available
Level 5	<b><u>Safety Officer</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations. 3) Project management activities. 4) Project administration activities associated with a specific Market Sector of a Business Unit.	Not Available

AREA	415V/240V Transmission – Support Services (Health, Safety and Environment)	415V/240V Transmission – Support Services (Billing)
	5) Build strong relationship with client.	
Level 4	<b><u>Safety Supervisor</u></b> 1) Provide leadership. 2) Oversight for the day-to-day operations 3) Project management activities. 4) Project administration activities associated with a specific Market Sector of a Business Unit. 5) Build strong relationship with client.	Not Available
Level 3	No Level	<b><u>Meter Reader</u></b> 1) Confirm project requirements. 2) Arrange project requirements in programming sequence. 3) Encode project requirements by converting work flow information into computer language. 4) Confirm program operation by conducting tests. 5) Document operating instructions. 6) Document program development and revisions. 7) Contribute to team effort by accomplishing related results as needed.
Level 2	No Level	<b><u>Junior Meter Reader</u></b> 1) Confirm project requirements. 2) Encode project requirements by converting work flow information into computer language. 3) Confirm program operation by conducting tests. 4) Contribute to team effort by accomplishing related results as needed.



AREA	415V/240V Transmission – Support Services (Health, Safety and Environment)	415V/240V Transmission – Support Services (Billing)
Level 1	No Level	No Level

**DIVISION: D-35 ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY**

**GROUP: 352 - MANUFACTURE OF GAS; DISTRIBUTION OF GASEOUS FUELS THROUGH MAINS**

Table 4.89: List of Responsibilities for Group 352 Based on Table 4.38 (1 of 7)

AREA	Operation – Process (Field Operator)	Operation – Process (Panel Operator)	Operation – Utilities
LEVEL 8	<b><u>Plant Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> <li>5) Report to the board of directors or members.</li> <li>6) Provide financial reports.</li> <li>7) Prepare or approving budgets.</li> <li>8) Improve productivity levels.</li> </ol>	<b><u>Plant Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> <li>5) Report to the board of directors or members.</li> <li>6) Provide financial reports.</li> <li>7) Prepare or approving budgets.</li> <li>8) Improve productivity levels.</li> </ol>	<b><u>Plant Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> <li>5) Report to the board of directors or members.</li> <li>6) Provide financial reports.</li> <li>7) Prepare or approving budgets.</li> <li>8) Improve productivity levels</li> </ol>
LEVEL 7	<b><u>Process Shift Manager</u></b> <ol style="list-style-type: none"> <li>1) Report to the Plant Manager.</li> <li>2) Daily and summary reporting to Project Engineer as and when required.</li> <li>3) Responsible for the supervision of construction of the assigned project</li> <li>4) Monitor and manage the construction team for quality supervision of site construction</li> </ol>	<b><u>Process Shift Manager</u></b> <ol style="list-style-type: none"> <li>1) Report to the Plant Manager.</li> <li>2) Daily and summary reporting to Project Engineer as and when required.</li> <li>3) Responsible for the supervision of construction of the assigned project</li> <li>4) Monitor and manage the construction team for quality supervision of site construction</li> </ol>	<b><u>Utilities Shift Manager</u></b> <ol style="list-style-type: none"> <li>1) Report to the Plant Manager.</li> <li>2) Daily and summary reporting to Project Engineer as and when required.</li> <li>3) Responsible for the supervision of construction of the assigned project</li> <li>4) Monitor and manage the construction team for quality supervision of site construction</li> </ol>

AREA	Operation – Process (Field Operator)	Operation – Process (Panel Operator)	Operation – Utilities
	5) Ensure contractors of site construction follow and implement the project requirements 6) Monitor all quality-critical activities at the assigned construction front 7) Verify that records are maintained and compiled in a progressive manner. 8) Ensure conformance to the contractual and regulatory requirements, and approved procedures, specifications and drawing. 9) Ensure compliance to safety and regulations.	5) Ensure contractors of site construction follow and implement the project requirements 6) Monitor all quality-critical activities at the assigned construction front 7) Verify that records are maintained and compiled in a progressive manner. 8) Ensure conformance to the contractual and regulatory requirements, and approved procedures, specifications and drawing. 9) Ensure compliance to safety and regulations.	5) Ensure contractors of site construction follow and implement the project requirements 6) Monitor all quality-critical activities at the assigned construction front 7) Verify that records are maintained and compiled in a progressive manner. 8) Ensure conformance to the contractual and regulatory requirements, and approved procedures, specifications and drawing. 9) Ensure compliance to safety and regulations.
LEVEL 6	<b><u>Process Shift Supervisor</u></b> 1) Daily and summary reporting to Project Engineer as and when required. 2) Responsible for the supervision of construction of the assigned project. 3) To monitor and manage the construction team for quality supervision of site construction. 4) Ensuring contractors of site construction follow and implement the project requirements. 5) Monitor all quality-critical activities at the assigned construction front	<b><u>Process Shift Supervisor</u></b> 1) Daily and summary reporting to Project Engineer as and when required. 2) Responsible for the supervision of construction of the assigned project. 3) To monitor and manage the construction team for quality supervision of site construction. 4) Ensuring contractors of site construction follow and implement the project requirements. 5) Monitor all quality-critical activities at the assigned construction front	<b><u>Utilities Shift Supervisor</u></b> 1) Daily and summary reporting to Project Engineer as and when required. 2) Responsible for the supervision of construction of the assigned project. 3) To monitor and manage the construction team for quality supervision of site construction. 4) Ensuring contractors of site construction follow and implement the project requirements. 5) Monitor all quality-critical activities at the assigned construction front

AREA	Operation – Process (Field Operator)	Operation – Process (Panel Operator)	Operation – Utilities
	6) Verify that records are maintained and compiled in a progressive manner. 7) Ensure conformance to the contractual and regulatory requirements, and approved procedures, specifications and drawing. 8) Ensure compliance to safety and regulations.	6) Verify that records are maintained and compiled in a progressive manner. 7) Ensure conformance to the contractual and regulatory requirements, and approved procedures, specifications and drawing. 8) Ensure compliance to safety and regulations.	6) Verify that records are maintained and compiled in a progressive manner. 7) Ensure conformance to the contractual and regulatory requirements, and approved procedures, specifications and drawing. 8) Ensure compliance to safety and regulations.
LEVEL 5	<b><u>Senior Process Field Operator</u></b> 1) Calculate gas ratios, using testing apparatus, to detect deviations from specifications. 2) Test oxygen for purity and moisture content at various stages of process, using burette and moisture meter. 3) Control operation of compressors, scrubbers, evaporators, and refrigeration equipment to liquefy, compress, or degasify natural gas. 4) Control fractioning columns, compressors, purifying towers, heat exchangers, and related equipment, to extract nitrogen and oxygen from air. 5) Observe pressure, temperature, level, and flow gauges to ensure standard operation.	<b><u>Senior Process Panel Operator</u></b> 1) Calculate gas ratios, using testing apparatus, to detect deviations from specifications. 2) Test oxygen for purity and moisture content at various stages of process, using burette and moisture meter. 3) Control operation of compressors, scrubbers, evaporators, and refrigeration equipment to liquefy, compress, or degasify natural gas. 4) Control fractioning columns, compressors, purifying towers, heat exchangers, and related equipment, to extract nitrogen and oxygen from air. 5) Observe pressure, temperature, level, and flow gauges to ensure standard operation.	<b><u>Senior Utilities Field Operator</u></b> 1) Calculate gas ratios, using testing apparatus, to detect deviations from specifications. 2) Test oxygen for purity and moisture content at various stages of process, using burette and moisture meter. 3) Control operation of compressors, scrubbers, evaporators, and refrigeration equipment to liquefy, compress, or degasify natural gas. 4) Control fractioning columns, compressors, purifying towers, heat exchangers, and related equipment, to extract nitrogen and oxygen from air. 5) Observe pressure, temperature, level, and flow gauges to ensure standard operation.

AREA	Operation – Process (Field Operator)	Operation – Process (Panel Operator)	Operation – Utilities
LEVEL 4	<b><u>Process Field Operator</u></b> 1) Calculate gas ratios, using testing apparatus, to detect deviations from specifications. 2) Test oxygen for purity and moisture content at various stages of process, using burette and moisture meter. 3) Control operation of compressors, scrubbers, evaporators, and refrigeration equipment to liquefy, compress, or degasify natural gas. 4) Control fractioning columns, compressors, purifying towers, heat exchangers, and related equipment, to extract nitrogen and oxygen from air. 5) Observe pressure, temperature, level, and flow gauges to ensure standard operation.	<b><u>Process Panel Operator</u></b> 1) Calculate gas ratios, using testing apparatus, to detect deviations from specifications. 2) Test oxygen for purity and moisture content at various stages of process, using burette and moisture meter. 3) Control operation of compressors, scrubbers, evaporators, and refrigeration equipment to liquefy, compress, or degasify natural gas. 4) Control fractioning columns, compressors, purifying towers, heat exchangers, and related equipment, to extract nitrogen and oxygen from air. 5) Observe pressure, temperature, level, and flow gauges to ensure standard operation.	<b><u>Utilities Field Operator</u></b> 1) Calculate gas ratios, using testing apparatus, to detect deviations from specifications. 2) Test oxygen for purity and moisture content at various stages of process, using burette and moisture meter. 3) Control operation of compressors, scrubbers, evaporators, and refrigeration equipment to liquefy, compress, or degasify natural gas. 4) Control fractioning columns, compressors, purifying towers, heat exchangers, and related equipment, to extract nitrogen and oxygen from air. 5) Observe pressure, temperature, level, and flow gauges to ensure standard operation.
LEVEL 3	No Level	No Level	No Level
LEVEL 2	No Level	No Level	No Level
LEVEL 1	No Level	No Level	No Level

Table 4.90: List of Responsibilities for Group 352 Based on Table 4.38 and 4.39 (2 of 7)

AREA	Operation - Laboratory	Maintenance – Electrical	Maintenance – Mechanical (Static)
LEVEL 8	Not Available	<b><u>Plant Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> <li>5) Report to the board of directors or members.</li> <li>6) Provide financial reports.</li> <li>7) Prepare or approving budgets.</li> <li>8) Improve productivity levels.</li> </ol>	<b><u>Plant Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> <li>5) Report to the board of directors or members.</li> <li>6) Provide financial reports.</li> <li>7) Prepare or approving budgets.</li> <li>8) Improve productivity levels.</li> </ol>
LEVEL 7	Not Available	<b><u>Maintenance Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate and supervise all maintenance functions necessary to ensure the efficient and reliable operation of the plant/facility.</li> <li>2) Responsible for maintaining and monitoring the plants preventive and predictive maintenance programs.</li> <li>3) Use data to adjust maintenance work procedures to meet scheduled production levels.</li> <li>4) Schedule all maintenance activities and provides technical direction for all plant equipment repaired.</li> </ol>	<b><u>Maintenance Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate and supervise all maintenance functions necessary to ensure the efficient and reliable operation of the plant/facility.</li> <li>2) Responsible for maintaining and monitoring the plants preventive and predictive maintenance programs.</li> <li>3) Use data to adjust maintenance work procedures to meet scheduled production levels.</li> <li>4) Schedule all maintenance activities and provides technical direction for all plant equipment repaired.</li> </ol>

AREA	Operation - Laboratory	Maintenance – Electrical	Maintenance – Mechanical (Static)
		5) Manage plant projects as assigned superior.	5) Manage plant projects as assigned superior.
LEVEL 6	<b><u>Chemist</u></b> 1) Coordinate and supervises all maintenance functions necessary to ensure the efficient and reliable operation of the plant/facility. 2) Responsible for maintaining and monitoring the plants preventive and predictive maintenance programs. 3) Use data to adjust maintenance work procedures to meet scheduled production levels. 4) Schedule all maintenance activities and provides technical direction for all plant equipment repaired. 5) Manage plant projects as assigned superior.	<b><u>Electrical Maintenance Engineer</u></b> 1) Coordinate and supervises all maintenance functions necessary to ensure the efficient and reliable operation of the plant/facility. 2) Responsible for maintaining and monitoring the plants preventive and predictive maintenance programs. 3) Use data to adjust maintenance work procedures to meet scheduled production levels. 4) Schedule all maintenance activities and provides technical direction for all plant equipment repaired. 5) Manage plant projects as assigned superior.	<b><u>Mechanical Static Maintenance Engineer</u></b> 1) Coordinate and supervises all maintenance functions necessary to ensure the efficient and reliable operation of the plant/facility. 2) Responsible for maintaining and monitoring the plants preventive and predictive maintenance programs. 3) Using data to adjust maintenance work procedures to meet scheduled production levels. 4) Schedule all maintenance activities and provides technical direction for all plant equipment repaired. 5) Manage plant projects as assigned superior.
LEVEL 5	<b><u>Senior Laboratory Technician</u></b> 1) Maintain and repair plant/facilities' mechanical and electrical equipment. 2) Perform routine and preventive maintenance on equipment.	<b><u>Senior Electrical Maintenance Technician</u></b> 1) Maintains and repair plant/facilities' mechanical and electrical equipment. 2) Perform routine and preventive maintenance on equipment.	<b><u>Senior Mechanical Static Maintenance Technician</u></b> 1) Maintain and repair plant/facilities' mechanical equipment. 2) Perform routine and preventive maintenance on equipment.

AREA	Operation - Laboratory	Maintenance – Electrical	Maintenance – Mechanical (Static)
	<ul style="list-style-type: none"> <li>3) Survey the operation of all central utilities systems throughout the plant for defects/malfunctions.</li> <li>4) Determine cause and effect of defects/malfunctions.</li> <li>5) Notify supervisors when malfunctions or outages occurs to facilitate corrective action.</li> <li>6) Maintains documentation, as assigned, on adjustments, corrective action to defective and malfunctioning plant equipment; follows-up and takes corrective actions as required.</li> <li>7) Communicate reportable events, including operating trends and limitations to oncoming shift employees.</li> </ul>	<ul style="list-style-type: none"> <li>3) Survey the operation of all central utilities systems throughout the plant for defects/malfunctions.</li> <li>4) Determine cause and effect of defects/malfunctions.</li> <li>5) Notify supervisors when malfunctions or outages occurs to facilitate corrective action.</li> <li>6) Maintain documentation, as assigned, on adjustments, corrective action to defective and malfunctioning plant equipment; follows-up and takes corrective actions as required.</li> <li>7) Communicate reportable events, including operating trends and limitations to oncoming shift employees.</li> </ul>	<ul style="list-style-type: none"> <li>3) Survey the operation of all central utilities systems throughout the plant for defects/malfunctions.</li> <li>4) Determine cause and effect of defects/malfunctions.</li> <li>5) Notify supervisors when malfunctions or outages occurs to facilitate corrective action.</li> <li>6) Maintain documentation, as assigned, on adjustments, corrective action to defective and malfunctioning plant equipment; follows-up and takes corrective actions as required.</li> <li>7) Communicate reportable events, including operating trends and limitations to oncoming shift employees.</li> </ul>
LEVEL 4	<b><u>Laboratory Technician</u></b> <ul style="list-style-type: none"> <li>1) Maintain and repair plant/facilities' mechanical and electrical equipment.</li> <li>2) Perform routine and preventive maintenance on equipment.</li> <li>3) Survey the operation of all central utilities systems throughout the plant for defects/malfunctions.</li> </ul>	<b><u>Electrical Maintenance Technician</u></b> <ul style="list-style-type: none"> <li>1) Maintain and repair plant/facilities' mechanical and electrical equipment.</li> <li>2) Perform routine and preventive maintenance on equipment.</li> <li>3) Survey the operation of all central utilities systems throughout the plant for defects/malfunctions.</li> </ul>	<b><u>Mechanical Static Maintenance Technician</u></b> <ul style="list-style-type: none"> <li>1) Maintain and repair plant/facilities' mechanical equipment.</li> <li>2) Perform routine and preventive maintenance on equipment.</li> <li>3) Survey the operation of all central utilities systems throughout the plant for defects/malfunctions.</li> </ul>



AREA	Operation - Laboratory	Maintenance – Electrical	Maintenance – Mechanical (Static)
	4) Determine cause and effect of defects/malfunctions. 5) Initiate corrective action directly or through work orders. 6) Notify supervisors when malfunctions or outages occurs to facilitate corrective action. 7) Maintain documentation, as assigned, on adjustments, corrective action to defective and malfunctioning plant equipment; follows-up and takes corrective actions as required. 8) Compile operational data and maintains logs and computer printouts for management review and comparison with historical records. 9) Communicate reportable events, including operating trends and limitations to oncoming shift employees	4) Determine cause and effect of defects/malfunctions. 5) Initiate corrective action directly or through work orders. 6) Notify supervisors when malfunctions or outages occurs to facilitate corrective action. 7) Maintain documentation, as assigned, on adjustments, corrective action to defective and malfunctioning plant equipment; follows-up and takes corrective actions as required. 8) Compile operational data and maintains logs and computer printouts for management review and comparison with historical records. 9) Communicate reportable events, including operating trends and limitations to oncoming shift employees.	4) Determine cause and effect of defects/malfunctions. 5) Initiate corrective action directly or through work orders. 6) Notify supervisors when malfunctions or outages occurs to facilitate corrective action. 7) Maintain documentation, as assigned, on adjustments, corrective action to defective and malfunctioning plant equipment; follows-up and takes corrective actions as required. 8) Compile operational data and maintains logs and computer printouts for management review and comparison with historical records. 9) Communicate reportable events, including operating trends and limitations to oncoming shift employees.
LEVEL 3	No Level	No Level	No level
LEVEL 2	No Level	No Level	No level
LEVEL 1	No Level	No Level	No level

Table 4.91: List of Responsibilities for Group 352 Based on Table 4.39 (3 of 7)

AREA	Maintenance – Mechanical (Rotating)	Maintenance – Mechanical (Turbine)	Maintenance – Instrument
LEVEL 8	<b><u>Plant Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> <li>5) Report to the board of directors or members.</li> <li>6) Provide financial reports.</li> <li>7) Prepare or approving budgets.</li> <li>8) Improve productivity levels.</li> </ol>	<b><u>Plant Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> <li>5) Report to the board of directors or members.</li> <li>6) Provide financial reports.</li> <li>7) Prepare or approving budgets.</li> <li>8) Improve productivity levels.</li> </ol>	<b><u>Plant Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> <li>5) Report to the board of directors or members.</li> <li>6) Provide financial reports.</li> <li>7) Prepare or approving budgets.</li> <li>8) Improve productivity levels.</li> </ol>
LEVEL 7	<b><u>Maintenance Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate and supervise all maintenance functions necessary to ensure the efficient and reliable operation of the plant/facility.</li> <li>2) Responsible for maintaining and monitoring the plants preventive and predictive maintenance programs.</li> <li>3) Use data to adjust maintenance work procedures to meet scheduled production levels.</li> <li>4) Schedule all maintenance activities and provides technical direction for all plant equipment repaired.</li> </ol>	<b><u>Maintenance Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate and supervises all maintenance functions necessary to ensure the efficient and reliable operation of the plant/facility.</li> <li>2) Responsible for maintaining and monitoring the plants preventive and predictive maintenance programs.</li> <li>3) Use data to adjust maintenance work procedures to meet scheduled production levels.</li> <li>4) Schedule all maintenance activities and provides technical direction for all plant equipment repaired.</li> </ol>	<b><u>Maintenance Manager</u></b> <ol style="list-style-type: none"> <li>1) Coordinate and supervises all maintenance functions necessary to ensure the efficient and reliable operation of the plant/facility.</li> <li>2) Responsible for maintaining and monitoring the plants preventive and predictive maintenance programs.</li> <li>3) Use data to adjust maintenance work procedures to meet scheduled production levels.</li> <li>4) Schedule all maintenance activities and provides technical direction for all plant equipment repaired.</li> </ol>

AREA	Maintenance – Mechanical (Rotating)	Maintenance – Mechanical (Turbine)	Maintenance – Instrument
	<p>5) Manage plant projects as assigned superior. Interfaces with equipment vendors/suppliers as to required needs of the plant, delivery of materials and/or the availability of alternate sources of materials. Inspects completed work for conformance to blueprints, specifications and company standards.</p> <p>6) Develop and direct the implementation of maintenance procedures and plans to ensure optimum efficiency in outage planning, giving consideration to equipment capabilities, customer demands, operating personnel and equipment maintenance requirements.</p>	<p>5) Manage plant projects as assigned superior. Interfaces with equipment vendors/suppliers as to required needs of the plant, delivery of materials and/or the availability of alternate sources of materials. Inspects completed work for conformance to blueprints, specifications and company standards.</p> <p>6) Develop and direct the implementation of maintenance procedures and plans to ensure optimum efficiency in outage planning, giving consideration to equipment capabilities, customer demands, operating personnel and equipment maintenance requirements.</p>	<p>5) Manage plant projects as assigned superior. Interfaces with equipment vendors/suppliers as to required needs of the plant, delivery of materials and/or the availability of alternate sources of materials. Inspects completed work for conformance to blueprints, specifications and company standards.</p> <p>6) Develop and direct the implementation of maintenance procedures and plans to ensure optimum efficiency in outage planning, giving consideration to equipment capabilities, customer demands, operating personnel and equipment maintenance requirements.</p>
LEVEL 6	<p><b><u>Mechanical Rotating Maintenance Engineer</u></b></p> <p>1) Coordinate and supervise all maintenance functions necessary to ensure the efficient and reliable operation of the plant/facility.</p> <p>2) Responsible for maintaining and monitoring the plants preventive and predictive maintenance program.</p>	<p><b><u>Mechanical Turbine Maintenance Engineer</u></b></p> <p>1) Coordinate and supervise all maintenance functions necessary to ensure the efficient and reliable operation of the plant/facility.</p> <p>2) Responsible for maintaining and monitoring the plants preventive and predictive maintenance programs.</p> <p>3) Use data to adjust maintenance work procedures to meet scheduled production levels.</p>	<p><b><u>Instrument Maintenance Engineer</u></b></p> <p>1) Coordinate and supervise all maintenance functions necessary to ensure the efficient and reliable operation of the plant/facility.</p> <p>2) Responsible for maintaining and monitoring the plants preventive and predictive maintenance programs.</p> <p>3) Use data to adjust maintenance work procedures to meet scheduled production levels.</p>

AREA	Maintenance – Mechanical (Rotating)	Maintenance – Mechanical (Turbine)	Maintenance – Instrument
	<p>3) Using data to adjust maintenance work procedures to meet scheduled production levels.</p> <p>4) Schedule all maintenance activities and provides technical direction for all plant equipment repaired.</p> <p>5) Manage plant projects as assigned superior. Interfaces with equipment vendors/suppliers as to required needs of the plant, delivery of materials and/or the availability of alternate sources of materials. Inspects completed work for conformance to blueprints, specifications and company standards.</p> <p>6) Develop and directs the implementation of maintenance procedures and plans to ensure optimum efficiency in outage planning, giving consideration to equipment capabilities, customer demands, operating personnel and equipment maintenance requirements.</p>	<p>4) Schedule all maintenance activities and provides technical direction for all plant equipment repaired.</p> <p>5) Manage plant projects as assigned superior. Interfaces with equipment vendors/suppliers as to required needs of the plant, delivery of materials and/or the availability of alternate sources of materials. Inspects completed work for conformance to blueprints, specifications and company standards.</p> <p>6) Develop and directs the implementation of maintenance procedures and plans to ensure optimum efficiency in outage planning, giving consideration to equipment capabilities, customer demands, operating personnel and equipment maintenance requirements.</p>	<p>4) Schedule all maintenance activities and provides technical direction for all plant equipment repaired.</p> <p>5) Manage plant projects as assigned superior. Interfaces with equipment vendors/suppliers as to required needs of the plant, delivery of materials and/or the availability of alternate sources of materials. Inspects completed work for conformance to blueprints, specifications and company standards.</p> <p>6) Develop and directs the implementation of maintenance procedures and plans to ensure optimum efficiency in outage planning, giving consideration to equipment capabilities, customer demands, operating personnel and equipment maintenance requirements.</p>
LEVEL 5	<p><b><u>Senior Mechanical Rotating Maintenance Technician</u></b></p> <p>1) Maintain and repair plant/facilities' mechanical.</p>	<p><b><u>Senior Mechanical Turbine Maintenance Technician</u></b></p> <p>1) Maintain and repair plant/facilities' mechanical equipment.</p>	<p><b><u>Senior Instrument Maintenance Technician</u></b></p> <p>1) Maintain and repair plant/facilities' instrument equipment.</p>

AREA	Maintenance – Mechanical (Rotating)	Maintenance – Mechanical (Turbine)	Maintenance – Instrument
	<ul style="list-style-type: none"> <li>2) Perform routine and preventive maintenance on equipment.</li> <li>3) Survey the operation of all central utilities systems throughout the plant for defects/malfunctions.</li> <li>4) Determine cause and effect of defects/malfunctions.</li> <li>5) Initiate corrective action directly or through work orders.</li> <li>6) Notify supervisors when malfunctions or outages occurs to facilitate corrective action.</li> <li>7) Maintain documentation, as assigned, on adjustments, corrective action to defective and malfunctioning plant equipment; follows-up and takes corrective actions as required.</li> <li>8) Compile operational data and maintains logs and computer printouts for management review and comparison with historical records.</li> <li>9) Communicate reportable events, including operating trends and limitations to oncoming shift employees.</li> </ul>	<ul style="list-style-type: none"> <li>2) Perform routine and preventive maintenance on equipment.</li> <li>3) Survey the operation of all central utilities systems throughout the plant for defects/malfunctions.</li> <li>4) Determine cause and effect of defects/malfunctions.</li> <li>5) Initiate corrective action directly or through work orders.</li> <li>6) Notify supervisors when malfunctions or outages occurs to facilitate corrective action.</li> <li>7) Maintain documentation, as assigned, on adjustments, corrective action to defective and malfunctioning plant equipment; follows-up and takes corrective actions as required.</li> <li>8) Compile operational data and maintains logs and computer printouts for management review and comparison with historical records.</li> <li>9) Communicate reportable events, including operating trends and limitations to oncoming shift employees.</li> </ul>	<ul style="list-style-type: none"> <li>2) Perform routine and preventive maintenance on equipment.</li> <li>3) Survey the operation of all central utilities systems throughout the plant for defects/malfunctions.</li> <li>4) Determine cause and effect of defects/malfunctions.</li> <li>5) Initiate corrective action directly or through work orders.</li> <li>6) Notify supervisors when malfunctions or outages occurs to facilitate corrective action.</li> <li>7) Maintain documentation, as assigned, on adjustments, corrective action to defective and malfunctioning plant equipment; follows-up and takes corrective actions as required.</li> <li>8) Compile operational data and maintains logs and computer printouts for management review and comparison with historical records.</li> <li>9) Communicate reportable events, including operating trends and limitations to oncoming shift employees.</li> </ul>

AREA	Maintenance – Mechanical (Rotating)	Maintenance – Mechanical (Turbine)	Maintenance – Instrument
LEVEL 4	<b><u>Mechanical Rotating Maintenance Technician</u></b> <ol style="list-style-type: none"> <li>1) Maintain and repair plant/facilities' mechanical.</li> <li>2) Perform routine and preventive maintenance on equipment.</li> <li>3) Survey the operation of all central utilities systems throughout the plant for defects/malfunctions.</li> <li>4) Determine cause and effect of defects/malfunctions.</li> <li>5) Initiate corrective action directly or through work orders.</li> <li>6) Notify supervisors when malfunctions or outages occurs to facilitate corrective action.</li> <li>7) Maintain documentation, as assigned, on adjustments, corrective action to defective and malfunctioning plant equipment; follows-up and takes corrective actions as required.</li> <li>8) Compile operational data and maintains logs and computer printouts for management review and comparison with historical records.</li> </ol>	<b><u>Mechanical Turbine Maintenance Technician</u></b> <ol style="list-style-type: none"> <li>1) Maintain and repair plant/facilities' mechanical.</li> <li>2) Perform routine and preventive maintenance on equipment.</li> <li>3) Survey the operation of all central utilities systems throughout the plant for defects/malfunctions.</li> <li>4) Determine cause and effect of defects/malfunctions.</li> <li>5) Initiate corrective action directly or through work orders.</li> <li>6) Notify supervisors when malfunctions or outages occurs to facilitate corrective action.</li> <li>7) Maintain documentation, as assigned, on adjustments, corrective action to defective and malfunctioning plant equipment; follows-up and takes corrective actions as required.</li> <li>8) Compile operational data and maintains logs and computer printouts for management review and comparison with historical records.</li> </ol>	<b><u>Instrument Maintenance Technician</u></b> <ol style="list-style-type: none"> <li>1) Maintain and repair plant/facilities' mechanical.</li> <li>2) Perform routine and preventive maintenance on equipment.</li> <li>3) Survey the operation of all central utilities systems throughout the plant for defects/malfunctions.</li> <li>4) Determine cause and effect of defects/malfunctions.</li> <li>5) Initiate corrective action directly or through work orders.</li> <li>6) Notify supervisors when malfunctions or outages occurs to facilitate corrective action.</li> <li>7) Maintain documentation, as assigned, on adjustments, corrective action to defective and malfunctioning plant equipment; follows-up and takes corrective actions as required.</li> <li>8) Compile operational data and maintains logs and computer printouts for management review and comparison with historical records.</li> </ol>

AREA	Maintenance – Mechanical (Rotating)	Maintenance – Mechanical (Turbine)	Maintenance – Instrument
	9) Communicate reportable events, including operating trends and limitations to oncoming shift employees.	9) Communicate reportable events, including operating trends and limitations to oncoming shift employees.	9) Communicate reportable events, including operating trends and limitations to oncoming shift employees.
LEVEL 3	No Level	No Level	No Level
LEVEL 2	No Level	No Level	No Level
LEVEL 1	No Level	No Level	No Level

Table 4.92: List of Responsibilities for Group 352 Based on Table 4.39 and 4.40 (4 of 7)

AREA	Manufacture of gaseous fuels with a specified calorific value, by purification, blending and other processes from gases of various types including natural gas - Support – Safety	Planning	Engineering
LEVEL 8	<b><u>Plant Manager</u></b> 1) Enforce strategies. 2) Develop project objectives. 3) Oversee senior management staff. 4) Coordinate with department heads. 5) Report to the board of directors or members. 6) Provide financial reports. 7) Prepare or approving budgets. 8) Improve productivity levels.	<b><u>Project General Manager</u></b> 1) Enforce strategies. 2) Develop project objectives. 3) Oversee senior management staff. 4) Coordinate with department heads. 5) Report to the board of directors or members. 6) Provide financial reports. 7) Prepare or approving budgets. 8) Improve productivity levels.	<b><u>Project General Manager</u></b> 1) Enforce strategies. 2) Develop project objectives. 3) Oversee senior management staff. 4) Coordinate with department heads. 5) Report to the board of directors or members. 6) Provide financial reports. 7) Prepare or approving budgets. 8) Improve productivity levels.
LEVEL 7	<b><u>Safety Manager</u></b> 1) Provide primary selection, sizing along with layout of projected new or expanded facilities. 2) Develop engineering designs and diagrams related to pipeline. 3) Provide technical assistance to tender preparation and tender pre-qualification preparation.	<b><u>Planning Manager</u></b> 1) Provide primary selection, sizing along with layout of projected new or expanded facilities. 2) Develop engineering designs and diagrams related to pipeline. 3) Provide technical assistance to tender preparation and tender pre-qualification preparation.	<b><u>Engineering Manager</u></b> 1) Provide primary selection, sizing along with layout of projected new or expanded facilities. 2) Develop engineering designs and diagrams related to pipeline. 3) Provide technical assistance to tender preparation and tender pre-qualification preparation.



AREA	<b>Manufacture of gaseous fuels with a specified calorific value, by purification, blending and other processes from gases of various types including natural gas - Support – Safety</b>	<b>Planning</b>	<b>Engineering</b>
	4) Attendance of progress meetings and regular department management meetings. 5) Proficient in the analysis and design of pipelines using design tools and procedures. 6) Coordinate with authority, supervisor, construction contractors and others as needed to develop appropriate installation procedures. 7) Organize and plan work to complete project deliverables. 8) Meet with clients, supervisors and other disciplines to agree on engineering scope and procedures. 9) Lead engineering design, coordinating and supervising other engineers.	4) Attendance of progress meetings and regular department management meetings. 5) Proficient in the analysis and design of pipelines using design tools and procedures. 6) Coordinate with authority, supervisor, construction contractors and others as needed to develop appropriate installation procedures. 7) Organize and plan work to complete project deliverables. 8) Meet with clients, supervisors and other disciplines to agree on engineering scope and procedures. 9) Lead engineering design, coordinating and supervising other engineers.	4) Attendance of progress meetings and regular department management meetings. 5) Proficient in the analysis and design of pipelines using design tools and procedures. 6) Coordinate with authority, supervisor, construction contractors and others as needed to develop appropriate installation procedures. 7) Organize and plan work to complete project deliverables. 8) Meet with clients, supervisors and other disciplines to agree on engineering scope and procedures. 9) Lead engineering design, coordinating and supervising other engineers.
<b>LEVEL</b> 6	<b><u>Safety Executive</u></b> 1) Provide primary selection, sizing along with layout of projected new or expanded facilities.	<b><u>Planning Engineer</u></b> 1) Provide primary selection, sizing along with layout of projected new or expanded facilities.	<b><u>Design Engineer</u></b> 1) Prepare reports, specifications and drawings based on engineering work.

AREA	<b>Manufacture of gaseous fuels with a specified calorific value, by purification, blending and other processes from gases of various types including natural gas - Support – Safety</b>	<b>Planning</b>	<b>Engineering</b>
	<ul style="list-style-type: none"> <li>2) Develop engineering designs and diagrams related to pipeline.</li> <li>3) Provide technical assistance to tender preparation and tender pre-qualification preparation.</li> <li>4) Attendance of progress meetings and regular department management meetings.</li> <li>5) Proficient in the analysis and design of pipelines using design tools and procedures.</li> <li>6) Coordinate with authority, supervisor, construction contractors and others as needed to develop appropriate installation procedures.</li> <li>7) Organize and plan work to complete project deliverables.</li> <li>8) Meet with clients, supervisors and other disciplines to agree on engineering scope and procedures.</li> <li>9) Lead engineering design, coordinating and supervising other engineers.</li> </ul>	<ul style="list-style-type: none"> <li>2) Develop engineering designs and diagrams related to pipeline.</li> <li>3) Provide technical assistance to tender preparation and tender pre-qualification preparation.</li> <li>4) Attendance of progress meetings and regular department management meetings.</li> <li>5) Proficient in the analysis and design of pipelines using design tools and procedures.</li> <li>6) Coordinate with authority, supervisor, construction contractors and others as needed to develop appropriate installation procedures.</li> <li>7) Organize and plan work to complete project deliverables.</li> <li>8) Meet with clients, supervisors and other disciplines to agree on engineering scope and procedures.</li> <li>9) Lead engineering design, coordinating and supervising other engineers.</li> </ul>	<ul style="list-style-type: none"> <li>2) Provide technical assistance to tender preparation and tender pre-qualification preparation.</li> <li>3) Attendance of progress meetings and regular department management meetings.</li> <li>4) Proficient in the analysis and design of pipelines using the design tools and procedures.</li> <li>5) Coordinate with supervisor, client, other disciplines, construction contractors and others as needed to develop appropriate installation procedures.</li> <li>6) Review the designs of others working on the job to ensure that the overall design is suitable.</li> <li>7) Acquire/exhibit basic supervisory skills.</li> <li>8) Organize and plan work to complete project deliverables.</li> </ul>

AREA	<b>Manufacture of gaseous fuels with a specified calorific value, by purification, blending and other processes from gases of various types including natural gas - Support – Safety</b>	<b>Planning</b>	<b>Engineering</b>
<b>LEVEL</b>  5	<b><u>Safety Officer</u></b> 1) Develop engineering designs and diagrams related to pipeline. 2) Provide technical assistance to tender preparation and tender pre-qualification preparation. 3) Attendance of progress meetings and regular department management meetings. 4) Proficient in the analysis and design of pipelines using design tools and procedures. 5) Coordinate with authority, supervisor, construction contractors and others as needed to develop appropriate installation procedures. 6) Organize and plan work to complete project deliverables. 7) Meet with clients, supervisors and other disciplines to agree on engineering scope and procedures. 8) Lead engineering design, coordinating and supervising other engineers.	<b><u>Planning Engineering Assistant</u></b> 1) Provide primary selection, sizing along with layout of projected new or expanded facilities. 2) Develop engineering designs and diagrams related to pipeline 3) Provide technical assistance to tender preparation and tender pre-qualification preparation. 4) Attendance of progress meetings and regular department management meetings. 5) Proficient in the analysis and design of pipelines using design tools and procedures. 6) Coordinate with authority, supervisor, construction contractors and others as needed to develop appropriate installation procedures. 7) Organize and plan work to complete project deliverables.	<b><u>Design Engineering Assistant</u></b> 1) Prepare reports, specifications and drawings based on engineering work. 2) Provide technical assistance to tender preparation and tender pre-qualification preparation. 3) Attendance of progress meetings and regular department management meetings. 4) Proficient in the analysis and design of pipelines using the design tools and procedures. 5) Coordinate with supervisor, client, other disciplines, construction contractors and others as needed to develop appropriate installation procedures. 6) Review the designs of others working on the job to ensure that the overall design is suitable. 7) Acquire/exhibit basic supervisory skills. 8) Organize and plan work to complete project deliverables.

AREA	Manufacture of gaseous fuels with a specified calorific value, by purification, blending and other processes from gases of various types including natural gas - Support – Safety	Planning	Engineering
		8) Meet with clients, supervisors and other disciplines to agree on engineering scope and procedures. 9) Lead engineering design, coordinating and supervising other engineers.	
LEVEL 4	No Level	<u><b>Senior Planning Draughtsman</b></u> 1) Provide primary selection, sizing along with layout of projected new or expanded facilities. 2) Develop engineering designs and diagrams related to pipeline. 3) Provide technical assistance to tender preparation and tender pre-qualification preparation. 4) Attendance of progress meetings and regular department management meetings. 5) Proficient in the analysis and design of pipelines using design tools and procedures. 6) Coordinate with authority, supervisor, construction contractors and others as	<u><b>Senior Engineering Draughtsman</b></u> 1) Prepare reports, specifications and drawings based on engineering work. 2) Provide technical assistance to tender preparation and tender pre-qualification preparation. 3) Attendance of progress meetings and regular department management meetings. 4) Proficient in the analysis and design of pipelines using the design tools and procedures. 5) Coordinate with supervisor, client, other disciplines, construction contractors and others as needed to develop appropriate installation procedures.

AREA	Manufacture of gaseous fuels with a specified calorific value, by purification, blending and other processes from gases of various types including natural gas - Support – Safety	Planning	Engineering
		<p>needed to develop appropriate installation procedures.</p> <p>7) Organize and plan work to complete project deliverables.</p>	<p>6) Review the designs of others working on the job to ensure that the overall design is suitable.</p> <p>7) Acquire/exhibit basic supervisory skills.</p> <p>8) Organize and plan work to complete project deliverables.</p>
LEVEL 3	No Level	<p><b><u>Planning Draughtsman</u></b></p> <p>1) Develop engineering designs and diagrams related to pipeline.</p> <p>2) Provide technical assistance to tender preparation and tender pre-qualification preparation.</p> <p>3) Attendance of progress meetings and regular department management meetings.</p> <p>4) Proficient in the analysis and design of pipelines using design tools and procedures.</p> <p>5) Coordinate with authority, supervisor, construction contractors and others as needed to develop appropriate installation procedures.</p>	<p><b><u>Engineering Draughtsman</u></b></p> <p>1) Provide technical assistance to tender preparation and tender pre-qualification preparation.</p> <p>2) Attendance of progress meetings and regular department management meetings.</p> <p>3) Proficient in the analysis and design of pipelines using the design tools and procedures.</p> <p>4) Coordinate with supervisor, client, other disciplines, construction contractors and others as needed to develop appropriate installation procedures.</p>

AREA	Manufacture of gaseous fuels with a specified calorific value, by purification, blending and other processes from gases of various types including natural gas - Support – Safety	Planning	Engineering
			5) Review the designs of others working on the job to ensure that the overall design is suitable. 6) Acquire/exhibit basic supervisory skills. 7) Organize and plan work to complete project deliverables.
LEVEL 2	No Level	No Level	No Level
LEVEL 1	No Level	No Level	No Level

Table 4.93: List of Responsibilities for Group 352 Based on Table 4.40 and 4.41 (5 of 7)

AREA	Construction	Operation and Maintenance	Gas System Management – Operation Control
LEVEL 8	<b><u>Project General Manager</u></b> <ol style="list-style-type: none"> <li>1) Responsible for the supervision of construction of the assigned project.</li> <li>2) Monitor and manage the construction team for quality supervision of site construction.</li> <li>3) Ensure contractors of site construction follow and implement the project requirements.</li> <li>4) Monitor all quality-critical activities at the assigned construction front.</li> <li>5) Verify that records are maintained and compiled in a progressive manner.</li> <li>6) Ensure conformance to the contractual and regulatory requirements, and approved procedures, specifications and drawing.</li> <li>7) Ensure compliance to safety and regulations.</li> </ol>	<b><u>Operation &amp; Maintenance General Manager</u></b> <ol style="list-style-type: none"> <li>1) Responsible for the supervision of construction of the assigned project.</li> <li>2) Monitor and manage the construction team for quality supervision of site construction.</li> <li>3) Ensure contractors of site construction follow and implement the project requirements.</li> <li>4) Monitor all quality-critical activities at the assigned construction front.</li> <li>5) Verify that records are maintained and compiled in a progressive manner.</li> <li>6) Ensure conformance to the contractual and regulatory requirements, and approved procedures, specifications and drawing.</li> <li>7) Ensure compliance to safety and regulations.</li> </ol>	<b><u>Gas System Management. General Manager</u></b> <ol style="list-style-type: none"> <li>1) Responsible for the supervision of construction of the assigned project.</li> <li>2) Monitor and manage the construction team for quality supervision of site construction.</li> <li>3) Ensuring contractors of site construction follow and implement the project requirements.</li> <li>4) Monitor all quality-critical activities at the assigned construction front.</li> <li>5) Verify that records are maintained and compiled in a progressive manner.</li> <li>6) Ensure conformance to the contractual and regulatory requirements, and approved procedures, specifications and drawing.</li> <li>7) Ensure compliance to safety and regulations.</li> </ol>
LEVEL 7	<b><u>Project Manager</u></b> <ol style="list-style-type: none"> <li>1) Report to the Project General Manager.</li> <li>2) Daily and summary reporting to Project Engineer as and when required.</li> </ol>	<b><u>Planning Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> </ol>	<b><u>Operation Control Manager</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> </ol>

AREA	Construction	Operation and Maintenance	Gas System Management – Operation Control
	3) Responsible for the supervision of construction of the assigned project. 4) Monitor and manage the construction team for quality supervision of site construction. 5) Ensure contractors of site construction follow and implement the project requirements. 6) Monitor all quality-critical activities at the assigned construction front. 7) Verify that records are maintained and compiled in a progressive manner. 8) Ensure conformance to the contractual and regulatory requirements, and approved procedures, specifications and drawing. 9) Ensure compliance to safety and regulations.	4) Coordinate with department heads. 5) Report to the board of directors or members. 6) Provide financial reports. 7) Prepare or approving budgets. 8) Improve productivity levels.	4) Coordinate with department heads. 5) Report to the board of directors or members. 6) Provide financial reports. 7) Prepare or approving budgets. 8) Improve productivity levels.
LEVEL 6	<b><u>Project Engineer</u></b> 1) Report to the Project Manager. 2) Responsible for the supervision of construction of the assigned project. 3) Monitor and manage the construction team for quality supervision of site construction.	<b><u>Operation and Maintenance Engineer</u></b> 1) Oversee the whole operation and budgetary aspects of shows. 2) Choose production team. 3) Choose of production equipment. 4) Producers are responsible for both the creative and financial decisions.	<b><u>Operation Control Engineer</u></b> 1) Oversee the whole operation and budgetary aspects of shows. 2) Choose production team. 3) Choose of production equipment. 4) Producers are responsible for both the creative and financial decisions.



AREA	Construction	Operation and Maintenance	Gas System Management – Operation Control
	4) Ensure contractors of site construction follow and implement the project requirements. 5) Monitor all quality-critical activities at the assigned construction front. 6) Verify that records are maintained and compiled in a progressive manner. 7) Ensure conformance to the contractual and regulatory requirements, and approved procedures, specifications and drawing. 8) Ensure compliance safety and health.	5) Oversee the creation of a show from inception to broadcast.	5) Oversee the creation of a show from inception to broadcast.
LEVEL 5	<b><u>Construction Engineering Assistant</u></b> 1) Report to the Project Engineer. 2) Maintain and enforce housekeeping and hygiene standards inside the construction areas. 3) Monitor and enforce the adherence to the safety standards, rules and regulations. 4) Ensure construction is executed in accordance with applicable specifications, drawings and standards with special emphasis on revision control. 5) Participate in regular on-site EPC contractor progress meetings, actively	<b><u>Operation and Maintenance Engineer Assistant</u></b> 1) Report to the Project Engineer. 2) Maintain and enforce housekeeping and hygiene standards inside the construction areas. 3) Monitor and enforce the adherence to the safety standards, rules and regulations. 4) Ensure construction is executed in accordance with applicable specifications, drawings and standards with special emphasis on revision control.	<b><u>Operation Control Engineering Assistant</u></b> 1) Report to the Project Engineer. 2) Maintain and enforce housekeeping and hygiene standards inside the construction areas. 3) Monitor and enforce the adherence to the safety standards, rules and regulations. 4) Ensure construction is executed in accordance with applicable specifications, drawings and standards with special emphasis on revision control. 5) Participate in regular on-site EPC contractor progress meetings, actively

AREA	Construction	Operation and Maintenance	Gas System Management – Operation Control
	<p>participate in interface coordination meetings and attend other project meetings as required.</p> <p>6) Ensure work and quality related inspections are carried out in accordance with the Quality Management System (QMS) and approved Inspection and Test Plans.</p> <p>7) Ensure the construction records, results of quality inspections and non-conformances are registered and properly documented, remedial actions are defined, effectively implemented and closed out.</p> <p>8) Give input for the monthly construction progress report and other project reporting requirements.</p>	<p>5) Participate in regular on-site EPC contractor progress meetings, actively participate in interface coordination meetings and attend other project meetings as required.</p> <p>6) Ensure work and quality related inspections are carried out in accordance with the Quality Management System (QMS) and approved Inspection and Test Plans.</p> <p>7) Ensure the construction records, results of quality inspections and non-conformances are registered and properly documented, remedial actions are defined, effectively implemented and closed out.</p> <p>8) Give input for the monthly construction progress report and other project reporting requirements.</p>	<p>participate in interface coordination meetings and attend other project meetings as required.</p> <p>6) Ensure work and quality related inspections are carried out in accordance with the Quality Management System (QMS) and approved Inspection and Test Plans.</p> <p>7) Ensure the construction records, results of quality inspections and non-conformances are registered and properly documented, remedial actions are defined, effectively implemented and closed out.</p> <p>8) Give input for the monthly construction progress report and other project reporting requirements.</p>
LEVEL 4	<p><b><u>Construction Supervisor</u></b></p> <p>1) Report to the Construction Engineering Assistant.</p> <p>2) Responsible for the supervision of construction of the assigned project.</p>	<p><b><u>Operation and Maintenance Supervisor</u></b></p> <p>1) Efficiently and safely operate and maintain various equipment/systems including automatic pigging launchers, manual pigging launchers, pipeline main line block</p>	<p><b><u>Operation Control Supervisor</u></b></p> <p>1) Efficiently and safely operate and maintain various equipment/systems including automatic pigging launchers, manual pigging launchers, pipeline main line block</p>

AREA	Construction	Operation and Maintenance	Gas System Management – Operation Control
	<ul style="list-style-type: none"> <li>3) To monitor and manage the construction team/contractors for quality and safe construction site.</li> <li>4) Ensuring contractors of site construction follow and implement the project requirements.</li> <li>5) Monitor all quality-critical activities at the assigned construction front.</li> </ul>	<ul style="list-style-type: none"> <li>valves, regulators, meters, filters, gauges, etc.</li> <li>2) Work within the guidelines and parameters established by the Company for safety and operations.</li> <li>3) Inspect, maintain and repair as needed all facilities as assigned, including but not limited to pipelines, compression, and measurement facilities.</li> <li>4) On-call responsibility for areas of responsibility as needed.</li> <li>5) Maintain working knowledge of regulatory requirements, (OSHA, etc.) document required regulatory activities.</li> <li>6) Plan, organize and prioritize assigned responsibilities and work independently.</li> <li>7) Manage all activities with a focus on safety and compliance.</li> <li>8) Use proper tools and equipment to perform integrity management and regulatory tasks on pipelines and gas station.</li> <li>9) Monitor activity in and around pipeline and facilities and respond as necessary to protect system integrity.</li> </ul>	<ul style="list-style-type: none"> <li>valves, regulators, meters, filters, gauges, etc.</li> <li>2) Work within the guidelines and parameters established by the Company for safety and operations.</li> <li>3) Inspect, maintain and repair as needed all facilities as assigned, including but not limited to pipelines, compression, and measurement facilities.</li> <li>4) On-call responsibility for areas of responsibility as needed.</li> <li>5) Maintain working knowledge of regulatory requirements, (OSHA, etc.) document required regulatory activities.</li> <li>6) Plan, organize and prioritize assigned responsibilities and work independently.</li> <li>7) Manage all activities with a focus on safety and compliance.</li> <li>8) Use proper tools and equipment to perform integrity management and regulatory tasks on pipelines and gas station.</li> <li>9) Monitor activity in and around pipeline and facilities and respond as necessary to protect system integrity.</li> </ul>

AREA	Construction	Operation and Maintenance	Gas System Management – Operation Control
		10) Maintain required forms, records and reports. 11) Respond to pipeline/station emergencies. 12) Perform clean up associated with field ops and corrosion control activities.	10) Maintain required forms, records and reports. 11) Respond to pipeline/station emergencies. 12) Perform clean up associated with field ops and corrosion control activities.
LEVEL 3	<b><u>Construction Technician</u></b> 1) Report to the Construction Engineering Assistant/Construction Supervisor. 2) Execute the construction as to follow the project requirements. 3) Record, maintain and compile the construction report in a progressive manner. 4) Ensure compliance to safety and regulations.	<b><u>Operation and Maintenance Technician</u></b> 1) Operate and maintain efficiently various equipment/systems including automatic pigging launchers, manual pigging launchers, pipeline main line block valves, regulators, meters, filters, gauges, etc. 2) Work within the guidelines and parameters established by the Company for safety and operations. 3) Inspect, maintain and repair as needed all facilities as assigned, including but not limited to pipelines, compression, and measurement facilities. 4) Manage all activities with a focus on safety and compliance. 5) Use proper tools and equipment to perform integrity management and regulatory tasks on pipelines and gas station.	<b><u>Operation Control Technician</u></b> 1) Operate and maintain efficiently various equipment/systems including automatic pigging launchers, manual pigging launchers, pipeline main line block valves, regulators, meters, filters, gauges, etc. 2) Work within the guidelines and parameters established by the Company for safety and operations. 3) Inspect, maintain and repair as needed all facilities as assigned, including but not limited to pipelines, compression, and measurement facilities. 4) Manage all activities with a focus on safety and compliance. 5) Use proper tools and equipment to perform integrity management and regulatory tasks on pipelines and gas station.

AREA	Construction	Operation and Maintenance	Gas System Management – Operation Control
		6) Monitor activity in and around pipeline and facilities and respond as necessary to protect system integrity. 7) Maintain required forms, records and reports.	6) Monitor activity in and around pipeline and facilities and respond as necessary to protect system integrity. 7) Maintain required forms, records and reports.
LEVEL 2	<b><u>Junior Construction Technician</u></b> 1) Report to the Construction Engineering Assistant/Construction Supervisor. 2) Report to Construction Engineering Assistant/Construction Supervisor as and when required. 3) Execute the construction as to follow the project requirements. 4) Record, maintain and compile the construction report in a progressive manner. 5) Ensure compliance to safety and regulations.	<b><u>Junior Operation and Maintenance Technician</u></b> 1) Work within the guidelines and parameters established by the Company for safety and operations. 2) Inspect, maintain and repair as needed all facilities as assigned, including but not limited to pipelines, compression, and measurement facilities. 3) Manage all activities with a focus on safety and compliance. 4) Use proper tools and equipment to perform integrity management and regulatory tasks on pipelines and gas station. 5) Monitor activity in and around pipeline and facilities and respond as necessary to protect system integrity. 6) Maintain required forms, records and reports.	<b><u>Junior Operation Control Technician</u></b> 1) Work within the guidelines and parameters established by the Company for safety and operations. 2) Inspect, maintain and repair as needed all facilities as assigned, including but not limited to pipelines, compression, and measurement facilities. 3) Manage all activities with a focus on safety and compliance. 4) Use proper tools and equipment to perform integrity management and regulatory tasks on pipelines and gas station. 5) Monitor activity in and around pipeline and facilities and respond as necessary to protect system integrity. 6) Maintain required forms, records and reports.

<b>AREA</b>	<b>Construction</b>	<b>Operation and Maintenance</b>	<b>Gas System Management – Operation Control</b>
LEVEL 1	No level	No Level	No Level

Table 4.94: List of Responsibilities for Group 352 Based on Table 4.41 (6 of 7)

AREA	Gas System Management – Operation Services	Transportation, distribution and supply of gaseous fuels of all kinds through a system of mains - Support – Safety
LEVEL 8	<p><b><u>Gas System Management. General Manager</u></b></p> <ol style="list-style-type: none"> <li>1) Responsible for the supervision of construction of the assigned project.</li> <li>2) Monitor and manage the construction team for quality supervision of site construction.</li> <li>3) Ensure contractors of site construction follow and implement the project requirements.</li> <li>4) Monitor all quality-critical activities at the assigned construction front.</li> <li>5) Verify that records are maintained and compiled in a progressive manner.</li> <li>6) Ensure conformance to the contractual and regulatory requirements, and approved procedures, specifications and drawing.</li> <li>7) Ensure compliance to safety and regulations.</li> </ol>	Not Available
LEVEL 7	<p><b><u>Operation Services Manager</u></b></p> <ol style="list-style-type: none"> <li>1) Maintain and enforce housekeeping and hygiene standards inside the construction areas.</li> <li>2) Monitor and enforce the adherence to the safety standards, rules and regulations.</li> <li>3) Ensure construction is executed in accordance with applicable specifications, drawings and standards with special emphasis on revision control.</li> </ol>	<p><b><u>Safety Manager</u></b></p> <ol style="list-style-type: none"> <li>1) Responsible for preventing accidents in business and job sites.</li> <li>2) Create programs such as company policies.</li> <li>3) Investigate in cases of accidents.</li> <li>4) Implement post-injury follow up procedures for workers.</li> </ol>

AREA	Gas System Management – Operation Services	Transportation, distribution and supply of gaseous fuels of all kinds through a system of mains - Support – Safety
	<ul style="list-style-type: none"> <li>4) Participate in regular on-site EPC contractor progress meetings, actively participate in interface coordination meetings and attend other project meetings as required.</li> <li>5) Ensure work and quality related inspections are carried out in accordance with the Quality Management System (QMS) and approved Inspection and Test Plans.</li> <li>6) Ensure the construction records, results of quality inspections and non-conformances are registered and properly documented, remedial actions are defined, effectively implemented and closed out.</li> <li>7) Give input for the monthly construction progress report and other project reporting requirements.</li> </ul>	
<b>LEVEL</b> 6	<b><u>Operation Services Engineer</u></b> <ul style="list-style-type: none"> <li>1) Maintain and enforce housekeeping and hygiene standards inside the operation areas.</li> <li>2) Monitor and enforce the adherence to the safety standards, rules and regulations.</li> <li>3) Ensure service is executed in accordance with applicable specifications, drawings and standards with special emphasis on revision control.</li> <li>4) Ensure work and quality related inspections are carried out in accordance with the Quality Management System (QMS) and approved Inspection and Test Plans.</li> </ul>	<b><u>Safety Executive</u></b> <ul style="list-style-type: none"> <li>1) Assist Safety Manager.</li> <li>2) Responsible for preventing accidents in business and job sites.</li> <li>3) Create programs such as company policies.</li> <li>4) Investigate in cases of accidents.</li> <li>5) Implement post-injury follow up procedures for workers.</li> </ul>



AREA	Gas System Management – Operation Services	Transportation, distribution and supply of gaseous fuels of all kinds through a system of mains - Support – Safety
	<ul style="list-style-type: none"> <li>5) Ensure the construction records, results of quality inspections and non-conformances are registered and properly documented, remedial actions are defined, effectively implemented and closed out.</li> <li>6) Give input for the monthly construction progress report and other project reporting requirements.</li> </ul>	
LEVEL 5	<b><u>Operation Services Engineering Assistant</u></b> <ul style="list-style-type: none"> <li>1) Assist Engineer.</li> <li>2) Maintain and enforce housekeeping and hygiene standards inside the operation areas.</li> <li>3) Monitor and enforce the adherence to the safety standards, rules and regulations.</li> <li>4) Ensure service is executed in accordance with applicable specifications, drawings and standards with special emphasis on revision control.</li> <li>5) Ensure work and quality related inspections are carried out in accordance with the Quality Management System (QMS) and approved Inspection and Test Plans.</li> <li>6) Ensure the construction records, results of quality inspections and non-conformances are registered and properly documented, remedial actions are defined, effectively implemented and closed out.</li> <li>7) Give input for the monthly construction progress report and other project reporting requirements.</li> </ul>	<b><u>Safety Officer</u></b> <ul style="list-style-type: none"> <li>1) Responsible for preventing accidents in business and job sites.</li> <li>2) Help Executive create programs such as company policies.</li> <li>3) Investigate in cases of accidents.</li> <li>4) Implement post-injury follow up procedures for workers.</li> </ul>

AREA	Gas System Management – Operation Services	Transportation, distribution and supply of gaseous fuels of all kinds through a system of mains - Support – Safety
LEVEL 4	<b><u>Operation Services Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Work within the guidelines and parameters established by the Company for safety and operations.</li> <li>2) Inspect, validate, maintain and repair as needed all facilities as assigned, including but not limited to EVC, EFM, SCADA.</li> <li>3) Maintain working knowledge of regulatory requirements, (OSHA, etc.) document required regulatory activities.</li> <li>4) Plan, organize and prioritize assigned responsibilities and work independently.</li> <li>5) Manage all activities with a focus on safety and compliance.</li> <li>6) Use proper tools and equipment to perform integrity management and regulatory tasks on equipment and pipeline facilities.</li> <li>7) Maintain required forms, records and reports.</li> </ol>	No Level
LEVEL 3	<b><u>Operation Services Technician</u></b> <ol style="list-style-type: none"> <li>1) Operate and Maintain efficiently and safely various equipment/systems including Electronic Volume Corrector (EVC), Electronic Flow Measurement (EFM), SCADA etc.</li> <li>2) Work within the guidelines and parameters established by the Company for safety and operations.</li> <li>3) Inspect, validate, maintain and repair as needed all facilities as assigned, including but not limited to EVC, EFM, SCADA.</li> <li>4) On-call responsibility for areas of responsibility as needed.</li> <li>5) Maintain working knowledge of regulatory requirements, (OSHA, etc.) document required regulatory activities.</li> </ol>	No Level

AREA	Gas System Management – Operation Services	Transportation, distribution and supply of gaseous fuels of all kinds through a system of mains - Support – Safety
	6) Plan, organize and prioritize assigned responsibilities and work independently. 7) Use proper tools and equipment to perform integrity management and regulatory tasks on equipment and pipeline facilities.	
LEVEL 2	<b><u>Junior Operation Services Technician</u></b> 1) Operate and Maintain efficiently and safely various equipment/systems including Electronic Volume Corrector (EVC), Electronic Flow Measurement (EFM), SCADA etc. 2) Work within the guidelines and parameters established by the Company for safety and operations. 3) Inspect, validate, maintain and repair as needed all facilities as assigned, including but not limited to EVC, EFM, SCADA. 4) On-call responsibility for areas of responsibility as needed. 5) Maintain working knowledge of regulatory requirements, (OSHA, etc.) document required regulatory activities. 6) Plan, organize and prioritize assigned responsibilities and work independently. 7) Use proper tools and equipment to perform integrity management and regulatory tasks on equipment and pipeline facilities.	No Level
LEVEL 1	No Level	No Level

Table 4.95: List of Responsibilities for Group 352 Based on Table 4.42 (7 of 7)

AREA	Sales	Technical Support
LEVEL 8	<p><b><u>General Manager</u></b></p> <ol style="list-style-type: none"> <li>1) Responsible for the supervision of construction of the assigned project.</li> <li>2) Monitor and manage the construction team for quality supervision of site construction.</li> <li>3) Ensure contractors of site construction follow and implement the project requirements.</li> <li>4) Monitor all quality-critical activities at the assigned construction front.</li> <li>5) Verify that records are maintained and compiled in a progressive manner.</li> <li>6) Ensure conformance to the contractual and regulatory requirements, and approved procedures, specifications and drawing.</li> <li>7) Ensure compliance to safety and regulations.</li> </ol>	<p><b><u>General Manager</u></b></p> <ol style="list-style-type: none"> <li>1) Responsible for the supervision of construction of the assigned project.</li> <li>2) Monitor and manage the construction team for quality supervision of site construction.</li> <li>3) Ensure contractors of site construction follow and implement the project requirements.</li> <li>4) Monitor all quality-critical activities at the assigned construction front</li> <li>5) Verify that records are maintained and compiled in a progressive manner.</li> <li>6) Ensure conformance to the contractual and regulatory requirements, and approved procedures, specifications and drawing.</li> <li>7) Ensure compliance to safety and regulations.</li> </ol>
LEVEL 7	<p><b><u>Sale Manager</u></b></p> <ol style="list-style-type: none"> <li>1) Meet company revenue targets through the activities of their sales representatives.</li> <li>2) Responsible for motivating and advising their reps to improve their performance, as well as hiring and training new sales representatives.</li> <li>3) Ensure contractors of site construction follow and implement the project requirements.</li> </ol>	<p><b><u>Technical Support Manager</u></b></p> <ol style="list-style-type: none"> <li>1) Maintain and enforce housekeeping and hygiene standards inside the construction areas.</li> <li>2) Monitor and enforce the adherence to the safety standards, rules and regulations.</li> <li>3) Ensure construction is executed in accordance with applicable specifications, drawings and standards with special emphasis on revision control.</li> </ol>

AREA	Sales	Technical Support
	<ul style="list-style-type: none"> <li>4) Monitor all quality-critical activities at the assigned construction front.</li> <li>5) Verify that records are maintained and compiled in a progressive manner.</li> </ul>	<ul style="list-style-type: none"> <li>4) Participate in regular on-site EPC contractor progress meetings, actively participate in interface coordination meetings and attend other project meetings as required.</li> <li>5) Ensure work and quality related inspections are carried out in accordance with the Quality Management System (QMS) and approved Inspection and Test Plans.</li> <li>6) Ensure the construction records, results of quality inspections and non-conformances are registered and properly documented, remedial actions are defined, effectively implemented and closed out.</li> <li>7) Give input for the monthly construction progress report and other project reporting requirements.</li> </ul>
LEVEL 6	<p><b><u>Sale Executive</u></b></p> <ul style="list-style-type: none"> <li>1) Assist Sales Manager.</li> <li>2) Meet company revenue targets through the activities of their sales representatives.</li> <li>3) Responsible for motivating and advising their reps to improve their performance, as well as hiring and training new sales representatives.</li> <li>4) Ensure contractors of site construction follow and implement the project requirements.</li> <li>5) Monitor all quality-critical activities at the assigned construction front.</li> <li>6) Verify that records are maintained and compiled in a progressive manner.</li> </ul>	<p><b><u>Technical Support Engineer</u></b></p> <ul style="list-style-type: none"> <li>1) Conduct customer's equipment investigation (gas equipment parameters including burner, regulator, valve etc).</li> <li>2) Design and propose pipe routing and sizing, metering station size.</li> <li>3) Assist engineer for recommendation to customer on burner conversion, piping/equipment installation in compliance to regulation/standards in most effective manner.</li> <li>4) Attend technical inquiry and troubleshooting on gas supply.</li> <li>5) Prepare proposal for customer on technical/conversion to gas usage.</li> <li>6) Conduct safety awareness briefing to customer on gas usage.</li> </ul>

AREA	Sales	Technical Support
LEVEL 5	No Level	<b><u>Technical Support Engineering Assistant</u></b> <ol style="list-style-type: none"> <li>1) Assist Engineer.</li> <li>2) Conduct customer's equipment investigation (gas equipment parameters including burner, regulator, valve etc).</li> <li>3) Design and propose pipe routing and sizing, metering station size.</li> <li>4) Assist engineer for recommendation to customer on burner conversion, piping/equipment installation in compliance to regulation/standards in most effective manner.</li> <li>5) Attend technical inquiry and troubleshooting on gas supply.</li> <li>6) Prepare proposal for customer on technical/conversion to gas usage.</li> <li>7) Conduct safety awareness briefing to customer on gas usage.</li> </ol>
LEVEL 4	No Level	<b><u>Senior Technical Support Technician</u></b> <ol style="list-style-type: none"> <li>1) Assist in conducting customer's equipment investigation (gas equipment parameters including burner, regulator, valve etc).</li> <li>2) Assist in designing and proposing pipe routing and sizing, metering station size.</li> <li>3) Assist engineer for recommendation to customer on burner conversion, piping/equipment installation in compliance to regulation/standards in most effective manner.</li> <li>4) Attend technical inquiry and troubleshooting on gas supply.</li> <li>5) Assist Engineer to prepare proposal for customer on technical/conversion to gas usage.</li> </ol>

AREA	Sales	Technical Support
LEVEL 3	No Level	<u><b>Technical Support Technician</b></u> 1) Assist in conducting customer's equipment investigation (gas equipment parameters including burner, regulator, valve etc). 2) Assist in designing and proposing pipe routing and sizing, metering station size. 3) Assist engineer for recommendation to customer on burner conversion, piping/equipment installation in compliance to regulation/standards in most effective manner. 4) Attend technical inquiry and troubleshooting on gas supply. 5) Assist Engineer to prepare proposal for customer on technical/conversion to gas usage.
LEVEL 2	No Level	No Level
LEVEL 1	No Level	No Level

**DIVISION: D-35 ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY**

**GROUP: 353 - STEAM AND AIR CONDITIONING SUPPLY**

Table 4.96: List of Responsibilities for Group 353 Based on Table 4.43 and 4.44 (1 of 8)

AREA	Production, collection and distribution of steam and hot water for heating, power and other purposes - Sales and Marketing – Technical Support & Sales (Project)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Sales and Marketing – Technical Support and Sales (Product Maintenance)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Research and Development – Electrical
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	<p><b><u>Technical Support and Sales Manager</u></b></p> <ol style="list-style-type: none"> <li>1) Master technical features of products and services being sold.</li> <li>2) Use client relationship management software to track and analyse sales productivity.</li> <li>3) Evaluate and select sales talent based on company needs.</li> <li>4) Train and coach team to be great salespeople.</li> <li>5) Conduct product demonstrations using public speaking and sales skills.</li> </ol>	<p><b><u>Technical Support and Sales Manager</u></b></p> <ol style="list-style-type: none"> <li>1) Master technical features of products and services being sold.</li> <li>2) Use client relationship management software to track and analyse sales productivity.</li> <li>3) Evaluate and select sales talent based on company needs.</li> <li>4) Train and coach team to be great salespeople.</li> <li>5) Conduct product demonstrations using public speaking and sales skills.</li> </ol>	<p><b><u>Research and Development Manager</u></b></p> <ol style="list-style-type: none"> <li>1) Develop concepts, products and solutions by coordinating with Orthopaedics business units.</li> <li>2) Interpret customer expectations on to-be manufactured product.</li> <li>3) Determine and execute improved technologies used by suppliers, competitors and customers.</li> <li>4) Support Director to hire and develop R&amp;D personnel.</li> <li>5) Establish project goals and priorities by collaborating with Marketing and Operations.</li> </ol>



AREA	Production, collection and distribution of steam and hot water for heating, power and other purposes - Sales and Marketing – Technical Support & Sales (Project)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Sales and Marketing – Technical Support and Sales (Product Maintenance)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Research and Development – Electrical
			6) Transfer new technologies, products and manufacturing process into and out of company. 7) Research, design and evaluate materials, assemblies, processes and equipment. 8) Suggest training tools to enhance employee performance and skill development.
LEVEL 6	<b><u>Project Engineer</u></b> 1) Develop project objectives by reviewing project proposals and plans; conferring with management. 2) Determine project responsibilities by identifying project phases and elements; assigning personnel to phases. 3) Determine project schedule by studying project plan and specifications; calculating time requirements; sequencing project elements.	<b><u>Product Maintenance Engineer</u></b> 1) Develop project objectives by reviewing project proposals and plans; conferring with management. 2) Determine project responsibilities by identifying project phases and elements; assigning personnel to phases. 3) Determine project schedule by studying project plan and specifications; calculating time requirements; sequencing project elements.	<b><u>Research and Development Electrical Engineer</u></b> 1) Develop project objectives by reviewing project proposals and plans; conferring with management. 2) Determine project responsibilities by identifying project phases and elements; assigning personnel to phases. 3) Determine project schedule by studying project plan and specifications; calculating time requirements; sequencing project elements.

AREA	Production, collection and distribution of steam and hot water for heating, power and other purposes - Sales and Marketing – Technical Support & Sales (Project)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Sales and Marketing – Technical Support and Sales (Product Maintenance)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Research and Development – Electrical
	4) Maintain project schedule by monitoring project progress; coordinating activities; resolving problems. 5) Control project plan by reviewing design, specifications, and plan and schedule changes; recommending actions.	4) Maintain project schedule by monitoring project progress; coordinating activities; resolving problems. 5) Control project plan by reviewing design, specifications, and plan and schedule changes; recommending actions.	4) Maintain project schedule by monitoring project progress; coordinating activities; resolving problems. 5) Control project plan by reviewing design, specifications, and plan and schedule changes; recommending actions.
LEVEL 5	<b><u>Project Technical Assistant</u></b> 1) Support technical and engineering personnel with project support duties. 2) Compile technical reports. 3) Provide input to technical studies/research projects, technical reports, project planning, etc. 4) Produce accurate statistics, relevant figures, etc. 5) Undertake data analysis, identifies and investigates variations.	<b><u>Product Maintenance Technical Assistant</u></b> 1) Support technical and engineering personnel with project support duties. 2) Compile technical reports. 3) Provide input to technical studies/research projects, technical reports, project planning, etc. 4) Produce accurate statistics, relevant figures, etc. 5) Undertake data analysis, identifies and investigates variations.	<b><u>Electrical Technical Assistant</u></b> 1) Support technical and engineering personnel with project support duties. 2) Compile technical reports. 3) Provide input to technical studies/research projects, technical reports, project planning, etc. 4) Produce accurate statistics, relevant figures, etc. 5) Undertake data analysis, identifies and investigates variations.

AREA	Production, collection and distribution of steam and hot water for heating, power and other purposes - Sales and Marketing – Technical Support & Sales (Project)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Sales and Marketing – Technical Support and Sales (Product Maintenance)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Research and Development – Electrical
	6) Prepare technical drawings, datasheets and documents under the direction of engineers. 7) Develop and maintains technical databases and spreadsheets.	6) Prepare technical drawings, datasheets and documents under the direction of engineers. 7) Develop and maintains technical databases and spreadsheets.	6) Prepare technical drawings, datasheets and documents under the direction of engineers. 7) Develop and maintains technical databases and spreadsheets.
LEVEL 4	<b><u>Project Supervisor</u></b> 1) Manage and control the daily activities of Production Operators / Technicians. 2) Ensure all production operations are carried out in a safe manner. 3) Liaise with production support engineers regarding production issues. 4) Ensure the effective working of the Permit to Work system. 5) Solve problems caused by production outages. 6) Ensure that production losses are minimised. 7) Ensure the production plant, processes and equipment are functioning efficiently.	<b><u>Product Maintenance Supervisor</u></b> 1) Manage and control the daily activities of Maintenance Technicians. 2) Ensure all maintenance work is carried out in a safe manner. 3) Coordinate the planning and implementation of maintenance work ensuring adequate spares are maintained. 4) Liaise with maintenance support engineers regarding maintenance issues. 5) Ensure the effective working of the Permit to Work system. 6) Monitor equipment and systems to ensure that the required performance is maintained.	<b><u>Senior Electrical Technician</u></b> 1) Manage and control the daily activities of Production Operators / Technicians. 2) Ensure all production operations are carried out in a safe manner. 3) Liaise with production support engineers regarding production issues. 4) Ensure the effective working of the Permit to Work system. 5) Solve problems caused by production outages. 6) Ensure that production losses are minimised. 7) Ensure the production plant, processes and equipment are functioning efficiently.

AREA	Production, collection and distribution of steam and hot water for heating, power and other purposes - Sales and Marketing – Technical Support & Sales (Project)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Sales and Marketing – Technical Support and Sales (Product Maintenance)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Research and Development – Electrical
		7) Ensure the plant, processes and equipment are functioning efficiently	
LEVEL 3	<b><u>Project Technician</u></b> <ol style="list-style-type: none"> <li>1) Liaise with production support engineers regarding production issues.</li> <li>2) Ensure the effective working of the Permit to Work system.</li> <li>3) Solve problems caused by production outages.</li> <li>4) Ensure that production losses are minimised.</li> <li>5) Ensure the production plant, processes and equipment are functioning efficiently.</li> </ol>	<b><u>Product Maintenance Technician</u></b> <ol style="list-style-type: none"> <li>1) Liaise with maintenance support engineers regarding maintenance issues.</li> <li>2) Ensure the effective working of the Permit to Work system.</li> <li>3) Monitor equipment and systems to ensure that the required performance is maintained.</li> <li>4) Ensure the plant, processes and equipment are functioning efficiently.</li> </ol>	<b><u>Electrical Technician</u></b> <ol style="list-style-type: none"> <li>1) Liaise with production support engineers regarding production issues.</li> <li>2) Ensure the effective working of the Permit to Work system.</li> <li>3) Solve problems caused by production outages.</li> <li>4) Ensure that production losses are minimised.</li> <li>5) Ensure the production plant, processes and equipment are functioning efficiently.</li> </ol>
LEVEL 2	No Level	No Level	No Level
LEVEL 1	No Level	No Level	No Level

Table 4.97: List of Responsibilities for Group 353 based on Table 4.44 and 4.45 (2 of 8)

AREA	Production, collection and distribution of steam and hot water for heating, power and other purposes - Research & Development – Mechanical	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Hot Water (Operation)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Hot Water (Maintenance)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	<b><u>Research and Development Manager</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Create schedules and following up with workers to ensure that each phase of a project proceeds as planned.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Production Manager</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Create schedules and following up with workers to ensure that each phase of a project proceeds as planned.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Production Manager</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Create schedules and following up with workers to ensure that each phase of a project proceeds as planned.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>

AREA	Production, collection and distribution of steam and hot water for heating, power and other purposes - Research & Development – Mechanical	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Hot Water (Operation)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Hot Water (Maintenance)
LEVEL 6	<b><u>Research and Development Mechanical Engineer</u></b> <ol style="list-style-type: none"> <li>1) Enforcing strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> <li>5) Report to the board of directors or members.</li> <li>6) Provide financial reports.</li> <li>7) Prepare or approving budgets.</li> <li>8) Improve productivity levels.</li> </ol>	<b><u>Operation Engineer</u></b> <ol style="list-style-type: none"> <li>1) Enforcing strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> <li>5) Report to the board of directors or members.</li> <li>6) Provide financial reports.</li> <li>7) Prepare or approving budgets.</li> <li>8) Improve productivity levels.</li> </ol>	<b><u>Maintenance Engineer</u></b> <ol style="list-style-type: none"> <li>1) Enforcing strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> <li>5) Report to the board of directors or members.</li> <li>6) Provide financial reports.</li> <li>7) Prepare or approving budgets.</li> <li>8) Improve productivity levels.</li> </ol>
LEVEL 5	<b><u>Mechanical Technical Assistant</u></b> <ol style="list-style-type: none"> <li>1) Provide leadership.</li> <li>2) Oversight for the day-to-day operations.</li> <li>3) Involve in project management activities.</li> <li>4) Build strong relationship with client.</li> </ol>	<b><u>Operation Technical Assistant</u></b> <ol style="list-style-type: none"> <li>1) Provide leadership.</li> <li>2) Oversight for the day-to-day operations.</li> <li>3) Involve in project management activities.</li> <li>4) Build strong relationship with client.</li> </ol>	<b><u>Maintenance Technical Assistant</u></b> <ol style="list-style-type: none"> <li>1) Provide leadership.</li> <li>2) Oversight for the day-to-day operations.</li> <li>3) Involve in project management activities.</li> <li>4) Build strong relationship with client.</li> </ol>
LEVEL 4	<b><u>Senior Mechanical Technician</u></b> <ol style="list-style-type: none"> <li>1) Confirm project requirements.</li> <li>2) Arrange project requirements in programming sequence.</li> </ol>	<b><u>Senior Operation Technician</u></b> <ol style="list-style-type: none"> <li>1) Confirm project requirements.</li> <li>2) Arrange project requirements in programming sequence.</li> </ol>	<b><u>Maintenance Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Confirm project requirements.</li> <li>2) Arrange project requirements in programming sequence.</li> </ol>

AREA	Production, collection and distribution of steam and hot water for heating, power and other purposes - Research & Development – Mechanical	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Hot Water (Operation)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Hot Water (Maintenance)
	3) Encode project requirements by converting work flow information into computer language. 4) Confirm program operation by conducting tests. 5) Document operating instructions. 6) Document program development and revisions.	3) Encode project requirements by converting work flow information into computer language. 4) Confirm program operation by conducting tests. 5) Document operating instructions. 6) Document program development and revisions.	3) Encode project requirements by converting work flow information into computer language. 4) Confirm program operation by conducting tests. 5) Document operating instructions. 6) Document program development and revisions.
LEVEL 3	<u><b>Mechanical Technician</b></u> 1) Confirm project requirements. 2) Arrange project requirements in programming sequence. 3) Encode project requirements by converting work flow information into computer language. 4) Confirm program operation by conducting tests. 5) Document operating instructions. 6) Document program development and revisions.	<u><b>Operation Technician</b></u> 1) Confirm project requirements. 2) Arrange project requirements in programming sequence. 3) Encode project requirements by converting work flow information into computer language. 4) Confirm program operation by conducting tests. 5) Document operating instructions. 6) Document program development and revisions.	<u><b>Maintenance Technician</b></u> 1) Confirm project requirements. 2) Arrange project requirements in programming sequence. 3) Encode project requirements by converting work flow information into computer language. 4) Confirm program operation by conducting tests. 5) Document operating instructions. 6) Document program development and revisions.

<b>AREA</b>	<b>Production, collection and distribution of steam and hot water for heating, power and other purposes - Research &amp; Development – Mechanical</b>	<b>Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Hot Water (Operation)</b>	<b>Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Hot Water (Maintenance)</b>
LEVEL 2	No Level	No Level	No Level
LEVEL 1	No Level	No Level	No Level



Table 4.98: List of Responsibilities for Group 353 based on Table 4.45 (3 of 8)

AREA	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Gas/Biogas/Biomass (Operation)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Gas/Biogas/Biomass (Maintenance)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Health, Safety, Environment & Quality (Chemist)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	<p><b><u>Production Manager</u></b></p> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Create schedules and following up with workers to ensure that each phase of a project proceeds as planned.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<p><b><u>Production Manager</u></b></p> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Create schedules and following up with workers to ensure that each phase of a project proceeds as planned.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	Not Available

AREA	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Gas/Biogas/Biomass (Operation)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Gas/Biogas/Biomass (Maintenance)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Health, Safety, Environment & Quality (Chemist)
LEVEL 6	<b><u>Operation Engineer</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> <li>5) Report to the board of directors or members.</li> <li>6) Provide financial reports.</li> <li>7) Prepare or approving budgets.</li> <li>8) Improve productivity levels.</li> </ol>	<b><u>Maintenance Engineer</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> <li>5) Report to the board of directors or members.</li> <li>6) Provide financial reports.</li> <li>7) Prepare or approving budgets.</li> <li>8) Improve productivity levels.</li> </ol>	<b><u>Chemist</u></b> <ol style="list-style-type: none"> <li>1) Provide analysis.</li> <li>2) Oversight for the day-to-day operations.</li> <li>3) Involve project management activities.</li> <li>4) Project administration activities associated with a specific Market Sector of a Business Unit.</li> <li>5) Build strong relationship with client.</li> </ol>
LEVEL 5	<b><u>Operation Technical Assistant</u></b> <ol style="list-style-type: none"> <li>1) Assist Engineer.</li> <li>2) Confirm project requirements.</li> <li>3) Arrange project requirements in programming sequence.</li> <li>4) Encode project requirements by converting work flow information into computer language.</li> <li>5) Confirm program operation by conducting tests.</li> <li>6) Document operating instructions.</li> </ol>	<b><u>Maintenance Technical Assistant</u></b> <ol style="list-style-type: none"> <li>1) Assist Engineer.</li> <li>2) Confirm project requirements.</li> <li>3) Arrange project requirements in programming sequence.</li> <li>4) Encode project requirements by converting work flow information into computer language.</li> <li>5) Confirm program operation by conducting tests.</li> <li>6) Document operating instructions.</li> </ol>	<b><u>Senior Lab Technician</u></b> <ol style="list-style-type: none"> <li>1) Confirm analysis requirements.</li> <li>2) Arrange analysis requirements in programming sequence.</li> <li>3) Encode analysis requirements by converting work flow information into computer language.</li> <li>4) Confirm program operation by conducting tests.</li> <li>5) Document operating instructions.</li> </ol>

AREA	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Gas/Biogas/Biomass (Operation)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Gas/Biogas/Biomass (Maintenance)	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Health, Safety, Environment & Quality (Chemist)
	7) Document program development and revisions.	7) Document program development and revisions.	6) Document program development and revisions.
LEVEL 4	<b><u>Senior Operation Technician</u></b> <ol style="list-style-type: none"> <li>1) Confirm project requirements.</li> <li>2) Arrange project requirements in programming sequence.</li> <li>3) Encode project requirements by converting work flow information into computer language.</li> <li>4) Confirm program operation by conducting tests.</li> <li>5) Document operating instructions.</li> <li>6) Document program development and revisions.</li> </ol>	<b><u>Maintenance Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Confirm project requirements.</li> <li>2) Arrange project requirements in programming sequence.</li> <li>3) Encode project requirements by converting work flow information into computer language.</li> <li>4) Confirm program operation by conducting tests.</li> <li>5) Document operating instructions.</li> <li>6) Document program development and revisions.</li> </ol>	<b><u>Lab Technician</u></b> <ol style="list-style-type: none"> <li>1) Confirm analysis requirements.</li> <li>2) Arrange analysis requirements in programming sequence.</li> <li>3) Encode analysis requirements by converting work flow information into computer language.</li> <li>4) Confirm program operation by conducting tests.</li> <li>5) Document operating instructions.</li> <li>6) Document program development and revisions.</li> </ol>
LEVEL 3	<b><u>Operation Technician</u></b> <ol style="list-style-type: none"> <li>1) Confirm project requirements.</li> <li>2) Arrange project requirements in programming sequence.</li> </ol>	<b><u>Maintenance Technician</u></b> <ol style="list-style-type: none"> <li>1) Confirm project requirements.</li> <li>2) Arrange project requirements in programming sequence.</li> </ol>	No Level

<b>AREA</b>	<b>Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Gas/Biogas/Biomass (Operation)</b>	<b>Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Gas/Biogas/Biomass (Maintenance)</b>	<b>Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Health, Safety, Environment &amp; Quality (Chemist)</b>
	3) Encode project requirements by converting work flow information into computer language. 4) Confirm program operation by conducting tests. 5) Document operating instructions. 6) Document program development and revisions.	3) Encode project requirements by converting work flow information into computer language. 4) Confirm program operation by conducting tests. 5) Document operating instructions. 6) Document program development and revisions.	
<b>LEVEL 2</b>	No Level	No Level	No Level
<b>LEVEL 1</b>	No Level	No Level	No Level

Table 4.99: List of Responsibilities for Group 353 Based on Table 4.45 and 4.46 (4 of 8)

AREA	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Health, Safety, Environment and Quality (Safety)	Production and distribution of cooled air, chilled water for cooling purposes - Sales and Marketing – Technical Support and Sales (Project)	Production and distribution of cooled air, chilled water for cooling purposes - Sales and Marketing – Technical Support and Sales (Product Maintenance)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Not Available	<b><u>Technical Support and Sales Manager</u></b> 1) Master technical features of products and services being sold. 2) Use client relationship management software to track and analyse sales productivity. 3) Evaluate and select sales talent based on company needs. 4) Train and coach team to be great salespeople. 5) Conduct product demonstrations using public speaking and sales skills.	<b><u>Technical Support and Sales Manager</u></b> 1) Master technical features of products and services being sold. 2) Use client relationship management software to track and analyse sales productivity. 3) Evaluate and select sales talent based on company needs. 4) Train and coach team to be great salespeople. 5) Conduct product demonstrations using public speaking and sales skills.
LEVEL 6	<b><u>Safety Officer</u></b> 1) Develop project objectives by reviewing project proposals and plans; conferring with management.	<b><u>Project Engineer</u></b> 1) Develop project objectives by reviewing project proposals and plans; conferring with management.	<b><u>Product Maintenance Engineer</u></b> 1) Develop project objectives by reviewing project proposals and plans; conferring with management.

AREA	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Health, Safety, Environment and Quality (Safety)	Production and distribution of cooled air, chilled water for cooling purposes - Sales and Marketing – Technical Support and Sales (Project)	Production and distribution of cooled air, chilled water for cooling purposes - Sales and Marketing – Technical Support and Sales (Product Maintenance)
	2) Determine project responsibilities by identifying project phases and elements; assigning personnel to phases. 3) Determine project schedule by studying project plan and specifications; calculating time requirements; sequencing project elements. 4) Maintain project schedule by monitoring project progress; coordinating activities; resolving problems. 5) Control project plan by reviewing design, specifications, and plan and schedule changes; recommending actions.	2) Determine project responsibilities by identifying project phases and elements; assigning personnel to phases. 3) Determine project schedule by studying project plan and specifications; calculating time requirements; sequencing project elements. 4) Maintain project schedule by monitoring project progress; coordinating activities; resolving problems. 5) Control project plan by reviewing design, specifications, and plan and schedule changes; recommending actions.	2) Determine project responsibilities by identifying project phases and elements; assigning personnel to phases. 3) Determine project schedule by studying project plan and specifications; calculating time requirements; sequencing project elements. 4) Maintain project schedule by monitoring project progress; coordinating activities; resolving problems. 5) Control project plan by reviewing design, specifications, and plan and schedule changes; recommending actions.
LEVEL 5	Not Available	<u><b>Project Technical Assistant</b></u> 1) Support technical and engineering personnel with project support duties. 2) Compile technical reports. 3) Provide input to technical studies/research projects, technical reports, project planning, etc.	<u><b>Product Maintenance Technical Assistant</b></u> 1) Support technical and engineering personnel with project support duties. 2) Compile technical reports. 3) Provide input to technical studies/research projects, technical reports, project planning, etc.

AREA	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Health, Safety, Environment and Quality (Safety)	Production and distribution of cooled air, chilled water for cooling purposes - Sales and Marketing – Technical Support and Sales (Project)	Production and distribution of cooled air, chilled water for cooling purposes - Sales and Marketing – Technical Support and Sales (Product Maintenance)
		4) Produce accurate statistics, relevant figures, etc. 5) Undertake data analysis, identifies and investigates variations. 6) Prepare technical drawings, datasheets and documents under the direction of engineers. 7) Develop and maintains technical databases and spreadsheets.	4) Produce accurate statistics, relevant figures, etc. 5) Undertake data analysis, identifies and investigates variations. 6) Prepare technical drawings, datasheets and documents under the direction of engineers. 7) Develop and maintains technical databases and spreadsheets.
LEVEL 4	<u><b>Safety Supervisor</b></u> 1) Develop project objectives by reviewing project proposals and plans; conferring with management. 2) Determine project responsibilities by identifying project phases and elements; assigning personnel to phases. 3) Determine project schedule by studying project plan and specifications; calculating time requirements; sequencing project elements.	<u><b>Project Supervisor</b></u> 1) Manage and control the daily activities of Production Operators / Technicians. 2) Ensure all production operations are carried out in a safe manner. 3) Liaise with production support engineers regarding production issues. 4) Ensure the effective working of the Permit to Work system. 5) Solve problems caused by production outages.	<u><b>Product Maintenance Supervisor</b></u> 1) Manage and controls the daily activities of Maintenance Technicians. 2) Ensure all maintenance work is carried out in a safe manner. 3) Coordinate the planning and implementation of maintenance work ensuring adequate spares are maintained. 4) Liaise with maintenance support engineers regarding maintenance issues. 5) Ensure the effective working of the Permit to Work system.

AREA	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Health, Safety, Environment and Quality (Safety)	Production and distribution of cooled air, chilled water for cooling purposes - Sales and Marketing – Technical Support and Sales (Project)	Production and distribution of cooled air, chilled water for cooling purposes - Sales and Marketing – Technical Support and Sales (Product Maintenance)
	4) Maintain project schedule by monitoring project progress; coordinating activities; resolving problems. 5) Control project plan by reviewing design, specifications, and plan and schedule changes; recommending actions.	6) Ensure that production losses are minimised. 7) Ensure the production plant, processes and equipment are functioning efficiently.	6) Monitor equipment and systems to ensure that the required performance is maintained. 7) Ensure the plant, processes and equipment are functioning efficiently.
LEVEL 3	No Level	<b><u>Project Technician</u></b> 1) Liaise with production support engineers regarding production issues. 2) Ensure the effective working of the Permit to Work system. 3) Solve problems caused by production outages. 4) Ensure that production losses are minimised. 5) Ensure the production plant, processes and equipment are functioning efficiently.	<b><u>Product Maintenance Technician</u></b> 1) Liaise with maintenance support engineers regarding maintenance issues. 2) Ensure the effective working of the Permit to Work system. 3) Monitor equipment and systems to ensure that the required performance is maintained. 4) Ensure the plant, processes and equipment are functioning efficiently.
LEVEL 2	No Level	No Level	No Level
LEVEL 1	No Level	No Level	No Level





Table 4.100: List of Responsibilities for Group 353 based on Table 4.47 and 4.48 (5 of 8)

AREA	Production and distribution of cooled air, chilled water for cooling purposes - Research and Development – Electrical	Production and distribution of cooled air, chilled water for cooling purposes - Research and Development – Mechanical	Production and distribution of cooled air, chilled water for cooling purposes - Production – Hot Water (Operation)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	<b><u>Research and Development Manager</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Create schedules and following up with workers to ensure that each phase of a project proceeds as planned.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Research and Development Manager</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Create schedules and following up with workers to ensure that each phase of a project proceeds as planned.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Production Manager</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Create schedules and following up with workers to ensure that each phase of a project proceeds as planned.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>

AREA	Production and distribution of cooled air, chilled water for cooling purposes - Research and Development – Electrical	Production and distribution of cooled air, chilled water for cooling purposes - Research and Development – Mechanical	Production and distribution of cooled air, chilled water for cooling purposes - Production – Hot Water (Operation)
LEVEL 6	<u><b>Research and Development Electrical Engineer</b></u> <ol style="list-style-type: none"> <li>1) Enforce strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> <li>5) Report to the board of directors or members.</li> <li>6) Provide financial reports.</li> <li>7) Prepare or approving budgets.</li> <li>8) Improve productivity levels.</li> </ol>	<u><b>Research and Development Mechanical Engineer</b></u> <ol style="list-style-type: none"> <li>1) Enforce strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> <li>5) Report to the board of directors or members.</li> <li>6) Provide financial reports.</li> <li>7) Prepare or approving budgets.</li> <li>8) Improve productivity levels.</li> </ol>	<u><b>Operation Engineer</b></u> <ol style="list-style-type: none"> <li>1) Enforce strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> <li>5) Report to the board of directors or members.</li> <li>6) Provide financial reports.</li> <li>7) Prepare or approving budgets.</li> <li>8) Improve productivity levels.</li> </ol>
LEVEL 5	<u><b>Electrical Technical Assistant</b></u> <ol style="list-style-type: none"> <li>1) Design, maintain, implement, or improve electrical instruments, facilities, components, equipment products, or systems for industrial, commercial or domestic purposes.</li> <li>2) Perform a wide range of engineering tasks by operating computer-assisted design or engineering software and equipment.</li> </ol>	<u><b>Mechanical Technical Assistant</b></u> <ol style="list-style-type: none"> <li>1) Design, maintain, implement, or improve electrical instruments, facilities, components, equipment products, or systems for industrial, commercial or domestic purposes.</li> <li>2) Perform a wide range of engineering tasks by operating computer-assisted design or engineering software and equipment.</li> </ol>	<u><b>Operation Technical Assistant</b></u> <ol style="list-style-type: none"> <li>1) Operate Planning and Analysis.</li> <li>2) Improve Project Management.</li> <li>3) Operate Safety and Risk Management.</li> <li>4) Operate Resource Management.</li> </ol>

AREA	Production and distribution of cooled air, chilled water for cooling purposes - Research and Development – Electrical	Production and distribution of cooled air, chilled water for cooling purposes - Research and Development – Mechanical	Production and distribution of cooled air, chilled water for cooling purposes - Production – Hot Water (Operation)
	3) Plan and implement research methodology and procedures to apply principles of electrical theory to engineering projects. 4) Prepare specifications for purchase of materials and equipment. 5) Documentation.	3) Plan and implement research methodology and procedures to apply principles of electrical theory to engineering projects. 4) Prepare specifications for purchase of materials and equipment. 5) Documentation.	
LEVEL 4	<b><u>Senior Electrical Technician</u></b> 1) Operate Planning and Analysis. 2) Improve Project Management. 3) Operate Safety and Risk Management. 4) Operate Resource Management.	<b><u>Senior Mechanical Technician</u></b> 1) Liaise with production support engineers regarding production issues. 2) Ensures the effective working of the Permit to Work system. 3) Solves problems caused by production outages. 4) Ensures that production losses are minimised. 5) Ensures the production plant, processes and equipment are functioning efficiently.	<b><u>Senior Operation Technician</u></b> 1) Operate Planning and Analysis. 2) Improve Project Management. 3) Operate Safety and Risk Management. 4) Operate Resource Management.
LEVEL 3	<b><u>Electrical Technician</u></b> 1) Operate Control Room. 2) Operate monitoring and optimization. 3) Involve in machineries maintenance.	<b><u>Mechanical Technician</u></b> 1) Liaise with production support engineers regarding production issues.	<b><u>Operation Technician</u></b> 1) Operate Control Room. 2) Operate monitoring and optimization. 3) Involve in machineries maintenance.

<b>AREA</b>	<b>Production and distribution of cooled air, chilled water for cooling purposes - Research and Development – Electrical</b>	<b>Production and distribution of cooled air, chilled water for cooling purposes - Research and Development – Mechanical</b>	<b>Production and distribution of cooled air, chilled water for cooling purposes - Production – Hot Water (Operation)</b>
	4) Involve lab operation. 5) Administrative functions.	2) Ensures the effective working of the Permit to Work system. 3) Solves problems caused by production outages. 4) Ensures that production losses are minimised. 5) Ensures the production plant, processes and equipment are functioning efficiently.	4) Involve lab operation. 5) Administrative functions.
<b>LEVEL 2</b>	No Level	No Level	No Level
<b>LEVEL 1</b>	No Level	No Level	No Level

Table 4.101: List of Responsibilities for Group 353 Based on Table 4.48 (6 of 8)

AREA	Production and distribution of cooled air, chilled water for cooling purposes - Production – Hot Water (Maintenance)	Production and distribution of cooled air, chilled water for cooling purposes - Production – Gas/Biogas/Biomass (Operation)	Production and distribution of cooled air, chilled water for cooling purposes - Production – Gas/Biogas/Biomass (Maintenance)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	<b><u>Production Manager</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Create schedules and following up with workers to ensure that each phase of a project proceeds as planned.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Production Manager</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Create schedules and following up with workers to ensure that each phase of a project proceeds as planned.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decision.</li> </ol>	<b><u>Production Manager</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Create schedules and following up with workers to ensure that each phase of a project proceeds as planned.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>

AREA	Production and distribution of cooled air, chilled water for cooling purposes - Production – Hot Water (Maintenance)	Production and distribution of cooled air, chilled water for cooling purposes - Production – Gas/Biogas/Biomass (Operation)	Production and distribution of cooled air, chilled water for cooling purposes - Production – Gas/Biogas/Biomass (Maintenance)
LEVEL 6	<b><u>Maintenance Engineer</u></b> <ol style="list-style-type: none"> <li>1) Develop project objectives by reviewing project proposals and plans; conferring with management.</li> <li>2) Determine project responsibilities by identifying project phases and elements; assigning personnel to phases.</li> <li>3) Determine project schedule by studying project plan and specifications; calculating time requirements; sequencing project elements.</li> <li>4) Maintain project schedule by monitoring project progress; coordinating activities; resolving problems.</li> <li>5) Control project plan by reviewing design, specifications, and plan and schedule changes; recommending actions.</li> </ol>	<b><u>Operation Manager</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Create schedules and following up with workers to ensure that each phase of a project proceeds as planned.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions</li> </ol>	<b><u>Maintenance Engineer</u></b> <ol style="list-style-type: none"> <li>1) Develop project objectives by reviewing project proposals and plans; conferring with management.</li> <li>2) Determine project responsibilities by identifying project phases and elements; assigning personnel to phases.</li> <li>3) Determine project schedule by studying project plan and specifications; calculating time requirements; sequencing project elements.</li> <li>4) Maintain project schedule by monitoring project progress; coordinating activities; resolving problems.</li> <li>5) Control project plan by reviewing design, specifications, and plan and schedule changes; recommending actions.</li> </ol>
LEVEL 5	<b><u>Maintenance Technical Assistant</u></b> <ol style="list-style-type: none"> <li>1) Design, maintain, implement, or improve instruments, facilities, components, equipment products, or systems for</li> </ol>	<b><u>Operation Technical Assistant</u></b> <ol style="list-style-type: none"> <li>1) Performance Improvement.</li> <li>2) Operation Planning and Analysis.</li> <li>3) Improvement Project Management.</li> </ol>	<b><u>Maintenance Technical Assistant</u></b> <ol style="list-style-type: none"> <li>1) Design, maintain, implement, or improve instruments, facilities, components, equipment products, or systems for</li> </ol>

AREA	Production and distribution of cooled air, chilled water for cooling purposes - Production – Hot Water (Maintenance)	Production and distribution of cooled air, chilled water for cooling purposes - Production – Gas/Biogas/Biomass (Operation)	Production and distribution of cooled air, chilled water for cooling purposes - Production – Gas/Biogas/Biomass (Maintenance)
	<p>industrial, commercial or domestic purposes.</p> <p>2) Perform a wide range of engineering tasks by operating computer-assisted design or engineering software and equipment.</p> <p>3) Plan and implement research methodology and procedures to apply principles of energy theory to engineering projects.</p> <p>4) Prepare specifications for purchase of materials and equipment.</p> <p>5) Documentation.</p> <p>6)</p>	<p>4) Operation Safety and Risk Management.</p> <p>5) Operation Resource Management.</p>	<p>industrial, commercial or domestic purposes.</p> <p>2) Perform a wide range of engineering tasks by operating computer-assisted design or engineering software and equipment.</p> <p>3) Plan and implement research methodology and procedures to apply principles of energy theory to engineering projects.</p> <p>4) Prepare specifications for purchase of materials and equipment.</p> <p>5) Documentation.</p>
LEVEL 4	<p><b><u>Maintenance Supervisor</u></b></p> <p>1) Develop parameter and procedures.</p> <p>2) Safety, Health and Environment Compliance.</p> <p>3) Supervise Maintenance Management.</p> <p>4) Supervise Project Management.</p>	<p><b><u>Senior Operation Technician</u></b></p> <p>1) Develop parameter and procedures.</p> <p>2) Safety, Health and Environment Compliance.</p> <p>3) Maintenance Management.</p> <p>4) Project Management.</p> <p>5) Operation Administration.</p>	<p><b><u>Maintenance Supervisor</u></b></p> <p>1) Develop parameter and procedures.</p> <p>2) Safety, Health and Environment Compliance.</p> <p>3) Supervise Maintenance Management.</p> <p>4) Supervise Project Management.</p> <p>5) Operation Administration.</p>



AREA	Production and distribution of cooled air, chilled water for cooling purposes - Production – Hot Water (Maintenance)	Production and distribution of cooled air, chilled water for cooling purposes - Production – Gas/Biogas/Biomass (Operation)	Production and distribution of cooled air, chilled water for cooling purposes - Production – Gas/Biogas/Biomass (Maintenance)
LEVEL 3	<b><u>Maintenance Technician</u></b> 1) Operate Control Room Operation. 2) Involve in monitoring and optimization. 3) Machineries maintenance. 4) Lab operation. 5) Administrative functions.	<b><u>Operation Technician</u></b> 1) Operate Control Room Operation. 2) Involve in monitoring and optimization. 3) Machineries maintenance. 4) Lab operation. 5) Administrative functions.	<b><u>Maintenance Technician</u></b> 1) Operate Control Room Operation. 2) Involve in monitoring and optimization. 3) Machineries maintenance. 4) Lab operation. 5) Administrative functions.
LEVEL 2	No Level	No Level	No Level
LEVEL 1	No Level	No Level	No Level

Table 4.102: List of Responsibilities for Group 353 Based on Table 4.48 and 4.49 (7 of 8)

AREA	Production and distribution of cooled air, chilled water for cooling purposes - Production – Health, Safety, Environment and Quality (Chemist)	Production and distribution of cooled air, chilled water for cooling purposes - Production – Health, Safety, Environment and Quality (Safety)	Cold Room – Production
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	<p><b><u>Production Manager</u></b></p> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Create schedules and following up with workers to ensure that each phase of a project proceeds as planned.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>

AREA	Production and distribution of cooled air, chilled water for cooling purposes - Production – Health, Safety, Environment and Quality (Chemist)	Production and distribution of cooled air, chilled water for cooling purposes - Production – Health, Safety, Environment and Quality (Safety)	Cold Room – Production
LEVEL 6	<b><u>Chemist</u></b> <ol style="list-style-type: none"> <li>1) Provide analysis.</li> <li>2) Oversight for the day-to-day operations.</li> <li>3) Manage project activities.</li> <li>4) Admin project activities associated with a specific Market Sector of a Business Unit.</li> <li>5) Build strong relationship with client.</li> </ol>	<b><u>Safety Officer</u></b> <ol style="list-style-type: none"> <li>1) Develop project objectives by reviewing project proposals and plans; conferring with management.</li> <li>2) Determines project responsibilities by identifying project phases and elements; assigning personnel to phases.</li> <li>3) Determines project schedule by studying project plan and specifications; calculating time requirements; sequencing project elements.</li> <li>4) Maintains project schedule by monitoring project progress; coordinating activities; resolving problems.</li> <li>5) Controls project plan by reviewing design, specifications, and plan and schedule changes; recommending actions.</li> </ol>	<b><u>Production Engineer</u></b> <ol style="list-style-type: none"> <li>1) Enforce strategies.</li> <li>2) Develop project objectives.</li> <li>3) Oversee senior management staff.</li> <li>4) Coordinate with department heads.</li> <li>5) Report to the board of directors or members.</li> <li>6) Provide financial reports.</li> <li>7) Prepare or approving budgets.</li> <li>8) Improve productivity levels.</li> </ol>
LEVEL 5	<b><u>Senior Lab Technician</u></b> <ol style="list-style-type: none"> <li>1) Develop Parameter and Procedures.</li> <li>2) Performance Monitoring.</li> <li>3) Safety, Health and Environment (HSE) Compliance.</li> </ol>	Not Available	<b><u>Production Technical Assistant</u></b> <ol style="list-style-type: none"> <li>1) Develop Parameter and Procedures.</li> <li>2) Performance Monitoring.</li> <li>3) Safety, Health and Environment (HSE) Compliance.</li> </ol>

AREA	Production and distribution of cooled air, chilled water for cooling purposes - Production – Health, Safety, Environment and Quality (Chemist)	Production and distribution of cooled air, chilled water for cooling purposes - Production – Health, Safety, Environment and Quality (Safety)	Cold Room – Production
	4) Maintenance Management. 5) Project Management. 6) Operation Administration.		4) Maintenance Management. 5) Project Management. 6) Operation Administration.
LEVEL 4	<b><u>Lab Technician</u></b> 1) Control room operation. 2) Operate monitoring and optimization. 3) Machineries Maintenance. 4) Lab operation. 5) Administrative functions.	<b><u>Safety Supervisor</u></b> 1) Develop project objectives by reviewing project proposals and plans; conferring with management. 2) Determine project responsibilities by identifying project phases and elements; assigning personnel to phases 3) Determine project schedule by studying project plan and specifications; calculating time requirements; sequencing project elements. 4) Maintain project schedule by monitoring project progress; coordinating activities; resolving problems. 5) Control project plan by reviewing design, specifications, and plan and schedule changes; recommending actions.	<b><u>Senior Production Supervisor</u></b> 1) Develop project objectives by reviewing project proposals and plans; conferring with management. 2) Determine project responsibilities by identifying project phases and elements; assigning personnel to phases. 3) Determine project schedule by studying project plan and specifications; calculating time requirements; sequencing project elements. 4) Maintain project schedule by monitoring project progress; coordinating activities; resolving problems. 5) Control project plan by reviewing design, specifications, and plan and schedule changes; recommending actions.

AREA	Production and distribution of cooled air, chilled water for cooling purposes - Production – Health, Safety, Environment and Quality (Chemist)	Production and distribution of cooled air, chilled water for cooling purposes - Production – Health, Safety, Environment and Quality (Safety)	Cold Room – Production
LEVEL 3	No Level	No Level	<b><u>Production Supervisor</u></b> <ol style="list-style-type: none"> <li>1) Develop project objectives by reviewing project proposals and plans; conferring with management.</li> <li>2) Determine project responsibilities by identifying project phases and elements; assigning personnel to phases.</li> <li>3) Determine project schedule by studying project plan and specifications; calculating time requirements; sequencing project elements.</li> <li>4) Maintain project schedule by monitoring project progress; coordinating activities; resolving problems.</li> <li>5) Control project plan by reviewing design, specifications, and plan and schedule changes; recommending actions.</li> </ol>
LEVEL 2	No Level	No Level	<b><u>Production Operator</u></b> <ol style="list-style-type: none"> <li>1) Determine project schedule by studying project plan and specifications; calculating time requirements; sequencing project elements.</li> </ol>

AREA	Production and distribution of cooled air, chilled water for cooling purposes - Production – Health, Safety, Environment and Quality (Chemist)	Production and distribution of cooled air, chilled water for cooling purposes - Production – Health, Safety, Environment and Quality (Safety)	Cold Room – Production
			2) Maintain project schedule by monitoring project progress; coordinating activities; resolving problems. 3) Control project plan by reviewing design, specifications, and plan and schedule changes; recommending actions.
LEVEL 1	No Level	No Level	No Level

Table 4.103: List of Responsibilities for Group 353 Based on Table 4.49 (8 of 8)

AREA	Cold Room – Maintenance	Cold Room – Health, Safety, Environment and Quality (Chemist)	Cold Room – Health, Safety, Environment and Quality (Safety)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	<p><b><u>Production Manager</u></b></p> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Creating schedules and following up with workers to ensure that each phase of a project proceeds as planned</li> <li>3) Ongoing if it appears not proceeding according to schedule or scope of work.</li> <li>4) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>5) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>6) Build strong relationship with client.</li> <li>7) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	Not Available	Not Available

AREA	Cold Room – Maintenance	Cold Room – Health, Safety, Environment and Quality (Chemist)	Cold Room – Health, Safety, Environment and Quality (Safety)
LEVEL 6	<b><u>Maintenance Engineer</u></b> <ol style="list-style-type: none"> <li>1) Oversee workers in various departments who are assigned certain tasks to complete for a given project.</li> <li>2) Create schedules and following up with workers to ensure that each phase of a project proceeds as planned.</li> <li>3) Present proposal to client and stakeholder on financial standing and team readiness.</li> <li>4) Perform regular meeting with client, third parties, and project manager to report progress.</li> <li>5) Build strong relationship with client.</li> <li>6) Make strategic decision and provide necessary leadership and direction for teams of project managers to implement those decisions.</li> </ol>	<b><u>Chemist</u></b> <ol style="list-style-type: none"> <li>1) Provide analysis.</li> <li>2) Oversight for the day-to-day operations.</li> <li>3) Project management activities.</li> <li>4) Project administration activities associated with a specific Market Sector of a Business Unit.</li> <li>5) Build strong relationship with client.</li> </ol>	<b><u>Safety Officer</u></b> <ol style="list-style-type: none"> <li>1) Develop project objectives by reviewing project proposals and plans; conferring with management.</li> <li>2) Determine project responsibilities by identifying project phases and elements; assigning personnel to phases.</li> <li>3) Determine project schedule by studying project plan and specifications; calculating time requirements; sequencing project elements.</li> <li>4) Maintain project schedule by monitoring project progress; coordinating activities; resolving problems.</li> <li>5) Control project plan by reviewing design, specifications, and plan and schedule changes; recommending actions.</li> </ol>
LEVEL 5	<b><u>Maintenance Technical Assistant</u></b> <ol style="list-style-type: none"> <li>1) Develop parameter and procedures.</li> <li>2) Performance monitoring.</li> <li>3) Safety, Health and Environment (HSE) Compliance.</li> <li>4) Maintenance management.</li> <li>5) Project management.</li> </ol>	<b><u>Senior Lab Technician</u></b> <ol style="list-style-type: none"> <li>1) Develop parameter and procedures.</li> <li>2) Performance monitoring.</li> <li>3) Safety, Health and Environment (HSE) Compliance.</li> <li>4) Maintenance management.</li> <li>5) Project management.</li> </ol>	Not Available



AREA	Cold Room – Maintenance	Cold Room – Health, Safety, Environment and Quality (Chemist)	Cold Room – Health, Safety, Environment and Quality (Safety)
	6) Operation administration.	6) Operation administration.	
LEVEL 4	<b><u>Senior Maintenance Technician</u></b> 1) Develop parameter and procedures. 2) Performance monitoring. 3) Safety, Health and Environment (HSE) Compliance. 4) Maintenance management. 5) Project management. 6) Operation administration.	<b><u>Lab Technician</u></b> 1) Develop parameter and procedures. 2) Performance monitoring. 3) Safety, Health and Environment (HSE) Compliance. 4) Maintenance management. 5) Project management. 6) Operation administration.	<b><u>Safety Supervisor</u></b> 1) Develop project objectives by reviewing project proposals and plans; conferring with management. 2) Determine project responsibilities by identifying project phases and elements; assigning personnel to phases. 3) Determine project schedule by studying project plan and specifications; calculating time requirements; sequencing project elements. 4) Maintain project schedule by monitoring project progress; coordinating activities; resolving problems. 5) Control project plan by reviewing design, specifications, and plan and schedule changes; recommending actions.
LEVEL 3	<b><u>Maintenance Technician</u></b> 1) Control room operation. 2) Operate monitoring and optimization. 3) Machineries maintenance. 4) Lab operation.	No level	No level

AREA	Cold Room – Maintenance	Cold Room – Health, Safety, Environment and Quality (Chemist)	Cold Room – Health, Safety, Environment and Quality (Safety)
	5) Administrative functions.		
LEVEL 2	No Level	No level	No level
LEVEL 1	No Level	No level	No level

#### 4.6 Mapping OS VS Available NOSS

This section provides a mapping of Occupational Structure with 22 available NOSS. A total of 8 available NOSS are identified and mapping over with the Occupational Structure produced. Other 14 available NOSS listed in Table 4.104 are not to be mapped with job titles due to different specifications of the job titles and level. The result of the mapping is listed from Table 4.105 to Table 4.108.

Table 4.104: List of NOSS not Included in Division 35

NO	CORRESPONDING NOSS/LEVEL
1	D351-001-1:2016 Small Hydro (Run of River) Intake Operations and Maintenance L1
2	FTG1 Gas Fitter Class III L1
3	FTG2 Gas Fitter Class II L2
4	FTG3 Gas Fitter Class I L3
5	LE-041-2:2016 Anaerobic Digester Biogas Plant Operation and Maintenance L2
6	LE-041-3:2016 Anaerobic Digester Biogas Plant Supervision L3
7	LE-041-4:2016 Anaerobic Digester Biogas Plant Management L4
8	LE-041-5:2016 Anaerobic Digester Biogas Plant Management L5
9	D352-003-2:2018 Landfill Gas Plant (LFGP) Operation L2
10	D352-003-3:2018 Landfill Gas Plant (LFGP) Operation Control and Supervision L3
11	D352-003-4:2018 Landfill Gas Plant (LFGP) Operation Management L4
12	D352-003-5:2018 Landfill Gas Plant (LFGP) Management L5
13	D352-004-2:2019 Atmospheric Safety Operations L2
14	D352-004-3:2019 Atmospheric Testing Operations L3

Table 4.105: Group 351 Mapping OS VS Available NOSS (1 of 4)

<b>SECTION</b>	<b>(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY</b>				
<b>DIVISION</b>	<b>(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY</b>				
<b>GROUP</b>	<b>(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION</b>				
<b>AREA</b>	<b>Coal-Fired Power Plant – Operation</b>	<b>Coal-Fired Power Plant – Maintenance (Boiler)</b>	<b>Coal-Fired Power Plant – Maintenance (Turbine)</b>	<b>Coal-Fired Power Plant – Maintenance (Electrical)</b>	<b>Coal-Fired Power Plant – Maintenance (Instrument)</b>
<b>LEVEL 8</b>	Station Manager	Station Manager	Station Manager	Station Manager	Station Manager
<b>LEVEL 7</b>	Operation Manager	Mechanical Maintenance Manager	Mechanical Maintenance Manager	Electrical Maintenance Manager	Instrument Maintenance Manager
<b>LEVEL 6</b>	Operation Engineer	Boiler Engineer	Turbine Engineer	Electrical Engineer	Instrument Engineer
<b>LEVEL 5</b>	Shift Manager	Boiler Technical Assistant	Turbine Technical Assistant	Electrical Technical Assistant	Instrument Technical Assistant
<b>LEVEL 4</b>	Panel Controller	Boiler Foreman	Turbine Foreman	Electrical Charge man	Instrument Foreman
<b>LEVEL 3</b>	EE-214-3-2016	Boiler Technician	Turbine Technician	Electrical Technician	Instrument Technician
<b>LEVEL 2</b>	Junior Plant Operator	Junior Boiler Technician	Junior Turbine Technician	Junior Electrical Technician	No Level
<b>LEVEL 1</b>	No Level	No Level	No Level	No Level	No Level

Table 4.106: Group 351 Mapping OS VS Available NOSS (2 of 4)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY				
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION				
AREA	Combined-cycle Power Plant – Operation	Combined-cycle Power Plant – Maintenance (Boiler)	Combined-cycle Power Plant – Maintenance (Turbine)	Combined-cycle Power Plant – Maintenance (Electrical)	Combined-cycle Power Plant – Maintenance (Instrument)
LEVEL 8	Station Manager	Station Manager	Station Manager	Station Manager	Station Manager
LEVEL 7	Operation Manager	Mechanical Maintenance Manager	Mechanical Maintenance Manager	Electrical Maintenance Manager	Instrument Maintenance Manager
LEVEL 6	Operation Engineer	Boiler Engineer	Turbine Engineer	Electrical Engineer	Instrument Engineer
LEVEL 5	Shift Manager	Boiler Technical Assistant	Turbine Technical Assistant	Electrical Technical Assistant	Instrument Technical Assistant
LEVEL 4	Panel Controller	Boiler Foreman	Turbine Foreman	Electrical Charge man	Instrument Foreman
LEVEL 3	EE214-3-2016	Boiler Technician	Turbine Technician	Electrical Technician	Instrument Technician
LEVEL 2	Junior Plant Operator	Junior Boiler Technician	Junior Turbine Technician	Junior Electrical Technician	No Level
LEVEL 1	No Level	No Level	No Level	No Level	No Level

Table 4.107: Group 351 Mapping OS VS Available NOSS (3 of 4)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY			
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY			
GROUP	(351) ELECTRIC POWER GENERATION, TRANSMISSION AND DISTRIBUTION			
AREA	Hydro-electric Power Plant –Operation	Hydro-electric Power Plant – Maintenance (Turbine)	Hydro-electric Power Plant – Maintenance (Electrical)	Hydro-electric Power Plant – Maintenance (Instrument)
LEVEL 8	Station Manager	Station Manager	Station Manager	Station Manager
LEVEL 7	Operation Manager	Mechanical Maintenance Manager	Electrical Maintenance Manager	Instrument Maintenance Manager
LEVEL 6	Operation Engineer	Turbine Engineer	Electrical Engineer	Instrument Engineer
LEVEL 5	Shift Manager	Turbine Technical Assistant	Electrical Technical Assistant	Instrument Technical Assistant
LEVEL 4	Panel Controller	Turbine Foreman	Electrical Charge man	Instrument Foreman
LEVEL 3	D351-001-3:2016	D351-001-3:2016	D351-001-3:2016	D351-001-3:2016
LEVEL 2	D351-001-2:2016	D351-001-2:2016	D351-001-2:2016	D351-001-2:2016
LEVEL 1	No Level	No Level	No Level	No Level

Table 4.108: Group 352 Mapping OS VS Available NOSS (4 of 4)

SECTION	(D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY			
DIVISION	(35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY			
GROUP	(352) MANUFACTURE OF GAS; DISTRIBUTION OF GASEOUS FUELS THROUGH MAINS			
AREA	Planning	Engineering	Construction	Operation and Maintenance
LEVEL 8	Project General Manager	Project General Manager	Project General Manager	Operation and Maintenance General Manager
LEVEL 7	Planning Manager	Engineering Manager	Project Manager	Operation and Maintenance Manager
LEVEL 6	Planning Engineer	Design Engineer	Project Engineer	Operation and Maintenance Engineer
LEVEL 5	Planning Engineering Assistant	Design Engineering Assistant	Construction Engineering Assistant	D352-002-5:2017
LEVEL 4	Senior Planning Draughtsman	Senior Engineering Draughtsman	Construction Supervisor	D352-002-4:2017
LEVEL 3	Planning Draughtsman	Engineering Draughtsman	Construction Technician	D352-002-3:2017 / D352-001-3:2016
LEVEL 2	No Level	No Level	Junior Construction Technician	D352-002-2:2017
LEVEL 1	No Level	No Level	No Level	No Level

## **4.7 Occupational Description**

Occupational Description is a broad, general and written statement of a specific job based on the findings of a job analysis. It generally includes duties, purpose, responsibilities, scope and working conditions of a job along with the job title and the name or designation of the person to whom the employee reports. The Occupational Descriptions provided in Annex 6 are the job titles that have been identified as critical or hard-to-fill jobs as suggested by the Critical Skills Monitoring Committee (CSC) and industry representatives from focus group discussion.

## **4.8 Conclusion**

Based on the discussions with panel members during the development workshops and the survey findings, the OS of the industry is produced in this chapter. The OS provides information on the competency or job areas applicable to the industry and the skill levels of the different job titles according to the MOSQF Level Descriptors and the available career paths.

The jobs and skills in demand, and the specific steps proposed to be taken by various parties to bridge the skills gaps are elaborated so that the parties concerned could take the necessary steps to overcome such challenges.



## **CHAPTER 5: DISCUSSION, RECOMMENDATIONS AND CONCLUSION**

### **5.1 Discussion**

Based on the findings obtained throughout the Occupational Analysis on the industry, subsectors have been identified and confirmed to be in tandem with MSIC. The job titles identified require a holistic view in the development of standards, skills training as well as certification for recognition. If the competency requirements are documented in the NOSS format, the personnel in those areas will obtain a more structured skills training and will also enable personnel who are experienced and skilled to be certified.

This study provides a more comprehensive view of industry needs in terms of skills development and thus is able to assist in strategising the NOSS development for other critical job areas.

### **5.2 Recommendations**

It is hoped that the result of this Occupational Framework will be used as a reference to fulfil the future plans of developing skilled personnel and certifying Malaysians in this sector towards improving the quality of the local sector and thus spurring Malaysia's global competitiveness.

There are several options when addressing or mitigating workforce demand and supply. It may include establishing and maintaining partnerships with other agencies or departments, or educational institutions in order to increase external talent pools and also through the training of existing staff in line with new skills requirements.

Based on the above comments, specific recommendations are listed in the following:

- i) Continue and streamline efforts in NOSS development for areas under the sector in line with the findings of this analysis. This includes the development of NOSS for sectors and subsectors that are in demand and have not been developed.
- ii) Encourage apprenticeship training (National Dual Training System – NDTs) for the related subsectors and job areas.
- iii) Promote the certification of existing and experienced personnel in the sector through Recognition Prior Achievement (RPA) (Pengiktirafan Pencapaian Terdahulu – PPT).
- iv) Produce certified workers with high competency through the government or other agencies' drive to review or improve skills training curriculum and to increase the number of training centres.
- v) Provide effective training for workers with continuously learning or skills development programmes to enhance their competencies in the industry.
- vi) Provide collaboration between the industry and the Human Resource Development Fund (HRDF) to promote the certification programmes to meet jobs in demand by the industry.
- vii) Provide focus training areas for training providers in the development of competent workforce for the jobs in demand in the industry.

### **5.3 Conclusion**

The conclusion is based on the specified objectives of the Occupational Framework as elaborated in the following:

#### **Objective 1: To establish the OS for the electricity, gas, steam and air conditioning supply industry based on MSIC 2008**

As a result of the Occupational Framework conducted together with expert panel members from various organisations, 884 job titles have been identified. By planning and conducting the training and certification for this sector's personnel in the near future, it is hoped that there will be a steady flow of local skilled and certified workers.

**Objective 2: To examine the demand for competencies in the electricity, gas, steam and air conditioning supply industry**

Based on the survey findings, the survey respondents highlighted the following top 8 competencies in demand by industry in division 35:

- a) Technical knowledge and skills
- b) Diagnostic and troubleshooting skills
- c) Problem-solving skills
- d) Tools and machinery skills
- e) Communication skills
- f) Administrative and managerial skills
- g) Leadership skills
- h) General attitude towards work (commitment, resourcefulness, teamwork, etc.)

**Objective 3: To identify critical jobs in the electricity, gas, steam and air conditioning supply industry**

The respondents and focus group discussion members have reviewed the list and specified the critical job titles as listed in the table in Annex 5. Total critical job titles are 139 and they are categorised into 47 semi-skilled workers and 92 skilled workers.

**Objective 4: To identify jobs titles related to IR4.0 in the electricity, gas, steam and air conditioning supply industry.**

A total of 144 job titles which are relevant to IR4.0 for all the different job titles were obtained from the focus group discussion and related reports listed in Annex 4.

**Objective 5: To establish the OD for each job title based on the latest electricity, gas, steam and air conditioning supply industry's OS.**

The Occupational Description for all the different job titles were obtained from the focus group discussion and related reports listed in Annex 6. These Occupational Descriptions will also serve as a reference for job scopes and the required competencies for NOSS development. To ensure these critical occupations are addressed, several essential steps and actions should be undertaken by stakeholders from the industry, training or academic institutions as well as relevant accreditations authorities.

The broad direction for achieving this objective is as follows:

- a) Identify and assess the qualifications, National Occupation Skills Standard (NOSS) and competencies associated with the identified critical job titles.
- b) Align and evaluate the existing training curriculum and training packages.
- c) Coordination among stakeholders to:
  - i) Revise or develop the required curriculum and training packages.
  - ii) Expand or create new apprenticeship/internship/attachments schemes
  - iii) Joint technology and knowledge transfer between instructor/training entities with industry experts.

The results and data of this Occupational Framework research and development work shall be used as references and guidelines for future plans in developing skilled personnel and certifying Malaysians in the electricity, gas, steam and air conditioning supply sector towards enhancing the services provided by the sector players.

## REFERENCES

Awang Dzul Hashriq Darfizi. (2018). The Energy Sector and the Internet of Things:

Berita Harian Online 2019 retrieve from  
<https://www.bharian.com.my/berita/nasional/2019/04/549626/status-negara-maju-enam-tahun-lagi-pm>

Critical Skills Monitoring Committee (CSC). 2018. Critical Occupations List 2018/2018 Technical Report. CSC.

Department of Statistics Malaysia. (2008). Malaysia Standard Industrial Classification (MSIC). p. C-150.

Department of Statistics Malaysia. 2019. National Account Gross Domestic Product 2018.

Department of Statistics Malaysia. 2019. The Labour Force Survey Report 2018.

Department of Statistics Malaysia. 2019. Employment Statistics Second Quarter 2019.

Department of Statistic Malaysia (DOSM). (2018). Annual Economic Statistics.

Department of Occupational Safety and Health (DOSH) (2019, August 27) Retrieved from <http://www.dosh.gov.my/index.php/en/about-us/dosh-profile>.

DOSM. (2008). Malaysia Standard Industrial Classification 2008 (MSIC 2008) Version 1.0.

DSD. (2018). Daftar NOSS Mei 2018. Retrieved from <http://dsd.gov.my>.

Energy Commission (EC) (2019, August 27) Retrieved from <https://www.st.gov.my/details/aboutus/1>.

Gas District Cooling (M) Sdn Bhd (2019, September 16) Retrieved from <https://www.gdc.com.my/the-company/>.

Gas Malaysia Berhad (2019, September 16) Retrieved from <https://www.mmc.com.my/page46.html>.

INSTEP (2019, September) Retrieved from <https://www.instep.my/about%20us/Pages/Default.aspx>.

ILSAS TNB (2019, September 16) Retrieved from <https://www.tnbilsas.com.my/profile/>.

IKBN (2019, September 16) Retrieved from <http://kemahiran.kbs.gov.my/ms/ikbn-kuala-perlis-info-korporat/ikbn-kuala-perlis-info-ikbn.html>.

IKM (2019, September 16) Retrieved from <https://www.tvetmara.edu.my/index.php/informasi>.

International Labour Organization. 2018. Labour force (2019, 30 September) Retrieved from [https://www.ilo.org/global/statistics-and-databases/statistics-overview-and-topics/WCMS\\_470304/lang--en/index.htm](https://www.ilo.org/global/statistics-and-databases/statistics-overview-and-topics/WCMS_470304/lang--en/index.htm).

J. Scott Armstrong. (1977). Estimating Nonresponse Bias in Mail Surveys. *Journal of Marketing Research*, 14,396-402

Malakoff Corporation Berhad (2019, September 16) Retrieved from <https://www.malakoff.com.my/About-Us/Corporate-Background/>.

Malaysian Association Energy Services Companies (MAESCO) (2019, August 27) Retrieved from <http://www.maesco.org.my/about-us.html>.

Malaysian Investment Development Authority (MIDA). (2019, June 24). Retrieved from <http://www.mida.gov.my/home/about-mida/posts/>.

Malaysian Qualification Agency. 2018. *Malaysian Qualification Framework 2<sup>nd</sup> Edition*.

Ministry of Finance (MoF). (2019, June 25). Retrieved from <http://www.treasury.gov.my/?lang=en>.

Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC). (2019, August 27) Retrieved from <https://www.mestecc.gov.my/web/en/>.

Ministry of Human Resources (MOHR) (2019, June 25). Retrieved from <https://www.mohr.gov.my/index.php/en>.

Ministry of International Trade and Industry (MITI). (2019, June 29). Retrieved from [http://www.miti.gov.my/miti/resources/7. Machinery and Equipment Industry.pdf](http://www.miti.gov.my/miti/resources/7.Machinery%20and%20Equipment%20Industry.pdf).

MITI. Industry 4.0. FAQ. [www.miti.gov.my](http://www.miti.gov.my).

National Skills Development Act 652 (2019, September 2) retrieved from <http://www.agc.gov.my/agcportal/index.php>.

National Institute of Occupational Safety and Health (NIOSH) (2019, August 27) Retrieved from <http://www.niosh.com.my/corporate-info/niosh-policy/safety-and-health-policy>.

Penang Skills Development Centre. (2019, September 16). Retrieved from <https://www.psdcc.org.my>.

Petroleum Nasional Berhad (PETRONAS) (2019, August 27) Retrieved from <https://www.petronas.com/>.

Roscoe, J.T (1975) Fundamental Research Statistic for the Behavioral Science, International Series in Decision Process, 2<sup>nd</sup> Edition, Holt, Rinehart and Winston, Inc, New York.

SIRIM (2019, September 16) Retrieved from <http://www.sirim.my/about-us3.html>.

Sustainable Consumption and Enhanced Security through Industrial Revolution 4.0. Journal of International Studies. Vol 15, 99-117.

Tenaga Nasional Berhad (2019, August 27) Retrieved from <https://www.tnb.com.my/>.

The Electrical and Electronics Association of Malaysia (TEEAM). (2019, August 27) Retrieved from <https://www.teeam.org.my/about-teeam/>.

The Ministry of Domestic Trade and Consumer Affairs (KPDNHEP). (2019, June 25). Retrieved from <https://www.kpdnhep.gov.my/about-kpdnkk-2/?lang=en>.

Weisberg, H.F. & Bowen B.D. (1977). *An introduction to survey Research and Data Analysis*. San Francisco: W.H. Freeman.

Yehudi Baruch, Brooks C. Holtom. (2008). *Survey Response Rate Level and Trends in Organizational Research*. Human Relation.



## **ANNEX 1: MOSQF LEVEL DESCRIPTORS**

**MALAYSIAN OCCUPATIONAL SKILL QUALIFICATION FRAMEWORK  
(MOSQF) LEVEL DESCRIPTORS**

(Source: Department of Skill Development)

<b>LEVEL</b>	<b>LEVEL DESCRIPTORS</b>
8	Achievement at this level reflects the ability to develop original comprehend and extend a sub-area of knowledge or professional practice. It reflects the ability to address problematic situations that involve many complexes, interacting factors through initiating, designing and undertaking research, development or strategic activities. It involves the exercise of broad autonomy, judgement and leadership in sharing responsibility for the development of a field of work or knowledge, or for creating substantial professional or organisational change. It also reflects a critical comprehend of relevant theoretical and methodological perspectives and how they affect the field of knowledge or work.
7	Achievement at this level reflects the ability to reformulate and use relevant comprehend, methodologies and approaches to address problematic situations that involve many interacting factors. It includes taking responsibility for planning and developing courses of action that initiate or underpin substantial change or development as well as exercising broad autonomy and judgment. It also reflects an comprehend of theoretical and relevant methodological perspectives, and how they affect their sub-area of study or work.
6	Achievement at this level reflects the ability to refine and use relevant comprehend, methods and skills to address complex problems that have limited definition. It includes taking responsibility for planning and developing courses of action that are able to underpin substantial change or development, as well as exercising broad autonomy and judgment. It also reflects an comprehend of different perspectives, approaches of schools of thought and the theories that underpin them.
5	Achievement at this level reflects the ability to identify and use relevant comprehend, methods and skills to address broadly-defined, complex problems. It includes taking responsibility for planning and developing courses of action as well as exercising autonomy and judgment within broad

LEVEL	LEVEL DESCRIPTORS
	parameters. It also reflects comprehend of different perspectives, approaches or schools of thought and the reasoning behind them.
4	Achievement at this level reflects the ability to identify and use relevant comprehend, methods and skills to address problems that are well defined but complex and non-routine. It includes taking responsibility for overall courses of action as well as exercising autonomy and judgment within fairly broad parameters. It also reflects under-standing of different perspective or approaches within a sub-area of study or work.
3	Achievement at this level reflects the ability to identify and use relevant comprehend, methods and skills to complete task and address problems that are well defined with a measure of complexity. It includes taking responsibility for initiating and completing tasks and procedures as well as exercising autonomy and judgments within limited parameter. It also reflects awareness of different perspectives or approaches within a sub-area of study or work.
2	Achievement at this level reflects the ability to select and use relevant knowledge, ideas, skills and procedures to complete well-defined tasks and address straightforward problem. It includes taking responsibility for completing tasks and procedures, and exercising autonomy and judgment subject to overall direction or guidance.
1	Achievement at this level reflects the ability to use relevant knowledge, skills and procedures to complete routine and predictable tasks that include responsibility for completing tasks and procedures subject to direction or guidance.

## **ANNEX 2: LIST OF CONTRIBUTORS**

**LIST OF SECTOR PANEL MEMBERS FOR ELECTRICITY, GAS, STEAM  
AND AIR CONDITIONING SUPPLY ACTIVITIES FRAMEWORK  
DEVELOPMENT**

<b>NO</b>	<b>NAME</b>	<b>ORGANISATION</b>
1	Shaiful Reazal Romli	Armco Perting Hydro Sdn Bhd
2	Azizam Bin Abu Bakar	Johnson Control Hitachi
3	Saifulsam Bin Hassan	Sirim Berhad
4	Ts Roslina Muhammad	Malaysian Green Technology Corporation
5	Hailizam Yusof	Gas Malaysia Berhad
6	Mohd Firrus Tazri Tajudin	Gas Malaysia Berhad
7	Tajularifin Bin Ahmad	Panasonic Manufacturing Malaysia Berhad
8	Ir Mohamad Zakri Bin Abdul Talib	Kerian Hidro Sdn. Bhd.
9	Nur Hurriyatul Huda Binti Abdullah Sani	Department of Statistic Malaysia
10	YM Tengku Noradilah Binti Tengku Jalal	Department of Statistic Malaysia

**LIST OF OCCUPATIONAL FRAMEWORK TECHNICAL EVALUATION  
COMMITTEE**

<b>NO</b>	<b>NAME</b>	<b>ORGANIZATION</b>
1	Mohd Hilmi Bin Abdul Malik	UT&E (M) Sdn. Bhd.
2	Ir Hj Nor Ali ZA bin Omar	Suruhanjaya Tenaga
4	Akmalia Hanifah	Department of Statictics Malaysia

**LIST OF DEPARTMENTS OF SKILLS DEVELOPMENT (DSD) OFFICERS  
INVOLVED IN OCCUPATIONAL FRAMEWORK DEVELOPMENT**

NO	NAME	POSITION	ORGANISATION
1	Siti Fauziah Binti Jumadi	Principal Assistant Director	NOSS Division
2	Jefrizan Bin Abdul Rasid	Senior Assistant Director	NOSS Division
3	Noor Azura Binti Adnan	Senior Assistant Director	NOSS Division
4	Norlida Musa	Senior Assistant Director	Planning, Research and Development Division
5	Syazwani binti Azmi	Assistant Director	NOSS Division
6	Nazrul Hilmi bin Mohammad	Assistant Director	NOSS Division
9	Zainal bin Abdul Jalil	Senior Skill Development Officer	NOSS Division

**LIST OF WORKFORCE TEAM IN OCCUPATIONAL FRAMEWORK  
DEVELOPMENT**

NO	NAME	ORGANISATION	RESPONSIBILITY
1	Basharudin Bin Mohamed	Edusure Sdn Bhd	Project Director
2	Izzudin Faahmi Bin Basharuiddin	Edusure Sdn Bhd	Project Manager
3	Crist Norish Bin Lianu	Edusure Sdn Bhd	Curriculum Development Executive I
4	Ahmad Ramdan Bin M Yusof	Edusure Sdn Bhd	Curriculum Development Executive II
5	Ir Noor Hisham Yahaya	Edusure Sdn Bhd	Facilitator
6	Khairul Alia Binti Mohd Khairudin	Edusure Sdn Bhd	Proofreader Team
7	Dr Raemah Binti Abdullah Hashim	Edusure Sdn Bhd	Researcher Team
8	Dr Azahari Bin Jamaludin	Edusure Sdn Bhd	Researcher Team
9	Mohammed Aiman Bin Yusof	Edusure Sdn Bhd	Researcher Team

## **ANNEX 3: QUESTIONNAIRE**

## **Electricity, Gas, Steam and Air Conditioning Supply Industry Occupational Framework Survey**

The Department of Skills Development (DSD), Ministry of Human Resources is currently conducting an analysis on the Occupational Framework of the Industry. From this analysis, the industry framework, Occupational Structure, occupational job titles and job descriptions will be summarised for the use of government, private sector, investors, employers, employees, educators or any personnel involved either directly or indirectly with the industry.

The main objective of this research is to enhance skills training starting from the entry level position for any job in this industry based on input from the industry. It will also provide a reference competency for skills required by workers to perform as required in the industry.

This survey will be used as field data in order to conduct a comprehensive analysis of the industry's Occupational Framework. The target group for this survey is the organisation's representatives either from the Human Resources Department or personnel at management level.

We would like to extend our heartfelt gratitude for your cooperation in answering this survey. Please fill in, where necessary, in the forms provided. Do advise us if you wish to remain anonymous in your survey response. There will be further communications with survey respondents in order to verify our findings. The completed questionnaire can be emailed to:

**Mohammed Aiman Bin Yusof: [mohammed.aiman.yusof@gmail.com](mailto:mohammed.aiman.yusof@gmail.com)**

### **Survey Respondent Details**

Name	:
Position	:
Organisation	:
Date	:



Please answer the questions below in the space provided, additional pages may be added if necessary. There are 4 SECTIONS in this 7 PAGES survey.

**SECTION 1: COMPETENCY IN DEMAND**

- 1.1** Listed below are sets of skills related to personnel who are involved in the Electricity, Gas, Steam and Air Conditioning Supply Industry. Rate the level of demand to the set of skills by using the scale below:

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Not in Demand</b>	<b>Low in Demand</b>	<b>Mid in Demand</b>	<b>High in Demand</b>

<b>No</b>	<b>Competency</b>	<b>Electricity, gas, steam and air conditioning supply</b>
<b>1</b>	Technical knowledge and skills	
<b>2</b>	Communication skills	
<b>3</b>	Diagnostic and troubleshooting skills	
<b>4</b>	Problem-solving skills	
<b>5</b>	Administrative and managerial skills	
<b>6</b>	Tools and machinery skills	
<b>7</b>	Leadership skills	
<b>8</b>	General attitude towards work (commitment, resourcefulness, teamwork, etc.)	

- 1.2** Based on your observation, do you think the graduates / trainees / apprentices / current workers possess the skills required in the industry? If 'No' please respond to the following questions (Question 1.3 and 1.4).

☐ Yes

☐ No

**1.3** What is/are the reason/s for the skills gap? Tick (✓) where applicable, you may tick more than one.

☐ Education / training mismatch

☐ Incompetent trainer

☐ Major changes in traditional training and new skill requirements

☐ Attitude (e.g. lack of desire to work)

☐ Gap between technology and skills

☐ Lack of knowledge

☐ Lack of opportunities/support

☐ Lack of guidance for future career path

☐ Lack of incentives

☐ Others, please specify: .....

**1.4** What is/are the solution/s for the skills gap that would you recommend? Tick (✓) where applicable, you may tick more than one.

☐ Training / retraining

☐ Upgrade trainer qualification

☐ Review employment policy (e.g. enhance skilled workers' incentives)

☐ Review skills training curriculum

☐ Formal mentoring and/or coaching

☐ Upskilling / reskilling

☐ Continuous learning and training

☐ Career path development programme

☐ Increase salary and emoluments (bonus, increment, allowance or promotion)

☐ Acknowledgement and recognition

☐ Other, please specify: .....

## SECTION 2: JOBS IN DEMAND

**2.1** Listed below are job areas and descriptions of the categories of skills. Based on your observation, which job area is experiencing **shortage of manpower** in the Electricity, Gas, Steam and Air Conditioning Supply Industry?

Tick (✓) where applicable.

Category of Skills	Description
<b>Skilled Workers</b>	Managers, Executives, Specialists and Professionals
<b>Semi-Skilled Workers</b>	Support, Technicians, Administration and Machine Operators
<b>Low-skilled Workers</b>	General Workers

No.	Job Areas and Category of Skills	High in Demand	Mid in Demand	Low in Demand	Not in Demand
<b>1</b>	<b>Electric power generation, transmission and distribution</b>				
	a) Skilled Workers				
	b) Semi-skilled Workers				
	c) Low-skilled Workers				
<b>2</b>	<b>Manufacture of gas; distribution of gaseous fuels through mains</b>				
	a) Skilled Workers				
	b) Semi-skilled Workers				
	c) Low-skilled Workers				
<b>3</b>	<b>Steam and air conditioning supply</b>				
	a) Skilled Workers				
	b) Semi-skilled Workers				
	c) Low-skilled Workers				

### SECTION 3: EMERGING SKILLS

*(Note: Emerging Skills are skills that are predicted to be imperative to the industry in the near future based on recent development, trend or study)*

- 3.1** Do you think Industry Revolution 4.0 (Digitalisation) (IR4.0) would give an impact to the economic activities of the Electricity, Gas, Steam and Air Conditioning Supply Industry?

☐ Yes

☐ No

☐ Not sure

- 3.2** Listed below are the eleven (11) technology drivers/pillars of IR4.0. Which job area is likely to be affected by these 11 technology drivers/pillars of IR4.0?

Tick (✓) where applicable, you may tick more than one.

No	TECHNOLOGY DRIVERS / PILLARS	Electricity, Gas, Steam and Air Conditioning Supply Industry
1	<b>Autonomous Robot</b> - Coordinated and automated actions of robots to complete tasks intelligently, with minimal human input	
2	<b>Big Data Analytics</b> - Analysis of ever larger volumes of data. Circulation, collection and analysis of information is a necessity because it supports productivity growth based on a real-time decision-making process	
3	<b>Cloud</b> - Storing and accessing data and programmes over the Internet instead of your computer's hard drive	
4	<b>Industrial Internet of Things</b> - All machines and systems connected to the production plant (as well as other systems) must be able to collect, exchange and save these massive volumes of information, in a completely autonomous way and without the need of human intervention)	
5	<b>Additive Manufacturing</b> - Use in prototyping, design iteration and small-scale production and often described as "rapid prototyping" (produce the desired components faster, more flexibly and more precisely than ever before)	
6	<b>Horizontal and Vertical Integration</b> - Process of linking together different computing systems and software applications physically or functionally to act as a coordinated whole via Internet of Things (IoT)	
7	<b>Cybersecurity</b> - With the increased connectivity and use of standard communications protocols, the need to protect critical industrial systems and manufacturing lines from cybersecurity threats is increasing.	

<b>8</b>	<b>Simulation and Augmented Reality</b> <ul style="list-style-type: none"> <li>- Simulations will leverage real-time data to mirror the physical world in a virtual model, which can include machines, products and humans. This allows operators to test and optimise the machine settings for the next product in line in the virtual world before the physical changeover, thereby driving down machine setup times and increasing quality.</li> <li>- Augmented-reality-based systems support a variety of services such as selecting parts in a warehouse and sending repair instructions over mobile devices</li> <li>- Provide workers with real-time information to improve decision making and work procedures.</li> </ul>	
<b>9</b>	<b>System Integration</b> <ul style="list-style-type: none"> <li>- The process of linking together different computing systems and software applications via Internet of Things (IoT)</li> </ul>	
<b>10</b>	<b>Augmented Reality</b> <ul style="list-style-type: none"> <li>- Augmented-reality-based systems support workers with real-time information</li> </ul>	
<b>11</b>	<b>New Business Models</b> <ul style="list-style-type: none"> <li>- Business model is a combination of two functions - the process of value creation and the process of value capture. The process of value creation refers to the process of creating value for the target consumer. The process of value capture refers to converting market opportunities into performance outcomes for the firm, which then justifies value creation</li> </ul>	

#### SECTION 4: RELATED ISSUES

##### 4.1 What is/are the key issue/s related to the Electricity, Gas, Steam and Air Conditioning Supply Industry?

Please rate **ALL** the key issues by using the scale below.

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>

<b>No</b>	<b>KEY ISSUES</b>	<b>Scale</b>
<b>1</b>	Training activities are not available	

<b>2</b>	Lack of training opportunities	
<b>3</b>	Unattractive training benefits	
<b>4</b>	Insufficient skilled/competent manpower	
<b>5</b>	Underperformed manpower	
<b>6</b>	High dependency on foreign labour (Low-skilled and Semi-skilled levels)	
<b>7</b>	High turnover (low wages, lack of career path, unattractive staff benefits, etc.)	
<b>8</b>	Rapid technology changes	
<b>9</b>	Lack of job opportunities	
<b>10</b>	Lack of career exposure	

\*\*\*End of Questionnaire\*\*\*

## **ANNEX 4: LIST OF CRITICAL JOB TITLE**



### LIST OF CRITICAL JOB TITLES

No	Critical Job Title	Group	Area	Level	LS	SS	S
1.	Shift Manager	351	Coal-Fired Power Plant – Operation	5	X	X	√
2.	Panel Controller	351	Coal-Fired Power Plant – Operation	4	X	X	√
3.	Plant Operator	351	Coal-Fired Power Plant – Operation	3	X	√	X
4.	Boiler Maintenance Foreman	351	Coal-Fired Power Plant – Maintenance (Boiler)	4	X	X	√
5.	Boiler Maintenance Technician	351	Coal-Fired Power Plant – Maintenance (Boiler)	3	X	√	X
6.	Turbine Maintenance Foreman	351	Coal-Fired Power Plant – Maintenance (Turbine)	4	X	X	√
7.	Turbine Maintenance Technician	351	Coal-Fired Power Plant – Maintenance (Turbine)	3	X	√	X
8.	Electrical Charge man	351	Coal-Fired Power Plant – Maintenance (Electrical)	4	X	X	√
9.	Electrical Technician	351	Coal-Fired Power Plant – Maintenance (Electrical)	3	X	√	X
10.	Instrument Technical Assistant	351	Coal-Fired Power Plant – Maintenance (Instrument)	5	X	X	√
11.	Instrument Foreman	351	Coal-Fired Power Plant – Maintenance (Instrument)	4	X	X	√
12.	Instrument Technician	351	Coal-Fired Power Plant – Maintenance (Instrument)	3	X	√	X
13.	Lab Analyst	351	Coal-fired Power Plant – Support Services (Chemist)	5	X	X	√
14.	Assistant Lab Analyst	351	Coal-fired Power Plant – Support Services (Chemist)	4	X	X	√

No	Critical Job Title	Group	Area	Level	LS	SS	S
15.	Sampling Operator	351	Coal-fired Power Plant – Support Services (Chemist)	3	X	√	X
16.	Shift Manager	351	Combined-cycle Power Plant – Operation	5	X	X	√
17.	Panel Controller	351	Combined-cycle Power Plant – Operation	4	X	X	√
18.	Plant Operator	351	Combined-cycle Power Plant – Operation	3	X	√	X
19.	Boiler Maintenance Foreman	351	Combined-cycle Power Plant – Maintenance (Boiler)	4	X	X	√
20.	Boiler Maintenance Technician	351	Combined-cycle Power Plant – Maintenance (Boiler)	3	X	√	X
21.	Turbine Maintenance Foreman	351	Combined-cycle Power Plant – Maintenance (Turbine)	4	X	X	√
22.	Turbine Maintenance Technician	351	Combined-cycle Power Plant – Maintenance (Turbine)	3	X	√	X
23.	Electrical Chargeman	351	Combined-cycle Power Plant – Maintenance (Electrical)	4	X	X	√
24.	Electrical Technician	351	Combined-cycle Power Plant – Maintenance (Electrical)	3	X	√	X
25.	Instrument Technical Assistant	351	Combined-cycle Power Plant – Maintenance (Instrument)	5	X	X	√
26.	Instrument Foreman	351	Combined-cycle Power Plant –	4	X	X	√

No	Critical Job Title	Group	Area	Level	LS	SS	S
			Maintenance (Instrument)				
27.	Instrument Technician	351	Combined-cycle Power Plant – Maintenance (Instrument)	3	X	√	X
28.	Lab Analyst	351	Combined-cycle Power – Support Services (Chemist)	5	X	X	√
29.	Assistant Lab Analyst	351	Combined-cycle Power – Support Services (Chemist)	4	X	X	√
30.	Sampling Operator	351	Combined-cycle Power – Support Services (Chemist)	3	X	√	X
31.	Shift Manager	351	Hydro-electric Power Plant –Operation	5	X	X	√
32.	Panel Controller	351	Hydro-electric Power Plant –Operation	4	X	X	√
33.	Plant Operator	351	Hydro-electric Power Plant –Operation	3	X	√	X
34.	Turbine Maintenance Foreman	351	Hydro-electric Power Plant – Maintenance (Turbine)	4	X	X	√
35.	Turbine Maintenance Technician	351	Hydro-electric Power Plant – Maintenance (Turbine)	3	X	√	X
36.	Electrical Chargeman	351	Hydro-electric Power Plant – Maintenance (Electrical)	4	X	X	√
37.	Electrical Technician	351	Hydro-electric Power Plant – Maintenance (Electrical)	3	X	√	X
38.	Instrument Technical Assistant	351	Hydro-electric Power Plant – Maintenance (Instrument)	5	X	X	√
39.	Instrument Foreman	351	Hydro-electric Power Plant – Maintenance (Instrument)	4	X	X	√

No	Critical Job Title	Group	Area	Level	LS	SS	S
40.	Instrument Technician	351	Hydro-electric Power Plant – Maintenance (Instrument)	3	X	√	X
41.	Lab Analyst	351	Hydro-electric Power Plant – Support Services (Chemist)	5	X	X	√
42.	Assistant Lab Analyst	351	Hydro-electric Power Plant – Support Services (Chemist)	4	X	X	√
43.	Sampling Operator	351	Hydro-electric Power Plant – Support Services (Chemist)	3	X	√	X
44.	Design Executive	351	Solar Power Plant – Project (Engineering)	5	X	X	√
45.	Design Supervisor	351	Solar Power Plant – Project (Engineering)	4	X	X	√
46.	Operation Executive	351	Solar Power Plant – Operation	5	X	X	√
47.	Panel Controller	351	Solar Power Plant – Operation	4	X	X	√
48.	Plant Operator	351	Solar Power Plant – Operation	3	X	√	X
49.	Operation Executive	351	Bio-mass Power Plant – Operation	5	X	X	√
50.	Panel Controller	351	Bio-mass Power Plant – Operation	4	X	X	√
51.	Plant Operator	351	Bio-mass Power Plant – Operation	3	X	√	X
52.	Mechanical Maintenance Supervisor	351	Bio-mass Power Plant – Maintenance (Mechanical)	4	X	X	√
53.	Mechanical Maintenance Technician	351	Bio-mass Power Plant – Maintenance (Mechanical)	3	X	√	X
54.	Electrical and Instrument Maintenance Supervisor	351	Bio-mass Power Plant – Maintenance (Electrical and Instrument)	4	X	X	√
55.	Electrical and Instrument	351	Bio-mass Power Plant – Maintenance	3	X	√	X

No	Critical Job Title	Group	Area	Level	LS	SS	S
	Maintenance Technician		(Electrical and Instrument)				
56.	Lab Analyst	351	Bio-mass Power Plant – Support Services (Chemist)	5	X	X	√
57.	Assistant Lab Analyst	351	Bio-mass Power Plant – Support Services (Chemist)	4	X	X	√
58.	Sampling Operator	351	Bio-mass Power Plant – Support Services (Chemist)	3	X	√	X
59.	Operation Executive	351	Bio-gas Power Plant – Operation	5	X	X	√
60.	Panel Controller	351	Bio-gas Power Plant – Operation	4	X	X	√
61.	Plant Operator	351	Bio-gas Power Plant – Operation	3	X	√	X
62.	Mechanical Maintenance Supervisor	351	Bio-gas Power Plant – Maintenance (Mechanical)	4	X	X	√
63.	Mechanical Maintenance Technician	351	Bio-gas Power Plant – Maintenance (Mechanical)	3	X	√	X
64.	Electrical and Instrument Maintenance Supervisor	351	Bio-gas Power Plant – Maintenance (Electrical and Instrument)	4	X	X	√
65.	Electrical and Instrument Technician	351	Bio-gas Power Plant – Maintenance (Electrical and Instrument)	3	X	√	X
66.	Lab Analyst	351	Bio-gas Power Plant – Support Services (Chemist)	5	X	X	√
67.	Assistant Lab Analyst	351	Bio-gas Power Plant – Support Services (Chemist)	4	X	X	√
68.	Sampling Operator	351	Bio-gas Power Plant – Support Services (Chemist)	3	X	√	X

No	Critical Job Title	Group	Area	Level	LS	SS	S
69.	Civil Construction Executive	351	Overhead Transmission – Project (Civil Construction)	5	X	X	√
70.	Civil Construction Supervisor	351	Overhead Transmission – Project (Civil Construction)	4	X	X	√
71.	Civil Construction Technician	351	Overhead Transmission – Project (Civil Construction)	3	X	√	X
72.	Mechanical Construction Executive	351	Overhead Transmission – Project (Mechanical Construction)	5	X	X	√
73.	Mechanical Construction Supervisor	351	Overhead Transmission – Project (Mechanical Construction)	4	X	X	√
74.	Mechanical Construction Technician	351	Overhead Transmission – Project (Mechanical Construction)	3	X	√	X
75.	Instrument and Control Construction Executive	351	Overhead Transmission – Project (Instrument and Control Construction)	5	X	X	√
76.	Instrument and Control Construction Supervisor	351	Overhead Transmission – Project (Instrument and Control Construction)	4	X	X	√
77.	Instrument and Control Construction Technician	351	Overhead Transmission – Project (Instrument and Control Construction)	3	X	√	X

No	Critical Job Title	Group	Area	Level	LS	SS	S
78.	Shift Manager	351	Overhead Transmission – Operation	5	X	X	√
79.	Panel Controller	351	Overhead Transmission – Operation	4	X	X	√
80.	Plant Operator	351	Overhead Transmission – Operation	3	X	√	X
81.	Civil and Mechanical Technical Assistant	351	Overhead Transmission – Maintenance (Civil and Mechanical)	5	X	X	√
82.	Civil and Mechanical Foreman	351	Overhead Transmission – Maintenance (Civil and Mechanical)	4	X	X	√
83.	Civil and Mechanical Technician	351	Overhead Transmission – Maintenance (Civil and Mechanical)	3	X	√	X
84.	Instrument and Control Technical Assistant	351	Overhead Transmission – Maintenance (Instrument and Control)	5	X	X	√
85.	Instrument and Control Supervisor	351	Overhead Transmission – Maintenance (Instrument and Control)	4	X	X	√
86.	Instrument and Control Technician	351	Overhead Transmission – Maintenance (Instrument and Control)	3	X	√	X
87.	Shift Manager	351	Distribution: Sub-station – Operation	5	X	X	√
88.	Panel Controller	351	Distribution: Sub-station – Operation	4	X	X	√

No	Critical Job Title	Group	Area	Level	LS	SS	S
89.	Instrument Technical Assistant	351	Distribution: Sub-station – Maintenance (Instrument)	5	X	X	√
90.	Instrument Foreman	351	Distribution: Sub-station – Maintenance (Instrument)	4	X	X	√
91.	Instrument Technician	351	Distribution: Sub-station – Maintenance (Instrument)	3	X	√	X
92.	Electrical Wireman	351	33kV/11kV Transmission – Maintenance (Electrical)	4	X	X	√
93.	Electrical Technician	351	33kV/11kV Transmission – Maintenance (Electrical)	3	X	√	X
94.	Electrical Wireman	351	415V/240V Transmission – Maintenance (Electrical)	4	X	X	√
95.	Electrical Technician	351	415V/240V Transmission – Maintenance (Electrical)	3	X	√	X
96.	Senior Process Field Operator	352	Operation – Process (Field Operator)	5	X	X	√
97.	Process Field Operator	352	Operation – Process (Field Operator)	4	X	X	√
98.	Senior Electrical Maintenance Technician	352	Maintenance – Electrical	5	X	X	√
99.	Electrical Maintenance Technician	352	Maintenance – Electrical	4	X	X	√
100.	Senior Mechanical Static	352	Maintenance – Mechanical (Static)	5	X	X	√



No	Critical Job Title	Group	Area	Level	LS	SS	S
	Maintenance Technician						
101.	Mechanical Static Maintenance Technician	352	Maintenance – Mechanical (Static)	4	X	X	√
102.	Senior Mechanical Rotating Maintenance Technician	352	Maintenance – Mechanical (Rotating)	5	X	X	√
103.	Mechanical Rotating Maintenance Technician	352	Maintenance – Mechanical (Rotating)	4	X	X	√
104.	Senior Mechanical Turbine Maintenance Technician	352	Maintenance – Mechanical (Turbine)	5	X	X	√
105.	Mechanical Turbine Maintenance Technician	352	Maintenance – Mechanical (Turbine)	4	X	X	√
106.	Senior Instrument Maintenance Technician	352	Maintenance – Instrument	5	X	X	√
107.	Instrument Maintenance Technician	352	Maintenance – Instrument	4	X	X	√
108.	Construction Engineering Assistant	352	Construction	5	X	X	√
109.	Construction Supervisor	352	Construction	4	X	X	√
110.	Operation and Maintenance Technician	352	Operation and Maintenance	3	X	√	X

No	Critical Job Title	Group	Area	Level	LS	SS	S
111.	Junior Operation and Maintenance Technician	352	Operation and Maintenance	2	X	√	X
112.	Operation Services Technician	352	Gas System Management – Operation Services	3	X	√	X
113.	Junior Operation Services Technician	352	Gas System Management – Operation Services	2	X	√	X
114.	Technical Support Engineering Assistant	352	Technical Support	5	X	X	√
115.	Senior Technical Support Technician	352	Technical Support	4	X	X	√
116.	Technical Support Technician	352	Technical Support	3	X	√	X
117.	Electrical Technical Assistant	353	Production, collection and distribution of steam and hot water for heating, power and other purposes - Research and Development – Electrical	5	X	X	√
118.	Senior Electrical Technician	353	Production, collection and distribution of steam and hot water for heating, power and other purposes - Research and Development – Electrical	4	X	X	√
119.	Electrical Technician	353	Production, collection and distribution of	3	X	√	X

No	Critical Job Title	Group	Area	Level	LS	SS	S
			steam and hot water for heating, power and other purposes - Research and Development – Electrical				
120.	Mechanical Technical Assistant	353	Production, collection and distribution of steam and hot water for heating, power and other purposes - Research and Development – Mechanical	5	X	X	√
121.	Senior Mechanical Technician	353	Production, collection and distribution of steam and hot water for heating, power and other purposes - Research and Development – Mechanical	4	X	X	√
122.	Mechanical Technician	353	Production, collection and distribution of steam and hot water for heating, power and other purposes - Research and Development – Mechanical	3	X	√	X
123.	Maintenance Technical Assistant	353	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Hot Water (Maintenance)	5	X	X	√
124.	Maintenance Supervisor	353	Production, collection and distribution of steam and hot water	4	X	X	√

No	Critical Job Title	Group	Area	Level	LS	SS	S
			for heating, power and other purposes - Production – Hot Water (Maintenance)				
125.	Maintenance Technician	353	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Hot Water (Maintenance)	3	X	√	X
126.	Maintenance Technical Assistant	353	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Gas/Biogas/Biomass (Maintenance)	5	X	X	√
127.	Maintenance Supervisor	353	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Gas/Biogas/Biomass (Maintenance)	4	X	X	√
128.	Maintenance Technician	353	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Gas/Biogas/Biomass (Maintenance)	3	X	√	X
129.	Electrical Technical Assistant	353	Production and distribution of cooled air, chilled water for cooling purposes - Research and	5	X	X	√

No	Critical Job Title	Group	Area	Level	LS	SS	S
			Development – Electrical				
130.	Mechanical Technical Assistant	353	Production and distribution of cooled air, chilled water for cooling purposes – Research and Development – Mechanical	5	X	X	√
131.	Operation Technical Assistant	353	Production and distribution of cooled air, chilled water for cooling purposes - Production – Gas/Biogas/Biomass (Operation)	5	X	X	√
132.	Senior Operation Technician	353	Production and distribution of cooled air, chilled water for cooling purposes - Production – Gas/Biogas/Biomass (Operation)	4	X	X	√
133.	Operation Technician	353	Production and distribution of cooled air, chilled water for cooling purposes - Production – Gas/Biogas/Biomass (Operation)	3	X	√	X
134.	Maintenance Technical Assistant	353	Production and distribution of cooled air, chilled water for cooling purposes - Production – Gas/Biogas/Biomass (Maintenance)	5	X	X	√
135.	Maintenance Supervisor	353	Production and distribution of cooled air, chilled water for	4	X	X	√

No	Critical Job Title	Group	Area	Level	LS	SS	S
			cooling purposes - Production – Gas/Biogas/Biomass (Maintenance)				
136.	Maintenance Technician	353	Production and distribution of cooled air, chilled water for cooling purposes - Production – Gas/Biogas/Biomass (Maintenance)	3	X	√	X
137.	Maintenance Technical Assistant	353	Cold Room – Maintenance	5	X	X	√
138.	Senior Maintenance Technician	353	Cold Room – Maintenance	4	X	X	√
139.	Maintenance Technician	353	Cold Room – Maintenance	3	X	√	X
Total					0	47	92

LS – Low-skilled workers

SS – Semi-skilled workers

S – Skilled workers

**LIST OF CRITICAL JOB VS OS VS E-MASCO VS COL**

<b>No</b>	<b>Critical Job Title</b>	<b>OS</b>	<b>E MASCO</b>	<b>COL</b>
1.	Shift Manager	√	X	X
2.	Panel Controller	√	X	X
3.	Plant Operator	√	√	√
4.	Boiler Foreman	√	X	X
5.	Boiler Technician	√	X	X
6.	Turbine Foreman	√	X	X
7.	Turbine Technician	√	X	X
8.	Electrical Technical Assistant	√	X	X
9.	Electrical Chargeman	√	X	X
10.	Electrical Technician	√	√	√
11.	Instrument Technical Assistant	√	X	X
12.	Instrument Foreman	√	X	X
13.	Instrument Technician	√	√	√
14.	Lab Analyst	√	X	X
15.	Assistant Lab analyst	√	X	X
16.	Sampling Operator	√	X	X
17.	Operation Executive	√	√	√
18.	Mechanical Supervisor	√	X	X
19.	Mechanical Technician	√	√	√
20.	Electrical and Instrument Supervisor	√	√	√
21.	Electrical and Instrument Technician	√	X	X
22.	Civil Construction Executive	√	X	X
23.	Mechanical Construction Executive	√	X	X
24.	Instrument and Control Construction Executive	√	X	X
25.	Instrument and Control Construction Supervisor	√	X	X
26.	Instrument and Control Construction Technician	√	X	X

No	Critical Job Title	OS	E MASCO	COL
27.	Civil and Mechanical Technical Assistant	√	X	X
28.	Civil and Mechanical Foreman	√	X	X
29.	Civil and Mechanical Technician	√	X	X
30.	Instrument and Control Technical Assistant	√	X	X
31.	Instrument and Control Supervisor	√	X	X
32.	Instrument and Control Technician	√	X	X
33.	Electrical Wireman	√	X	X
34.	Senior Electrical Maintenance Technician	√	X	X
35.	Senior Mechanical Static Technician	√	X	X
36.	Mechanical Static Technician	√	X	X
37.	Senior Mechanical Rotating Technician	√	X	X
38.	Mechanical Rotating Technician	√	X	X
39.	Senior Mechanical Turbine Technician	√	X	X
40.	Mechanical Turbine Technician	√	X	X
41.	Senior Instrument Maintenance Technician	√	X	X
42.	Instrument Maintenance Technician	√	X	X
43.	Construction Engineering Assistant	√	X	X
44.	Construction Supervisor	√	√	√
45.	Operation and Maintenance Technician	√	√	√
46.	Junior Operation and Maintenance Technician	√	X	X
47.	Operation Services Technician	√	X	X
48.	Junior Operation Services Technician	√	X	X
49.	Technical Support Engineering Assistant	√	X	X
50.	Senior Technical Support Technician	√	X	X
51.	Technical Support Technician	√	X	X



No	Critical Job Title	OS	E MASCO	COL
52.	Product Maintenance Technical Assistant	√	√	√
53.	Product Maintenance Technician	√	X	X
54.	Mechanical Technical Assistant	√	X	X
55.	Senior Mechanical Technician	√	X	X
56.	Maintenance Technician	√	√	√
57.	Maintenance Technical Assistant	√	√	√
58.	Maintenance Supervisor	√	√	√
59.	Operation Technical Assistant	√	X	X
60.	Senior Operation Technician	√	X	X
61.	Operation Technician	√	X	X

## **ANNEX 5: LIST OF JOB TITLE RELATED TO IR4.0**

**LIST OF JOB TITLE RELATED TO IR4.0**

<b>No</b>	<b>Job Title</b>	<b>Group</b>	<b>Area</b>	<b>Level</b>	<b>LS</b>	<b>SS</b>	<b>S</b>
1.	Station Manager	351	Coal-Fired Power Plant – Operation	8	X	X	√
2.	Operation Manager	351	Coal-Fired Power Plant – Operation	7	X	X	√
3.	Operation Engineer	351	Coal-Fired Power Plant – Operation	6	X	X	√
4.	Shift Manager	351	Coal-Fired Power Plant – Operation	5	X	X	√
5.	Panel Controller	351	Coal-Fired Power Plant – Operation	4	X	X	√
6.	Plant Operator	351	Coal-Fired Power Plant – Operation	3	X	√	X
7.	Station Manager	351	Coal-Fired Power Plant – Maintenance (Boiler)	8	X	X	√
8.	Mechanical Maintenance Manager	351	Coal-Fired Power Plant – Maintenance (Boiler)	7	X	X	√
9.	Boiler Engineer	351	Coal-Fired Power Plant – Maintenance (Boiler)	6	X	X	√
10.	Boiler Technical Assistant	351	Coal-Fired Power Plant – Maintenance (Boiler)	5	X	X	√
11.	Station Manager	351	Coal-Fired Power Plant – Maintenance (Turbine)	8	X	X	√
12.	Mechanical Maintenance Manager	351	Coal-Fired Power Plant – Maintenance (Turbine)	7	X	X	√
13.	Turbine Engineer	351	Coal-Fired Power Plant – Maintenance (Turbine)	6	X	X	√
14.	Turbine Technical Assistant	351	Coal-fired Power Plant – Support Services (Turbine)	5	X	X	√
15.	Station Manager	351	Coal-Fired Power Plant – Maintenance (Electrical)	8	X	X	√
16.	Electrical Maintenance Manager	351	Coal-fired Power Plant – Maintenance (Electrical)	7	X	X	√
17.	Electrical Engineer	351	Coal-fired Power Plant – Maintenance (Electrical)	6	X	X	√

No	Job Title	Group	Area	Level	LS	SS	S
18.	Electrical Technical Assistant	351	Coal-fired Power Plant – Maintenance (Electrical)	5	X	X	√
19.	Station Manager	351	Coal-Fired Power Plant – Maintenance (Instrument)	8	X	X	√
20.	Instrument Maintenance Manager	351	Coal-fired Power Plant – Maintenance (Instrument)	7	X	X	√
21.	Instrument Engineer	351	Coal-fired Power Plant – Maintenance (Instrument)	6	X	X	√
22.	Instrument Technical Assistant	351	Coal-fired Power Plant – Maintenance (Instrument)	5	X	X	√
23.	Station Manager	351	Coal-fired Power Plant – Support Services (Health, Safety and Environment)	8	X	X	√
24.	Station Manager	351	Coal-fired Power Plant – Support Services (Chemist)	8	X	X	√
25.	Station Manager	351	Combined-cycle Power Plant – Operation	8	X	X	√
26.	Operation Manager	351	Combined-cycle Power Plant – Operation	7	X	X	√
27.	Operation Engineer	351	Combined-cycle Power Plant – Operation	6	X	X	√
28.	Shift Manager	351	Combined-cycle Power Plant – Operation	5	X	X	√
29.	Panel Controller	351	Combined-cycle Power Plant – Operation	4	X	X	√
30.	Plant Operator	351	Combined-cycle Power Plant – Operation	3	X	√	
31.	Station Manager	351	Combined-cycle Power – Maintenance (Boiler)	8	X	X	√
32.	Mechanical Maintenance Manager	351	Combined-cycle Power – Maintenance (Boiler)	7	X	X	√
33.	Boiler Engineer	351	Combined-cycle Power – Maintenance (Boiler)	6	X	X	√
34.	Boiler Technical Assistant	351	Combined-cycle Power – Maintenance (Boiler)	5	X	X	√

No	Job Title	Group	Area	Level	LS	SS	S
35.	Station Manager	351	Combined-cycle Power – Maintenance (Turbine)	8	X	X	√
36.	Mechanical Maintenance Manager	351	Combined-cycle Power – Maintenance (Turbine)	7	X	X	√
37.	Turbine Engineer	351	Combined-cycle Power – Maintenance (Turbine)	6	X	X	√
38.	Turbine Technical Assistant	351	Combined-cycle Power – Maintenance (Turbine)	5	X	X	√
39.	Station Manager	351	Combined-cycle Power – Maintenance (Electrical)	8	X	X	√
40.	Electrical Maintenance Manager	351	Combined-cycle Power – Maintenance (Electrical)	7	X	X	√
41.	Electrical Engineer	351	Combined-cycle Power – Maintenance (Electrical)	6	X	X	√
42.	Electrical Technical Assistant	351	Combined-cycle Power – Maintenance (Electrical)	5	X	X	√
43.	Station Manager	351	Combined-cycle Power – Maintenance (Instrument)	8	X	X	√
44.	Electrical Maintenance Manager	351	Combined-cycle Power – Maintenance (Instrument)	7	X	X	√
45.	Instrument Engineer	351	Combined-cycle Power – Maintenance (Instrument)	6	X	X	√
46.	Instrument Technical Assistant	351	Combined-cycle Power – Maintenance (Instrument)	5	X	X	√
47.	Station Manager	351	Combined-cycle Power Plant – Support Services (Health, Safety and Environment)	8	X	X	√
48.	Station Manager	351	Combined-cycle Power Plant – Support Services (Chemist)	8	X	X	√
49.	Station Manager	351	Hydro-electric Power Plant – Operation	8	X	X	√
50.	Operation Manager	351	Hydro-electric Power Plant – Operation	7	X	X	√

No	Job Title	Group	Area	Level	LS	SS	S
51.	Operation Engineer	351	Hydro-electric Power Plant – Operation	6	X	X	√
52.	Shift Manager	351	Hydro-electric Power Plant – Operation	5	X	X	√
53.	Panel Controller	351	Hydro-electric Power Plant – Operation	4	X	X	√
54.	Plant Operator	351	Hydro-electric Power Plant – Operation	3	X	√	X
55.	Station Manager	351	Hydro-electric Power Plant – Maintenance (Turbine)	8	X	X	√
56.	Mechanical Maintenance Manager	351	Hydro-electric Power Plant – Maintenance (Turbine)	7	X	X	√
57.	Turbine Engineer	351	Hydro-electric Power Plant – Maintenance (Turbine)	6	X	X	√
58.	Turbine Technical Assistant	351	Hydro-electric Power Plant – Maintenance (Turbine)	5	X	X	√
59.	Station Manager	351	Hydro-electric Power Plant – Maintenance (Electrical)	8	X	X	√
60.	Electrical Maintenance Manager	351	Hydro-electric Power Plant – Maintenance (Electrical)	7	X	X	√
61.	Electrical Engineer	351	Hydro-electric Power Plant – Maintenance (Electrical)	6	X	X	√
62.	Electrical Technical Assistant	351	Hydro-electric Power Plant – Maintenance (Electrical)	5	X	X	√
63.	Station Manager	351	Hydro-electric Power Plant – Maintenance (Instrument)	8	X	X	√
64.	Instrument Maintenance Manager	351	Hydro-electric Power Plant – Maintenance (Instrument)	7	X	X	√
65.	Instrument Engineer	351	Hydro-electric Power Plant – Maintenance (Instrument)	6	X	X	√

No	Job Title	Group	Area	Level	LS	SS	S
66.	Instrument Technical Assistant	351	Hydro-electric Power Plant – Maintenance (Instrument)	5	X	X	√
67.	Station Manager	351	Hydro-electric Power Plant – Support Services (Health, Safety and Environment)	8	X	X	√
68.	Station Manager	351	Hydro-electric Power Plant – Support Services (Chemist)	8	X	X	√
69.	Plant Manager	351	Solar Power Plant - Operation	7	X	X	√
70.	Operation Engineer	351	Solar Power Plant - Operation	6	X	X	√
71.	Operation Executive	351	Solar Power Plant - Operation	5	X	X	√
72.	Panel Controller	351	Solar Power Plant - Operation	4	X	X	√
73.	Plant Operator	351	Solar Power Plant - Operation	3	X	√	
74.	Plant Manager	351	Solar Power Plant – Maintenance (Mechanical)	7	X	X	√
75.	Mechanical Engineer	351	Solar Power Plant – Maintenance (Mechanical)	6	X	X	√
76.	Mechanical Technical Assistant	351	Solar Power Plant – Maintenance (Mechanical)	5	X	X	√
77.	Plant Manager	351	Solar Power Plant – Maintenance (Electrical & Instrument)	7	X	X	√
78.	Electrical Engineer	351	Solar Power Plant – Maintenance (Electrical & Instrument)	6	X	X	√
79.	Electrical and Instrument Technical	351	Solar Power Plant – Maintenance (Electrical & Instrument)	5	X	X	√
80.	Plant Manager	351	Bio-mass Power Plant – Operation	7	X	X	√

No	Job Title	Group	Area	Level	LS	SS	S
81.	Operation Engineer	351	Bio-mass Power Plant – Operation	6	X	X	√
82.	Operation Executive	351	Bio-mass Power Plant – Operation	5	X	X	√
83.	Panel Controller	351	Bio-mass Power Plant – Operation	4	X	X	√
84.	Plant Operator	351	Bio-mass Power Plant – Operation	3	X	√	
85.	Plant Manager	351	Bio-mass Power Plant – Maintenance (Mechanical)	7	X	X	√
86.	Mechanical Engineer	351	Bio-mass Power Plant – Maintenance (Mechanical)	6	X	X	√
87.	Mechanical Technical Assistant	351	Bio-mass Power Plant – Maintenance (Mechanical)	5	X	X	√
88.	Mechanical Supervisor	351	Bio-mass Power Plant – Maintenance (Mechanical)	4	X	X	√
89.	Plant Manager	351	Bio-mass Power Plant – Maintenance (Electrical and Instrument)	7	X	X	√
90.	Electrical Engineer	351	Bio-mass Power Plant – Maintenance (Electrical and Instrument)	6	X	X	√
91.	Electrical and Instrument Technical Assistant	351	Bio-mass Power Plant – Maintenance (Electrical and Instrument)	5	X	X	√
92.	Electrical and Instrument Supervisor	351	Bio-mass Power Plant – Maintenance (Electrical and Instrument)	4	X	X	√
93.	Plant Manager	351	Bio-mass Power Plant – Support Services (Chemist)	7	X	X	√
94.	Plant Manager	351	Bio-gas Power Plant – Operation	7	X	X	√
95.	Operation Engineer	351	Bio-gas Power Plant – Operation	6	X	X	√



No	Job Title	Group	Area	Level	LS	SS	S
96.	Operation Executive	351	Bio-gas Power Plant – Operation	5	X	X	√
97.	Panel Controller	351	Bio-gas Power Plant – Operation	4	X	X	√
98.	Plant Manager	351	Bio-gas Power Plant – Maintenance (Mechanical)	7	X	X	√
99.	Mechanical Engineer	351	Bio-gas Power Plant – Maintenance (Mechanical)	6	X	X	√
100.	Mechanical Technical Assistant	351	Bio-gas Power Plant – Maintenance (Mechanical)	5	X	X	√
101.	Mechanical Supervisor	351	Bio-gas Power Plant – Maintenance (Mechanical)	4	X	X	√
102.	Plant Manager	351	Bio-gas Power Plant – Maintenance (Electrical & Instrument)	7	X	X	√
103.	Electrical Engineer	351	Bio-gas Power Plant – Maintenance (Electrical & Instrument)	6	X	X	√
104.	Electrical and Instrument Technical Assistant	351	Bio-gas Power Plant – Maintenance (Electrical & Instrument)	5	X	X	√
105.	Electrical and Instrument Supervisor	351	Bio-gas Power Plant – Maintenance (Electrical & Instrument)	4	X	X	√
106.	Plant Manager	351	Bio-gas Power Plant – Support Services (Chemist)	7	X	X	√
107.	Plant Manager	351	Geo-thermal Power Plant – Operation	7	X	X	√
108.	Operation Engineer	351	Geo-thermal Power Plant – Operation	6	X	X	√
109.	Operation Executive	351	Geo-thermal Power Plant – Operation	5	X	X	√
110.	Panel Controller	351	Geo-thermal Power Plant – Operation	4	X	X	√

No	Job Title	Group	Area	Level	LS	SS	S
111.	Plant Operator	351	Geo-thermal Power Plant – Operation	3	X	√	X
112.	Plant Manager	351	Geo-thermal Power Plant – Maintenance (Mechanical)	7	X	X	√
113.	Mechanical Engineer	351	Geo-thermal Power Plant – Maintenance (Mechanical)	6	X	X	√
114.	Mechanical Technical Assistant	351	Geo-thermal Power Plant – Maintenance (Mechanical)	5	X	X	√
115.	Plant Manager	351	Geo-thermal Power Plant – Maintenance (Electrical and Instrument)	7	X	X	√
116.	Electrical Engineer	351	Geo-thermal Power Plant – Maintenance (Electrical and Instrument)	6	X	X	√
117.	Electrical and Instrument Technical Assistant	351	Geo-thermal Power Plant – Maintenance (Electrical and Instrument)	5	X	X	√
118.	Plant Manager	351	Geo-thermal Power Plant – Support Services (Chemist)	7	X	X	√
119.	Shift Manager	351	Overhead Transmission – Operation	5	X	X	√
120.	Panel Controller	351	Overhead Transmission – Operation	4	X	X	√
121.	Plant Operator	351	Overhead Transmission – Operation	3	X	√	X
122.	Shift Manager	351	Sub-marine Transmission – Operation	5	X	X	√
123.	Panel Controller	351	Sub-marine Transmission – Operation	4	X	X	√
124.	Plant Operator	351	Sub-marine Transmission – Operation	3	X	√	X
125.	Shift Manager	351	Distribution: Sub-station – Operation	5	X	X	√
126.	Panel Controller	351	Distribution: Sub-station – Operation	4	X	X	√

No	Job Title	Group	Area	Level	LS	SS	S
127.	Senior Process Field Operator	352	Operation – Process (Field Operator)	5	X	X	√
128.	Process Field Operator	352	Operation – Process (Field Operator)	4	X	X	√
129.	Senior Process Panel Operator	352	Operation – Process (Panel Operator)	5	X	X	√
130.	Process Panel Operator	352	Operation – Process (Panel Operator)	4	X	X	√
131.	Senior Utilities Field Operator	352	Operation – Utilities	5	X	X	√
132.	Utilities Field Operator	352	Operation – Utilities	4	X	X	√
133.	Operation Control Engineering Assistant	352	Gas System Management – Operation Control	5	X	X	√
134.	Operation Control Supervisor	352	Gas System Management – Operation Control	4	X	X	√
135.	Operation Services Engineering Assistant	352	Gas System Management – Operation Services	5	X	X	√
136.	Operation Services Supervisor	352	Gas System Management – Operation Services	4	X	X	√
137.	Operation Technical Assistant	353	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Hot Water (Operation)	5	X	X	√
138.	Senior Operation Technician	353	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Hot Water (Operation)	4	X	X	√
139.	Operation Technical Assistant	353	Production, collection and distribution of steam and hot water for heating,	5	X	X	√

No	Job Title	Group	Area	Level	LS	SS	S
			power and other purposes - Production – Gas/Biogas/Biomass (Operation)				
140.	Senior Operation Technician	353	Production, collection and distribution of steam and hot water for heating, power and other purposes - Production – Gas/Biogas/Biomass (Operation)	4	X	X	√
141.	Operation Technical Assistant	353	Production and distribution of cooled air, chilled water for cooling purposes - Production – Hot Water (Operation)	5	X	X	√
142.	Senior Operation Technician	353	Production and distribution of cooled air, chilled water for cooling purposes - Production – Hot Water (Operation)	4	X	X	√
143.	Operation Technical Assistant	353	Production and distribution of cooled air, chilled water for cooling purposes - Production – Gas/Biogas/Biomass (Operation)	5	X	X	√
144.	Senior Operation Technician	353	Production and distribution of cooled air, chilled water for cooling purposes - Production – Gas/Biogas/Biomass (Operation)	4	X	X	√
TOTAL					0	8	136

LS – Low-skilled workers

SS – Semi-skilled workers

S – Skilled workers

## **ANNEX 6: OCCUPATIONAL DESCRIPTIONS (OD)**

**SECTION : (D) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING  
SUPPLY INDUSTRY**  
**DIVISION : (35) ELECTRICITY, GAS, STEAM AND AIR CONDITIONING  
SUPPLY INDUSTRY**

**MSIC GROUP : 351**  
**AREA : Coal-Fired Power Plant – Operation**  
**JOB TITLE : Shift Manager**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Shift Manager is responsible for the operations of cold-fired power plant during an assigned shift. He also responsible to issue Permit to Work (PTW) and control of maintenance works. Throughout his shift duty, he needs to check plant availability for reporting to system operator (NLDC), investigate production restriction and carry out system troubleshooting.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Coal-fired power plant process schematic diagram

### **Skills:**

- Manage cold-fired power plant operation.
- Organise high voltage switching.
- Approve Job Safety Analysis (JSA).
- Issue Permit to Work (PTW).
- Carry out coal-fired power plant system troubleshooting.
- Prepare Shift Report.
- Communicate instruction to staffs.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Coal-Fired Power Plant – Operation**  
**JOB TITLE : Panel Controller**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Panel Controller is responsible to operate coal-fired power plant control panel. He is to carry out plant start-up and shutdown operation. He is also to carry out equipment troubleshooting. He is to monitor Permit to Work (PTW) issued by the Shift Manager and coordinate the maintenance works.

### **Knowledge:**

- Cold-fired power plant operation process.
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Operate coal-fired power plant control panel.
- Monitor compliance to Job Safety Analysis (JSA) and Permit to Work (PTW).
- Carry out coal-fired power plant equipment troubleshooting.
- Prepare Shift Handover Log.

### **Attributes (Attitude/Safety/Environmental)**

- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle - 3R concept.



**MSIC GROUP : 351**  
**AREA : Coal-Fired Power Plant – Operation**  
**JOB TITLE : Plant Operator**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Plant Operator is responsible to carry out coal-fired power plant machinery operation, to check and report equipment abnormal operation. He is also responsible to isolate/normalise equipment/system for maintenance works and execute periodic testing of equipment.

### **Knowledge:**

- Cold-fired power equipment operation.
- Safe work practices and equipment isolation/normalisation procedures.
- Permit to Work (PTW) system.

### **Skills:**

- Operate coal-fired power plant equipment.
- Carry out equipment/system isolation/normalisation for maintenance works.
- Carry out periodic equipment testing and report status.
- Check Permit to Work (PTW) compliance.
- Record plant operational readings and parameters.

### **Attributes (Attitude/Safety/Environmental)**

- Adherence to requirements and specifications towards safe, quality and timeliness deliverables.
- Take proactive action on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle - 3R concept.

**MSIC GROUP : 351**  
**AREA : Coal-Fired Power Plant – Maintenance (Boiler)**  
**JOB TITLE : Boiler Maintenance Foreman**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Boiler Maintenance Foreman is responsible to supervise technicians and contractor's works in carrying-out coal-fired power plant boiler and its auxiliary's maintenance works. He is also to perform basic troubleshooting on boiler and its auxiliary's equipment. Under his care, he is to monitor boiler maintenance technicians in the implementation of station work policies; HSE and Quality Policies.

### **Knowledge:**

- Cold-fired power plant maintenance of boiler and its auxiliaries.
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Carry out maintenance of coal-fired power plant boiler and its auxiliaries.
- Monitor compliance to Job Safety Analysis (JSA) and Permit to Work (PTW).
- Carry out coal-fired power plant boiler system troubleshooting.

### **Attributes (Attitude/Safety/Environmental)**

- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle - 3R concept.

**MSIC GROUP : 351**  
**AREA : Coal-Fired Power Plant – Maintenance (Boiler)**  
**JOB TITLE : Boiler Maintenance Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Boiler Maintenance Technician is responsible to carry out coal-fired power plant boiler and its auxiliary's maintenance works. He is also expected to perform basic troubleshooting on boiler and its auxiliary's equipment. His task is also to control of boiler maintenance tools and equipment.

### **Knowledge:**

- Cold-fired power plant maintenance of boiler and its auxiliaries.
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Carry out maintenance of coal-fired power plant boiler and its auxiliaries.
- Adhere to Job Safety Analysis (JSA) and Permit to Work (PTW).
- Carry out coal-fired power plant boiler equipment troubleshooting.

### **Attributes (Attitude/Safety/Environmental)**

- Adherence to requirements and specifications towards safe, quality and timeliness deliverables.
- Take proactive action on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle - 3R concept.

**MSIC GROUP : 351**  
**AREA : Coal-Fired Power Plant – Maintenance (Turbine)**  
**JOB TITLE : Turbine Maintenance Foreman**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Turbine Maintenance Foreman is responsible to supervise technicians and contractor's works in carrying-out coal-fired power plant turbine and its auxiliary's maintenance works. He is also to perform basic troubleshooting on boiler and its auxiliary's equipment. Under his care, he is to monitor turbine maintenance technicians in the implementation of station work policies; HSE and Quality Policies.

### **Knowledge:**

- Cold-fired power plant maintenance of turbine and its auxiliaries
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Perform routine maintenance on the turbine equipment
- Analysis (JSA) and Permit to Work (PTW).
- Carry out coal-fired power plant equipment troubleshooting.
- Prepare Shift Handover Log.

### **Attributes (Attitude/Safety/Environmental)**

- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle - 3R concept.

**MSIC GROUP : 351**  
**AREA : Coal-Fired Power Plant – Maintenance (Turbine)**  
**JOB TITLE : Turbine Maintenance Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Turbine Maintenance Technician is responsible to carry out coal-fired power plant turbine and its auxiliary's maintenance works. He is also expected to perform basic troubleshooting on turbine and its auxiliary's equipment. His task is also to control of turbine maintenance tools and equipment.

### **Knowledge:**

- Cold-fired power plant maintenance of turbine and its auxiliaries.
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Carry out maintenance of coal-fired power plant turbine and its auxiliaries.
- Adhere to Job Safety Analysis (JSA) and Permit to Work (PTW).
- Carry out coal-fired power plant turbine equipment troubleshooting.

### **Attributes (Attitude/Safety/Environmental)**

- Adherence to requirements and specifications towards safe, quality and timeliness deliverables.
- Take proactive action on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle - 3R concept.

**MSIC GROUP : 351**  
**AREA : Coal-Fired Power Plant – Maintenance (Electrical)**  
**JOB TITLES : Electrical Chargeman**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Electrical Chargeman is responsible to supervise technicians in carrying-out electrical maintenance works. Supervise contractor's works in carrying-out electrical maintenance works. Carry out electrical isolation/de-isolation of electrical equipment.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Coal-fired power plant process schematic diagram

### **Skills:**

- Supervise technicians in carrying-out electrical maintenance works.
- Supervise contractor's works in carrying-out electrical maintenance works.
- Carry out electrical isolation/de-isolation of electrical equipment.
- Monitor electrical maintenance technicians in the implementation of station work policies; HSE and Quality Policies.
- Perform basic troubleshooting on electrical equipment.
- Implement decision and direction for electrical maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Coal-Fired Power Plant – Maintenance (Electrical)**  
**JOB TITLE : Electrical Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Electrical Technician is responsible to help carry out electrical maintenance works. Implement station work policies; HSE and Quality Policies. Control of electrical maintenance tools and equipment. Perform basic troubleshooting on electrical equipment. Implement decision and direction for electrical maintenance section.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Coal-fired power plant process schematic diagram

### **Skills:**

- Carry out electrical maintenance works.
- Implement station work policies; HSE and Quality Policies.
- Control of electrical maintenance tools and equipment.
- Perform basic troubleshooting on electrical equipment.
- Implement decision and direction for electrical maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Coal-Fired Power Plant – Maintenance (Instrument)**  
**JOB TITLE : Instrument Technical Assistant**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Instrument Technician Assistant is responsible to provide technical support for instrument maintenance and plant integrity. Execute implementation of station work policies; HSE and Quality Policies. Perform troubleshooting on instrument equipment. Perform instrument section budget for maintenance and new projects. Implement decision and direction for instrument maintenance section.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Coal-fired power plant process schematic diagram

### **Skills:**

- Provide technical support for instrument maintenance and plant integrity.
- Execute implementation of station work policies; HSE and Quality Policies.
- Perform troubleshooting on instrument equipment.
- Perform instrument section budget for maintenance and new projects.
- Implement decision and direction for instrument maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).



**MSIC GROUP : 351**  
**AREA : Coal-Fired Power Plant – Maintenance (Instrument)**  
**JOB TITLE : Instrument Foreman**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Instrument Foreman is responsible to supervise technicians in carrying-out instrument maintenance works. Supervise contractor's works in carrying-out instrument maintenance works. Monitor instrument maintenance technicians in the implementation of station work policies; HSE and Quality Policies. Perform basic troubleshooting on instrument equipment. Implement decision and direction for instrument maintenance section. Perform routine maintenance on the equipment and systems in a facility and other task such as install, maintain, and repair instrument.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Coal-fired power plant process schematic diagram

### **Skills:**

- Supervise technicians in carrying-out instrument maintenance works.
- Supervise contractor's works in carrying-out instrument maintenance works.
- Monitor instrument maintenance technicians in the implementation of station work policies; HSE and Quality Policies.
- Perform basic troubleshooting on instrument equipment.
- Implement decision and direction for instrument maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Coal-Fired Power Plant – Maintenance (Instrument)**  
**JOB TITLE : Instrument Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Instrument Technician is responsible to carry out instrument maintenance works. Implement station work policies; HSE and Quality Policies. Control of instrument maintenance tools and equipment. Perform basic troubleshooting on instrument equipment. Implement decision and direction for instrument maintenance section. Install, maintain, and repair instrument.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Coal-fired power plant process schematic diagram

### **Skills:**

- Carry out instrument maintenance works.
- Implement station work policies; HSE and Quality Policies.
- Control of instrument maintenance tools and equipment.
- Perform basic troubleshooting on instrument equipment.
- Implement decision and direction for instrument maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Coal-Fired Power Plant – Support Services (Chemist)**  
**JOB TITLE : Lab Analyst**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Lab Analyst is responsible to analyse coal-fired power plant process samples. Analyse waste effluent and flue gas emission samples. Maintain laboratory equipment. Implement decision and direction for laboratory section as per management requirements.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Coal-fired power plant process schematic diagram

### **Skills:**

- Analyse coal-fired power plant process samples.
- Analyse waste effluent and flue gas emission samples.
- Maintain laboratory equipment.
- Implement decision and direction for laboratory section as per management requirements.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Coal-Fired Power Plant – Support Services (Chemist)**  
**JOB TITLE : Assistant Lab Analyst**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Assistant Lab Analyst is responsible to assist Lab Analyst in analysing coal-fired power plant process samples. Assist Lab Analyst in analysing waste effluent and flue gas emission samples. Maintain laboratory equipment. Implement decision and direction for laboratory section as per management requirements.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Coal-fired power plant process schematic diagram

### **Skills:**

- Assist Lab Analyst in analysing coal-fired power plant process samples.
- Assist Lab Analyst in analysing waste effluent and flue gas emission samples.
- Maintain laboratory equipment.
- Implement decision and direction for laboratory section as per management requirements.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Coal-Fired Power Plant – Support Services (Chemist)**  
**JOB TITLE : Sampling Operator**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Sampling Operator is responsible to collect coal-fired power plant process samples. Collect waste effluent and flue gas emission samples. Implement decision and direction for laboratory section as per management requirements.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Coal-fired power plant process schematic diagram

### **Skills:**

- Collect coal-fired power plant process samples.
- Collect waste effluent and flue gas emission samples.
- Implement decision and direction for laboratory section as per management requirements.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Combined-Cycle Power Plant – Operation**  
**JOB TITLE : Shift Manager**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Shift Manager is responsible for the operations of combined-cycle power plant during an assigned shift. He is to issue Permit to Work (PTW) and control of maintenance works. Throughout his shift duty, he is to check plant availability for reporting to system operator (NLDC). He is to investigate production restriction and carry out system troubleshooting.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Combined-cycle power plant process schematic diagram

### **Skills:**

- Manage combined-cycle power plant operation.
- Organise high voltage switching.
- Approve Job Safety Analysis (JSA).
- Issue Permit to Work (PTW).
- Carry out combined-cycle power plant system troubleshooting.
- Prepare Shift Report.
- Communicate instruction to staffs.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Combined-Cycle Power Plant – Operation**  
**JOB TITLE : Panel Controller**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Panel Controller is responsible to operate combined-cycle power plant control panel. He is to carry out plant start-up and shutdown operation. He is also to carry out equipment troubleshooting. He is to monitor Permit to Work (PTW) issued by the Shift Manager and coordinate the maintenance works.

### **Knowledge:**

- Combined-cycle power plant operation process.
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Operate combined-cycle power plant control panel.
- Monitor compliance to Job Safety Analysis (JSA) and Permit to Work (PTW).
- Carry out combined-cycle power plant equipment troubleshooting.
- Prepare Shift Handover Log.

### **Attributes (Attitude/Safety/Environmental)**

- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle - 3R concept.

**MSIC GROUP : 351**  
**AREA : Combined-Cycle Power Plant – Operation**  
**JOB TITLE : Plant Operator**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Plant Operator is responsible to carry out combined-cycle power plant machinery operation, to check and report equipment abnormal operation. He is also responsible to isolate/normalise equipment/system for maintenance works and execute periodic testing of equipment.

### **Knowledge:**

- Combined-cycle power equipment operation.
- Safe work practices and equipment isolation/ normalisation procedures.
- Permit to Work (PTW) system.

### **Skills:**

- Operate combined-cycle power plant equipment.
- Carry out equipment/system isolation/normalisation for maintenance works.
- Carry out periodic equipment testing and report status.
- Check Permit to Work (PTW) compliance.
- Record plant operational readings and parameters.

### **Attributes (Attitude/Safety/Environmental)**

- Adherence to requirements and specifications towards safe, quality and timeliness deliverables.
- Take proactive action on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle - 3R concept.



**MSIC GROUP : 351**  
**AREA : Combined-Cycle Power Plant – Maintenance (Boiler)**  
**JOB TITLE : Boiler Maintenance Foreman**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Boiler Maintenance Foreman is responsible to supervise technicians and contractor's works in carrying-out combined-cycle power plant boiler and its auxiliary's maintenance works. He is also to perform basic troubleshooting on boiler and its auxiliary's equipment. Under his care, he is to monitor boiler maintenance technicians in the implementation of station work policies; HSE and Quality Policies.

### **Knowledge:**

- Combined-cycle power plant maintenance of boiler and its auxiliaries.
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Carry out maintenance of combined-cycle power plant boiler and its auxiliaries.
- Monitor compliance to Job Safety Analysis (JSA) and Permit to Work (PTW).
- Carry out combined-cycle power plant boiler system troubleshooting.

### **Attributes (Attitude/Safety/Environmental)**

- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle - 3R concept.

**MSIC GROUP : 351**  
**AREA : Combined-Cycle Power Plant – Maintenance (Boiler)**  
**JOB TITLE : Boiler Maintenance Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Boiler Maintenance Technician is responsible to carry out combined-cycle power plant boiler and its auxiliary's maintenance works. He is also expected to perform basic troubleshooting on boiler and its auxiliary's equipment. His task is also to control of boiler maintenance tools and equipment.

### **Knowledge:**

- Combined-cycle power plant maintenance of boiler and its auxiliaries.
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Carry out maintenance of coal-fired power plant boiler and its auxiliaries.
- Adhere to Job Safety Analysis (JSA) and Permit to Work (PTW).
- Carry out combined-cycle power plant boiler equipment troubleshooting.

### **Attributes (Attitude/Safety/Environmental)**

- Adherence to requirements and specifications towards safe, quality and timeliness deliverables.
- Take proactive action on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle - 3R concept.

**MSIC GROUP : 351**  
**AREA : Combined-Cycle Power Plant – Maintenance (Turbine)**  
**JOB TITLE : Turbine Maintenance Foreman**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Turbine Maintenance Foreman is responsible to supervise technicians and contractor's works in carrying-out combined-cycle power plant turbine and its auxiliary's maintenance works. He is also to perform basic troubleshooting on boiler and its auxiliary's equipment. Under his care, he is to monitor turbine maintenance technicians in the implementation of station work policies; HSE and Quality Policies.

### **Knowledge:**

- Combined-cycle power plant maintenance of turbine and its auxiliaries
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Perform routine maintenance on the turbine equipment
- Analysis (JSA) and Permit to Work (PTW).
- Carry out combined-cycle power plant equipment troubleshooting.
- Prepare Shift Handover Log.

### **Attributes (Attitude/Safety/Environmental)**

- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle - 3R concept.

**MSIC GROUP : 351**  
**AREA : Combined-Cycle Power Plant – Maintenance (Turbine)**  
**JOB TITLE : Turbine Maintenance Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Turbine Maintenance Technician is responsible to carry out combined-cycle power plant turbine and its auxiliary's maintenance works. He is also expected to perform basic troubleshooting on turbine and its auxiliary's equipment. His task is also to control of turbine maintenance tools and equipment.

### **Knowledge:**

- Combined-cycle power plant maintenance of turbine and its auxiliaries.
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Carry out maintenance of combined-cycle power plant turbine and its auxiliaries.
- Adhere to Job Safety Analysis (JSA) and Permit to Work (PTW).
- Carry out combined-cycle power plant turbine equipment troubleshooting.

### **Attributes (Attitude/Safety/Environmental)**

- Adherence to requirements and specifications towards safe, quality and timeliness deliverables.
- Take proactive action on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle - 3R concept.

**MSIC GROUP : 351**  
**AREA : Combined-Cycle Power Plant – Maintenance (Electrical)**  
**JOB TITLE : Electrical Chargeman**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Electrical Chargeman is responsible to supervise technicians in carrying-out electrical maintenance works. Supervise contractor's works in carrying-out electrical maintenance works. Carry out electrical isolation/ de-isolation of electrical equipment.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Combined-cycle power plant process schematic diagram

### **Skills:**

- Supervise technicians in carrying-out electrical maintenance works.
- Supervise contractor's works in carrying-out electrical maintenance works.
- Carry out electrical isolation/ de-isolation of electrical equipment.
- Monitor electrical maintenance technicians in the implementation of station work policies; HSE and Quality Policies.
- Perform basic troubleshooting on electrical equipment.
- Implement decision and direction for electrical maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Combined-Cycle Power Plant – Maintenance (Electrical)**  
**JOB TITLE : Electrical Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Electrical Technician is responsible to help carry out electrical maintenance works. Implement station work policies; HSE and Quality Policies. Control of electrical maintenance tools and equipment. Perform basic troubleshooting on electrical equipment. Implement decision and direction for electrical maintenance section.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Combined-cycle power plant process schematic diagram

### **Skills:**

- Carry out electrical maintenance works.
- Implement station work policies; HSE and Quality Policies.
- Control of electrical maintenance tools and equipment.
- Perform basic troubleshooting on electrical equipment.
- Implement decision and direction for electrical maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Combined-Cycle Power Plant – Maintenance (Instrument)**  
**JOB TITLE : Instrument Technical Assistant**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Instrument Technical Assistant is responsible to provide technical support for instrument maintenance and plant integrity. Execute implementation of station work policies; HSE and Quality Policies. Perform troubleshooting on electrical equipment. Perform electrical section budget for maintenance and new projects. Implement decision direction for electrical maintenance section.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Combined-cycle power plant process schematic diagram

### **Skills:**

- Manage combined-cycle power plant operation.
- Organise high voltage switching.
- Approve Job Safety Analysis (JSA).
- Issue Permit to Work (PTW)
- Carry out combined-cycle power plant system troubleshooting.
- Prepare Shift Report.
- Communicate instruction to staffs.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Combined-Cycle Power Plant – Maintenance (Instrument)**  
**JOB TITLE : Instrument Foreman**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Instrument Foreman is responsible to supervise technicians in carrying-out instrument maintenance works. Supervise contractor's works in carrying-out instrument maintenance works. Monitor instrument maintenance technicians in the implementation of station work policies; HSE and Quality Policies. Perform basic troubleshooting on instrument equipment. Implement decision and direction for instrument maintenance section. Perform routine maintenance on the equipment and systems in a facility and other task such as install, maintain, and repair instrument.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Combined-cycle power plant process schematic diagram

### **Skills:**

- Supervise technicians in carrying-out instrument maintenance works.
- Supervise contractor's works in carrying-out instrument maintenance works.
- Monitor instrument maintenance technicians in the implementation of station work policies; HSE and Quality Policies.
- Perform basic troubleshooting on instrument equipment.
- Implement decision and direction for instrument maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).



**MSIC GROUP : 351**  
**AREA : Combined-Cycle Power Plant – Maintenance (Instrument)**  
**JOB TITLE : Instrument Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Instrument Technician is responsible to carry out instrument maintenance works. Implement station work policies; HSE and Quality Policies. Control of instrument maintenance tools and equipment. Perform basic troubleshooting on instrument equipment. Implement decision and direction for instrument maintenance section. Install, maintain, and repair instrument.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Combined-cycle power plant process schematic diagram

### **Skills:**

- Carry out instrument maintenance works.
- Implement station work policies; HSE and Quality Policies.
- Control of instrument maintenance tools and equipment.
- Perform basic troubleshooting on instrument equipment.
- Implement decision and direction for instrument maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practice 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Combined-Cycle Power Plant – Support Services (Chemist)**  
**JOB TITLE : Lab Analyst**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Lab Analyst is responsible to analyse combined-cycle power plant process samples. Analyse waste effluent and flue gas emission samples. Maintain laboratory equipment. Implement decision and direction for laboratory section as per management requirements.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Combined-cycle power plant process schematic diagram

### **Skills:**

- Analyse combined-cycle power plant process samples.
- Analyse waste effluent and flue gas emission samples.
- Maintain laboratory equipment.
- Implement decision and direction for laboratory section as per management requirements.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Combined-Cycle Power Plant – Support Services (Chemist)**  
**JOB TITLE : Assistant Lab Analyst**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Assistant Lab Analyst is responsible to assist Lab Analyst in analysing combined-cycle power plant process samples. Assist Lab Analyst in analysing waste effluent and flue gas emission samples. Maintain laboratory equipment. Implement decision and direction for laboratory section as per management requirements.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Combined-cycle power plant process schematic diagram

### **Skills:**

- Assist Lab Analyst in analysing combined-cycle power plant process samples.
- Assist Lab Analyst in analysing waste effluent and flue gas emission samples.
- Maintain laboratory equipment.
- Implement decision and direction for laboratory section as per management requirements.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Combined-Cycle Power Plant – Support Services (Chemist)**  
**JOB TITLE : Sampling Operator**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Sampling Operator is responsible to collect combined-cycle power plant process samples. Collect waste effluent and flue gas emission samples. Implement decision and direction for laboratory section as per management requirements.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Combined-cycle power plant process schematic diagram

### **Skills:**

- Collect combined-cycle power plant process samples.
- Collect waste effluent and flue gas emission samples.
- Implement decision and direction for laboratory section as per management requirements.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Hydro-Electric Power Plant – Operation**  
**JOB TITLE : Shift Manager**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Shift Manager is responsible for the operations of hydro-electric power plant during an assigned shift. He is to issue Permit to Work (PTW) and control of maintenance works. Throughout his shift duty, he is to check plant availability for reporting to system operator (NLDC). He is to investigate production restriction and carry out system troubleshooting.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Hydro-electric power plant process schematic diagram

### **Skills:**

- Manage hydro-electric power plant operation.
- Organise high voltage switching.
- Approve Job Safety Analysis (JSA).
- Issue Permit to Work (PTW).
- Carry out hydro-electric power plant system troubleshooting.
- Prepare Shift Report.
- Communicate instruction to staffs.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Hydro-Electric Power Plant – Operation**  
**JOB TITLE : Panel Controller**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Panel Controller is responsible to operate hydro-electric power plant control panel. He is to carry out plant start-up and shutdown operation. He is also to carry out equipment troubleshooting. He is to monitor Permit to Work (PTW) issued by the Shift Manager and coordinate the maintenance works.

### **Knowledge:**

- Hydro-electric power plant operation process.
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Operate hydro-electric power plant control panel.
- Monitor compliance to Job Safety Analysis (JSA) and Permit to Work (PTW).
- Carry out hydro-electric power plant equipment troubleshooting.
- Prepare Shift Handover Log.

### **Attributes (Attitude/Safety/Environmental)**

- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle (3R) concept.

**MSIC GROUP : 351**  
**AREA : Hydro-Electric Power Plant – Operation**  
**JOB TITLE : Plant Operator**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Plant Operator is responsible to carry out hydro-electric power plant machinery operation, to check and report equipment abnormal operation. He is also responsible to isolate/normalise equipment/ system for maintenance works and execute periodic testing of equipment.

### **Knowledge:**

- Hydro-electric power equipment operation.
- Safe work practices and equipment isolation/ normalisation procedures.
- Permit to Work (PTW) system.

### **Skills:**

- Operate hydro-electric power plant equipment.
- Carry out equipment/ system isolation/ normalisation for maintenance works.
- Carry out periodic equipment testing and report status.
- Check Permit to Work (PTW) compliance.
- Record plant operational readings and parameters.

### **Attributes (Attitude/Safety/Environmental)**

- Adherence to requirements and specifications towards safe, quality and timeliness deliverables.
- Take proactive action on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle (3R) concept.

**MSIC GROUP : 351**  
**AREA : Hydro-Electric Power Plant – Maintenance (Turbine)**  
**JOB TITLE : Turbine Maintenance Foreman**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Turbine Maintenance Foreman is responsible to supervise technicians and contractor's works in carrying-out hydro-electric power plant turbine and its auxiliary's maintenance works. He is also to perform basic troubleshooting on boiler and its auxiliary's equipment. Under his care, he is to monitor turbine maintenance technicians in the implementation of station work policies; HSE and Quality Policies.

### **Knowledge:**

- Hydro-electric power plant maintenance of turbine and its auxiliaries
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Perform routine maintenance on the turbine equipment
- Analysis (JSA) and Permit to Work (PTW).
- Carry out hydro-electric power plant equipment troubleshooting.
- Prepare Shift Handover Log.

### **Attributes (Attitude/Safety/Environmental)**

- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle (3R) concept.



**MSIC GROUP : 351**  
**AREA : Hydro-Electrical Power Plant – Maintenance (Turbine)**  
**JOB TITLE : Turbine Maintenance Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Turbine Maintenance Technician is responsible to carry out hydro-electric power plant turbine and its auxiliary's maintenance works. He is also expected to perform basic troubleshooting on turbine and its auxiliary's equipment. His task is also to control of turbine maintenance tools and equipment.

### **Knowledge:**

- Hydro-electric power plant maintenance of turbine and its auxiliaries.
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Carry out maintenance of hydro-electric power plant turbine and its auxiliaries.
- Adhere to Job Safety Analysis (JSA) and Permit to Work (PTW).
- Carry out hydro-electric power plant turbine equipment troubleshooting.

### **Attributes (Attitude/Safety/Environmental)**

- Adherence to requirements and specifications towards safe, quality and timeliness deliverables.
- Take proactive action on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle - 3R concept.

**MSIC GROUP : 351**  
**AREA : Hydro-Electric Power Plant – Maintenance (Electrical)**  
**JOB TITLE : Electrical Chargeman**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Electrical Chargeman is responsible to supervise technicians in carrying-out electrical maintenance works. Supervise contractor's works in carrying-out electrical maintenance works. Carry out electrical isolation/de-isolation of electrical equipment.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Hydro-electric power plant process schematic diagram

### **Skills:**

- Supervise technicians in carrying-out electrical maintenance works.
- Supervise contractor's works in carrying-out electrical maintenance works.
- Carry out electrical isolation/ de-isolation of electrical equipment.
- Monitor electrical maintenance technicians in the implementation of station work policies; HSE and Quality Policies.
- Perform basic troubleshooting on electrical equipment.
- Implement decision and direction for electrical maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Hydro-Electric Power Plant – Maintenance (Electrical)**  
**JOB TITLE : Electrical Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Electrical Technician is responsible to help carry out electrical maintenance works. Implement station work policies; HSE and Quality Policies. Control of electrical maintenance tools and equipment. Perform basic troubleshooting on electrical equipment. Implement decision and direction for electrical maintenance section.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Hydro-electric power plant process schematic diagram

### **Skills:**

- Carry out electrical maintenance works.
- Implement station work policies; HSE and Quality Policies.
- Control of electrical maintenance tools and equipment.
- Perform basic troubleshooting on electrical equipment.
- Implement decision and direction for electrical maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Hydro-electric Power Plant – Maintenance (Instrument)**  
**JOB TITLE : Instrument Technical Assistant**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Instrument Technical Assistant is responsible to provide technical support for instrument maintenance and plant integrity. Execute implementation of station work policies; HSE and Quality Policies. Perform troubleshooting on electrical equipment. Perform electrical section budget for maintenance and new projects. Implement decision direction for electrical maintenance section.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Hydro-electric power plant process schematic diagram

### **Skills:**

- Manage hydro-electric power plant operation.
- Organise high voltage switching.
- Approve Job Safety Analysis (JSA).
- Issue Permit to Work (PTW)
- Carry out hydro-electric power plant system troubleshooting.
- Prepare Shift Report.
- Communicate instruction to staffs.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Hydro-Electric Power Plant – Maintenance (Instrument)**  
**JOB TITLE : Instrument Foreman**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Instrument Foreman is responsible to supervise technicians in carrying-out instrument maintenance works. Supervise contractor's works in carrying-out instrument maintenance works. Monitor instrument maintenance technicians in the implementation of station work policies; HSE and Quality Policies. Perform basic troubleshooting on instrument equipment. Implement decision and direction for instrument maintenance section. Perform routine maintenance on the equipment and systems in a facility and other task such as install, maintain, and repair instrument.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Hydro-electric power plant process schematic diagram

### **Skills:**

- Supervise technicians in carrying-out instrument maintenance works.
- Supervise contractor's works in carrying-out instrument maintenance works.
- Monitor instrument maintenance technicians in the implementation of station work policies; HSE and Quality Policies.
- Perform basic troubleshooting on instrument equipment.
- Implement decision and direction for instrument maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Hydro-electric Power Plant – Maintenance (Instrument)**  
**JOB TITLE : Instrument Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Instrument Technician is responsible to carry out instrument maintenance works. Implement station work policies; HSE and Quality Policies. Control of instrument maintenance tools and equipment. Perform basic troubleshooting on instrument equipment. Implement decision and direction for instrument maintenance section. Install, maintain, and repair instrument.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Hydro-electric power plant process schematic diagram

### **Skills:**

- Carry out instrument maintenance works.
- Implement station work policies; HSE and Quality Policies.
- Control of instrument maintenance tools and equipment.
- Perform basic troubleshooting on instrument equipment.
- Implement decision and direction for instrument maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Hydro-Electric Power Plant – Support Services (Chemist)**  
**JOB TITLE : Lab Analyst**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Lab Analyst is responsible to analyse hydro-electric power plant process samples. Analyse waste effluent and flue gas emission samples. Maintain laboratory equipment. Implement decision and direction for laboratory section as per management requirements.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Hydro-electric power plant process schematic diagram

### **Skills:**

- Analyse hydro-electric power plant process samples.
- Analyse waste effluent and flue gas emission samples.
- Maintain laboratory equipment.
- Implement decision and direction for laboratory section as per management requirements.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Hydro-Electric Power Plant – Support Services (Chemist)**  
**JOB TITLE : Assistant Lab Analyst**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Assistant Lab Analyst is responsible to assist Lab Analyst in analysing hydro-electric power plant process samples. Assist Lab Analyst in analysing waste effluent and flue gas emission samples. Maintain laboratory equipment. Implement decision and direction for laboratory section as per management requirements.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Hydro-electric power plant process schematic diagram

### **Skills:**

- Assist Lab Analyst in analysing hydro-electric power plant process samples.
- Assist Lab Analyst in analysing waste effluent and flue gas emission samples.
- Maintain laboratory equipment.
- Implement decision and direction for laboratory section as per management requirements.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).



**MSIC GROUP : 351**  
**AREA : Hydro-Electric Power Plant – Support Services (Chemist)**  
**JOB TITLE : Sampling Operator**  
**LEVEL : 3**

**RESPONSIBILITIES**

Sampling Operator is responsible to collect hydro-electric power plant process samples. Collect waste effluent and flue gas emission samples. Implement decision and direction for laboratory section as per management requirements.

**Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Hydro-electric power plant process schematic diagram

**Skills:**

- Collect Hydro-electric power plant process samples.
- Collect waste effluent and flue gas emission samples.
- Implement decision and direction for laboratory section as per management requirements.

**Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Solar Power Plant – Project (Engineering)**  
**JOB TITLE : Design Executive**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Design Executive is responsible to carry out site survey and design sketches. Carry out simple design calculations. Apply design codes and standards to meet authority's requirements. Conduct site construction verification works. Check job progress of draughtsman. Adhere to design schedule and work progress.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Solar power plant process schematic diagram

### **Skills:**

- Carry out site survey and design sketches.
- Carry out simple design calculations.
- Apply design codes and standards to meet authority's requirements.
- Conduct site construction verification works.
- Check job progress of draughtsman.
- Adhere to design schedule and work progress.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Solar Power Plant – Project (Engineering)**  
**JOB TITLE : Design Supervisor**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Design Supervisor is responsible to supervise design office draughting works. Supervise site draughting works. Apply design codes and standards to meet authority's requirements. Monitor job progress of draughtsman. Adhere to design schedule and work progress.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Solar power plant process schematic diagram

### **Skills:**

- Supervise design office draughting works.
- Supervise site draughting works.
- Apply design codes and standards to meet authority's requirements.
- Monitor job progress of draughtsman.
- Adhere to design schedule and work progress.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Solar Power Plant – Operation**  
**JOB TITLE : Operation Executive**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Operation Executive is responsible Assist Operation Engineer. Make sure the generation facilities are in good working condition and at its optimum capacity. Monitor and regulate the power output and quality. Responsible to communicate with NLDC on the generation status and outage. Work together with Operation engineer in planning the generation and outage, following the demands, fuel capacity etc.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Solar power plant process schematic diagram

### **Skills:**

- Assist Operation Engineer.
- Make sure the generation facilities are in good working condition and at its optimum capacity.
- Monitor and regulate the power output and quality.
- Responsible to communicate with NLDC on the generation status and outage
- Work together with Operation engineer in planning the generation and outage, following the demands, fuel capacity and etc.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Solar Power Plant – Operation**  
**JOB TITLE : Panel Controller**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Panel Controller is responsible to operate solar power plant control panel. He is to carry out plant start-up and shutdown operation. He is also to carry out equipment troubleshooting. He is to monitor Permit to Work (PTW) issued by the Shift Manager and coordinate the maintenance works.

### **Knowledge:**

- Solar power plant operation process.
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Operate solar power plant control panel.
- Monitor compliance to Job Safety Analysis (JSA) and Permit to Work (PTW).
- Carry out solar power plant equipment troubleshooting.
- Prepare Shift Handover Log.

### **Attributes (Attitude/Safety/Environmental)**

- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle (3R) concept.

**MSIC GROUP : 351**  
**AREA : Solar Power Plant – Operation**  
**JOB TITLE : Plant Operator**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Plant Operator is responsible to carry out solar power plant machinery operation, to check and report equipment abnormal operation. He is also responsible to isolate/ normalise equipment/ system for maintenance works and execute periodic testing of equipment.

### **Knowledge:**

- Solar power equipment operation.
- Safe work practices and equipment isolation/ normalisation procedures.
- Permit to Work (PTW) system.

### **Skills:**

- Operate solar power plant equipment.
- Carry out equipment/ system isolation/ normalisation for maintenance works.
- Carry out periodic equipment testing and report status.
- Check Permit to Work (PTW) compliance.
- Record plant operational readings and parameters.

### **Attributes (Attitude/Safety/Environmental)**

- Adherence to requirements and specifications towards safe, quality and timeliness deliverables.
- Take proactive action on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle (3R) concept.

**MSIC GROUP : 351**  
**AREA : Bio-mass Power Plant – Operation**  
**JOB TITLE : Operation Executive**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Operation Executive is responsible for the operations of bio-mass power plant during an assigned shift. He is to issue Permit to Work (PTW) and control of maintenance works. Throughout his shift duty, he is to check plant availability for reporting to system operator (NLDC). He is to investigate production restriction and carry out system troubleshooting.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Bio-mass power plant process schematic diagram

### **Skills:**

- Manage bio-mass power plant operation.
- Organise high voltage switching.
- Approve Job Safety Analysis (JSA).
- Issue Permit to Work (PTW).
- Carry out bio-mass power plant system troubleshooting.
- Prepare Shift Report.
- Communicate instruction to staffs.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Bio-mass Power Plant – Operation**  
**JOB TITLE : Panel Controller**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Panel Controller is responsible to operate bio-mass power plant control panel. He is to carry out plant start-up and shutdown operation. He is also to carry out equipment troubleshooting. He is to monitor Permit to Work (PTW) issued by the Shift Manager and coordinate the maintenance works.

### **Knowledge:**

- Bio-mass power plant operation process.
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Operate bio-mass power plant control panel.
- Monitor compliance to Job Safety Analysis (JSA) and Permit to Work (PTW).
- Carry out bio-mass power plant equipment troubleshooting.
- Prepare Shift Handover Log.

### **Attributes (Attitude/Safety/Environmental)**

- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle (3R) concept.



**MSIC GROUP : 351**  
**AREA : Bio-mass Power Plant – Operation**  
**JOB TITLE : Plant Operator**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Plant Operator is responsible to carry out bio-mass power plant machinery operation, to check and report equipment abnormal operation. He is also responsible to isolate/normalise equipment/ system for maintenance works and execute periodic testing of equipment.

### **Knowledge:**

- Bio-mass power equipment operation.
- Safe work practices and equipment isolation/ normalisation procedures.
- Permit to Work (PTW) system.

### **Skills:**

- Operate bio-mass power plant equipment.
- Carry out equipment/ system isolation/ normalisation for maintenance works.
- Carry out periodic equipment testing and report status.
- Check Permit to Work (PTW) compliance.
- Record plant operational readings and parameters.

### **Attributes (Attitude/Safety/Environmental)**

- Adherence to requirements and specifications towards safe, quality and timeliness deliverables.
- Take proactive action on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle (3R) concept.

**MSIC GROUP : 351**  
**AREA : Bio-mass Power Plant – Maintenance (Mechanical)**  
**JOB TITLE : Mechanical Maintenance Supervisor**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Mechanical Maintenance Supervisor is responsible to supervise technicians in carrying-out mechanical maintenance works. Supervise contractor's works in carrying-out mechanical maintenance works. Monitor mechanical maintenance technicians in the implementation of station work policies; HSE and Quality Policies. Perform basic troubleshooting on mechanical equipment. Implement decision and direction for mechanical maintenance section.

### **Knowledge:**

- Bio-mass power plant maintenance of mechanical and its auxiliaries.
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Supervise technicians in carrying-out mechanical maintenance works.
- Supervise contractor's works in carrying-out mechanical maintenance works.
- Monitor mechanical maintenance technicians in the implementation of station work policies; HSE and Quality Policies.
- Perform basic troubleshooting on mechanical equipment.
- Implement decision and direction for mechanical maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle (3R) concept.

**MSIC GROUP : 351**  
**AREA : Bio-mass Power Plant – Maintenance (Mechanical)**  
**JOB TITLE : Mechanical Maintenance Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Mechanical Maintenance Technician is responsible to carry out mechanical maintenance works. Implement station work policies; HSE and Quality Policies. Control of mechanical maintenance tools and equipment. Perform basic troubleshooting on mechanical equipment. Implement decision and direction for mechanical maintenance section.

### **Knowledge:**

- Bio-mass power plant maintenance of boiler and its auxiliaries.
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Carry out mechanical maintenance works.
- Implement station work policies; HSE and Quality Policies.
- Control of mechanical maintenance tools and equipment.
- Perform basic troubleshooting on mechanical equipment.
- Implement decision and direction for mechanical maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Diligent in carrying out job scope.
- Use of PPE when required.
- Follow safety regulations when conducting works and tests.
- Good interpersonal skills with good attention to details.
- High level of commitment and strong team player.

**MSIC GROUP : 351**  
**AREA : Bio mass Power Plant – Maintenance (Electrical and Instrument)**  
**JOB TITLE : Electrical and Instrument Maintenance Supervisor**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Electrical and Instrument Maintenance Supervisor is responsible to supervise technicians in carrying-out electrical maintenance works. Supervise contractor's works in carrying-out electrical and instrument maintenance works. Carry out electrical isolation/ de-isolation of electrical equipment. Monitor electrical maintenance technicians in the implementation of station work policies; HSE and Quality Policies. Perform basic troubleshooting on electrical equipment. Implement decision and direction for electrical and instrument maintenance section.

### **Knowledge:**

- Bio-mass power plant maintenance of turbine and its auxiliaries
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Supervise technicians in carrying-out electrical and instrument maintenance works.
- Supervise contractor's works in carrying-out electrical and instrument maintenance works.
- Carry out electrical isolation/ de-isolation of electrical equipment.
- Monitor electrical and instrument maintenance technicians in the implementation of station work policies; HSE and Quality Policies.
- Perform basic troubleshooting on electrical equipment.
- Implement decision and direction for electrical and instrument maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle - 3R concept.

**MSIC GROUP : 351**  
**AREA : Biomass Power Plant – Maintenance (Electrical and Instrument)**  
**JOB TITLE : Electrical and Instrument Maintenance Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Electrical and Instrument Maintenance Technician is responsible to carry out electrical and instrument maintenance works. Implement station work policies; HSE and Quality Policies. Control of electrical and instrument maintenance tools and equipment. Perform basic troubleshooting on electrical and instrument equipment. Implement decision and direction for electrical and instrument maintenance section

### **Knowledge:**

- Bio-mass power plant maintenance of turbine and its auxiliaries.
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Carry out electrical and instrument maintenance works.
- Implement station work policies; HSE and Quality Policies.
- Control of electrical and instrument maintenance tools and equipment.
- Perform basic troubleshooting on electrical and instrument equipment.
- Implement decision and direction for electrical and instrument maintenance section

### **Attributes (Attitude/Safety/Environmental)**

- Adherence to requirements and specifications towards safe, quality and timeliness deliverables.
- Take proactive action on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle - 3R concept.

**MSIC GROUP : 351**  
**AREA : Biomass Power Plant – Support Services (Chemist)**  
**JOB TITLE : Lab Analyst**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Lab Analyst is responsible to analyse bio-mass power plant process samples. Analyse waste effluent and flue gas emission samples. Maintain laboratory equipment. Implement decision and direction for laboratory section as per management requirements.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Bio-mass power plant process schematic diagram

### **Skills:**

- Analyse bio-mass power plant process samples.
- Analyse waste effluent and flue gas emission samples.
- Maintain laboratory equipment.
- Implement decision and direction for laboratory section as per management requirements.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Biomass Power Plant – Support Services (Chemist)**  
**JOB TITLE : Assistant Lab Analyst**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Assistant Lab Analyst is responsible to Assist Lab Analyst in analysing bio-mass power plant process samples. Assist Lab Analyst in analysing waste effluent and flue gas emission samples. Maintain laboratory equipment. Implement decision and direction for laboratory section as per management requirements.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Bio-mass power plant process schematic diagram

### **Skills:**

- Assist Lab Analyst in analysing bio-mass power plant process samples.
- Assist Lab Analyst in analysing waste effluent and flue gas emission samples.
- Maintain laboratory equipment.
- Implement decision and direction for laboratory section as per management requirements.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Biomass Power Plant – Support Services (Chemist)**  
**JOB TITLE : Sampling Operator**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Sampling Operator is responsible to collect bio-mass power plant process samples. Collect waste effluent and flue gas emission samples. Implement decision and direction for laboratory section as per management requirements.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Bio-mass power plant process schematic diagram

### **Skills:**

- Collect bio-mass power plant process samples.
- Collect waste effluent and flue gas emission samples.
- Implement decision and direction for laboratory section as per management requirements.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).



**MSIC GROUP : 351**  
**AREA : Bio-gas Power Plant – Operation**  
**JOB TITLE : Operation Executive**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Operation Executive is responsible Manage shift personnel in the operation of bio-gas power plant. Issue PTW and control of maintenance works. Check plant availability for reporting to system operator (NLDC). Investigate production restriction. Carry out system troubleshooting.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Bio-gas power plant process schematic diagram

### **Skills:**

- Manage shift personnel in the operation of bio-gas power plant.
- Issue PTW and control of maintenance works.
- Check plant availability for reporting to system operator (NLDC).
- Investigate production restriction.
- Carry out system troubleshooting.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Bio-gas Power Plant – Operation**  
**JOB TITLE : Panel Controller**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Panel Controller is responsible to operate bio-gas power plant control panel. He is to carry out plant start-up and shutdown operation. He is also to carry out equipment troubleshooting. He is to monitor Permit to Work (PTW) issued by the Shift Manager and coordinate the maintenance works.

### **Knowledge:**

- Bio-gas power plant operation process.
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Operate bio-gas power plant control panel.
- Monitor compliance to Job Safety Analysis (JSA) and Permit to Work (PTW).
- Carry out solar power plant equipment troubleshooting.
- Prepare Shift Handover Log.

### **Attributes (Attitude/Safety/Environmental)**

- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle - 3R concept.

**MSIC GROUP : 351**  
**AREA : Bio-gas Power Plant – Operation**  
**JOB TITLE : Plant Operator**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Plant Operator is responsible to carry out bio-gas power plant machinery operation, to check and report equipment abnormal operation. He is also responsible to isolate/normalise equipment/system for maintenance works and execute periodic testing of equipment.

### **Knowledge:**

- Bio-gas power equipment operation.
- Safe work practices and equipment isolation/ normalisation procedures.
- Permit to Work (PTW) system.

### **Skills:**

- Operate bio-gas power plant equipment.
- Carry out equipment/ system isolation/ normalisation for maintenance works.
- Carry out periodic equipment testing and report status.
- Check Permit to Work (PTW) compliance.
- Record plant operational readings and parameters.

### **Attributes (Attitude/Safety/Environmental)**

- Adherence to requirements and specifications towards safe, quality and timeliness deliverables.
- Take proactive action on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle - 3R concept.

**MSIC GROUP : 351**  
**AREA : Biogas Power Plant – Maintenance (Mechanical)**  
**JOB TITLE : Mechanical Maintenance Supervisor**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Mechanical Maintenance Supervisor is responsible to supervise technicians in carrying-out mechanical maintenance works. Supervise contractor's works in carrying-out mechanical maintenance works. Monitor mechanical maintenance technicians in the implementation of station work policies; HSE and Quality Policies. Perform basic troubleshooting on mechanical equipment. Implement decision and direction for mechanical maintenance section.

### **Knowledge:**

- Bio-gas power plant maintenance of mechanical and its auxiliaries.
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Supervise technicians in carrying-out mechanical maintenance works.
- Supervise contractor's works in carrying-out mechanical maintenance works.
- Monitor mechanical maintenance technicians in the implementation of station work policies; HSE and Quality Policies.
- Perform basic troubleshooting on mechanical equipment.
- Implement decision and direction for mechanical maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle - 3R concept.

**MSIC GROUP : 351**  
**AREA : Biogas Power Plant – Maintenance (Mechanical)**  
**JOB TITLE : Mechanical Maintenance Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Mechanical Maintenance Technician is responsible to carry out mechanical maintenance works. Implement station work policies; HSE and Quality Policies. Control of mechanical maintenance tools and equipment. Perform basic troubleshooting on mechanical equipment. Implement decision and direction for mechanical maintenance section.

### **Knowledge:**

- Bio-gas power plant maintenance of boiler and its auxiliaries.
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Carry out mechanical maintenance works.
- Implement station work policies; HSE and Quality Policies.
- Control of mechanical maintenance tools and equipment.
- Perform basic troubleshooting on mechanical equipment.
- Implement decision and direction for mechanical maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Diligent in carrying out job scope
- Use of PPE when required
- Follow safety regulations when conducting works and tests.
- Good interpersonal skills with good attention to details
- High level of commitment and strong team player

**MSIC GROUP** : 351  
**AREA** : Biogas Power Plant – Maintenance (Electrical and Instrument)  
**OB TITLE** : Electrical and Instrument Maintenance Supervisor  
**LEVEL** : 4

### **RESPONSIBILITIES**

Electrical & Instrument Maintenance Supervisor is responsible to supervise technicians in carrying-out electrical maintenance works. Supervise contractor's works in carrying-out electrical and instrument maintenance works. Carry out electrical isolation/ de-isolation of electrical equipment. Monitor electrical maintenance technicians in the implementation of station work policies; HSE and Quality Policies. Perform basic troubleshooting on electrical equipment. Implement decision and direction for electrical and instrument maintenance section.

### **Knowledge:**

- Bio-gas power plant maintenance of turbine and its auxiliaries
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Supervise technicians in carrying-out electrical and instrument maintenance works.
- Supervise contractor's works in carrying-out electrical and instrument maintenance works.
- Carry out electrical isolation/ de-isolation of electrical equipment.
- Monitor electrical and instrument maintenance technicians in the implementation of station work policies; HSE and Quality Policies.
- Perform basic troubleshooting on electrical equipment.
- Implement decision and direction for electrical and instrument maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle - 3R concept.

**MSIC GROUP : 351**  
**AREA : Biogas Power Plant – Maintenance (Electrical and Instrument)**  
**JOB TITLE : Electrical and Instrument Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Electrical and Instrument Maintenance Technician is responsible to carry out electrical and instrument maintenance works. Implement station work policies; HSE and Quality Policies. Control of electrical and instrument maintenance tools and equipment. Perform basic troubleshooting on electrical and instrument equipment. Implement decision and direction for electrical and instrument maintenance section

### **Knowledge:**

- Bio-gas power plant maintenance of turbine and its auxiliaries.
- Job Safety Analysis (JSA) and Permit to Work (PTW) system.
- Troubleshooting technique such as Root Cause Analysis (RCA).

### **Skills:**

- Carry out electrical and instrument maintenance works.
- Implement station work policies; HSE and Quality Policies.
- Control of electrical and instrument maintenance tools and equipment.
- Perform basic troubleshooting on electrical and instrument equipment.
- Implement decision and direction for electrical and instrument maintenance section

### **Attributes (Attitude/Safety/Environmental)**

- Adherence to requirements and specifications towards safe, quality and timeliness deliverables.
- Take proactive action on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise Reduce, Reuse, Recycle - 3R concept.

**MSIC GROUP : 351**  
**AREA : Biogas Power Plant – Support Services (Chemist)**  
**JOB TITLE : Lab Analyst**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Lab Analyst is responsible to analyse bio-gas power plant process samples. Analyse waste effluent and flue gas emission samples. Maintain laboratory equipment. Implement decision and direction for laboratory section as per management requirements.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Comprehend the switching procedure and safety

### **Skills:**

- Analyse bio-gas power plant process samples.
- Analyse waste effluent and flue gas emission samples.
- Maintain laboratory equipment.
- Implement decision and direction for laboratory section as per management requirements.

### **Attributes (Attitude/Safety/Environmental)**

- Diligent in carrying out job scope
- Use of PPE when required
- Follow safety regulations when conducting works and tests.
- Good interpersonal skills with good attention to details
- High level of commitment and strong team player



**MSIC GROUP : 351**  
**AREA : Biogas Power Plant – Support Services (Chemist)**  
**JOB TITLE : Assistant Lab Analyst**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Assistant Lab Analyst is responsible to Assist Lab Analyst in analysing bio-gas power plant process samples. Assist Lab Analyst in analysing waste effluent and flue gas emission samples. Maintain laboratory equipment. Implement decision and direction for laboratory section as per management requirements.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Bio-gas power plant process schematic diagram

### **Skills:**

- Assist Lab Analyst in analysing bio-gas power plant process samples.
- Assist Lab Analyst in analysing waste effluent and flue gas emission samples.
- Maintain laboratory equipment.
- Implement decision and direction for laboratory section as per management requirements.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Biogas Power Plant – Support Services (Chemist)**  
**JOB TITLE : Sampling Operator**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Sampling Operator is responsible to collect bio-gas power plant process samples. Collect waste effluent and flue gas emission samples. Implement decision and direction for laboratory section as per management requirements.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Computerised Maintenance Management System (CMMS)
- Job Safety Analysis (JSA) and Permit to Work (PTW) system
- Comprehend the switching procedure and safety
- Bio-mass power plant process schematic diagram

### **Skills:**

- Collect bio-gas power plant process samples.
- Collect waste effluent and flue gas emission samples.
- Implement decision and direction for laboratory section as per management requirements.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Overhead Transmission – Project (Civil Construction)**  
**JOB TITLE : Civil Construction Executive**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Civil Construction Executive is responsible to provide leadership. Oversight for the day-to-day operations. Project management activities. Project administration activities associated with a specific Market Sector of a Business Unit. Build strong relationship with client.

#### **Knowledge:**

- Soil, piling and concrete test procedures and regulations
- Malaysia and International standard and procedure
- Various civil measurements and equipment's functionality
- The usage of design software i.e. AutoCAD

#### **Skills:**

- Provide leadership.
- Oversight for the day-to-day operations
- Project management activities
- Project administration activities associated with a specific Market Sector of a Business Unit.
- Build strong relationship with client

#### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Overhead Transmission – Project (Civil Construction)**  
**JOB TITLE : Civil Construction Supervisor**  
**LEVEL : 4**

### **RESPONSIBILITIES**

The Civil Construction Supervisor is responsible to interpret site work requirements. Site supervision of civil construction project works. Check civil construction sub-contractors site work activities. Manage day-to-day site work technical issues. Coordinate civil materials receipt on site. Coordinate civil equipment usage on site.

### **Knowledge:**

- Soil, piling and concrete test procedures and regulations
- Malaysia and International standard and procedure
- Various civil measurements and equipment's functionality
- The usage of design software i.e. AutoCAD

### **Skills:**

- Interpret site work requirements.
- Site supervision of civil construction project works.
- Check civil construction sub-contractors site work activities.
- Manage day-to-day site work technical issues.
- Coordinate civil materials receipt on site.
- Coordinate civil equipment usage on site.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Overhead Transmission – Project (Civil Construction)**  
**JOB TITLE : Civil Construction Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Civil Construction Technician responsible to carry out civil construction project works. Lead workers to execute civil construction works. Instruct civil construction sub-contractors site work activities. Address day-to-day site work technical issues. Report site work activities.

#### **Knowledge:**

- Soil, piling and concrete test procedures and regulations
- Malaysia and International standard and procedure
- Various civil measurements and equipment's functionality
- The usage of design software i.e. AutoCAD

#### **Skills:**

- Carry out civil construction project works.
- Lead workers to execute civil construction works.
- Instruct civil construction sub-contractors site work activities.
- Address day-to-day site work technical issues.
- Report site work activities.

#### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Overhead Transmission – Project (Mechanical Construction)**  
**JOB TITLE : Mechanical Construction Executive**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Mechanical Construction Executive is responsible to provide leadership. Oversight for the day-to-day operations. Project management activities. Project administration activities associated with a specific Market Sector of a Business Unit. Build strong relationship with client

### **Knowledge:**

- Soil, piling and concrete test procedures and regulations
- Malaysia and International standard and procedure
- Various civil measurements and equipment's functionality
- The usage of design software i.e. AutoCAD
- Know how on project management software i.e. Microsoft Project

### **Skills:**

- Provide leadership.
- Oversight for the day-to-day operations
- Project management activities
- Project administration activities associated with a specific Market Sector of a Business Unit.
- Build strong relationship with client

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Overhead Transmission – Project (Mechanical Construction)**  
**JOB TITLE : Mechanical Construction Supervisor**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Mechanical Construction Supervisor is responsible to interpret site work requirements. Site supervision of mechanical construction project works. Check mechanical construction sub-contractors site work activities. Manage day-to-day site work technical issues. Coordinate mechanical materials receipt on site. Coordinate mechanical equipment usage on site.

### **Knowledge:**

- Soil, piling and concrete test procedures and regulations
- Malaysia and International standard and procedure
- Various civil measurements and equipment's functionality
- The usage of design software i.e. AutoCAD

### **Skills:**

- Interpret site work requirements.
- Site supervision of mechanical construction project works.
- Check mechanical construction sub-contractors site work activities.
- Manage day-to-day site work technical issues.
- Coordinate mechanical materials receipt on site.
- Coordinate mechanical equipment usage on site.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**

**AREA : Overhead Transmission – Project (Mechanical Construction)**

**JOB TITLE : Mechanical Construction Technician**

**LEVEL : 3**

### **RESPONSIBILITIES**

Mechanical Construction Technician responsible to carry out mechanical construction project works. Lead workers to execute mechanical construction works. Instruct mechanical construction sub-contractors site work activities. Address day-to-day site work technical issues. Report site work activities.

### **Knowledge:**

- Soil, piling and concrete test procedures and regulations
- Malaysia and International standard and procedure
- Various civil measurements and equipment's functionality
- The usage of design software i.e. AutoCAD

### **Skills:**

- Carry out mechanical construction project works.
- Lead workers to execute mechanical construction works.
- Instruct mechanical construction sub-contractors site work activities.
- Address day-to-day site work technical issues.
- Report site work activities.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).



**MSIC GROUP : 351**

**AREA : Overhead Transmission – Project (Instrument and Control Construction)**

**JOB TITLE : Instrument and Control Construction Executive**

**LEVEL : 5**

### **RESPONSIBILITIES**

Instrument and Control Construction Executive is responsible to issue site work requirements. Site coordination of instrument and control construction project works. Organise instrument and control construction sub-contractors site work activities. Organise instrument and control materials receipt on site. Organise instrument and control equipment usage on site.

### **Knowledge:**

- Soil, piling and concrete test procedures and regulations
- Malaysia and International standard and procedure
- Various civil measurements and equipment's functionality
- The usage of design software i.e. AutoCAD
- Know how on project management software i.e. Microsoft Project

### **Skills:**

- Issue site work requirements.
- Site coordination of instrument and control construction project works.
- Organise instrument and control construction sub-contractors site work activities.
- Organise instrument and control materials receipt on site.
- Organise instrument and control equipment usage on site.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**

**AREA : Overhead Transmission – Project (Instrument and Control Construction)**

**JOB TITLE : Instrument and Control Construction Supervisor**

**LEVEL : 4**

### **RESPONSIBILITIES**

Instrument and Control Construction Supervisor is responsible to interpret site work requirements. Site supervision of instrument and control construction project works. Check instrument and control construction sub-contractors site work activities. Manage day-to-day site work technical issues. Coordinate instrument and control materials receipt on site. Coordinate instrument and control equipment usage on site.

### **Knowledge:**

- Soil, piling and concrete test procedures and regulations
- Malaysia and International standard and procedure
- Various civil measurements and equipment's functionality
- The usage of design software i.e. AutoCAD

### **Skills:**

- Interpret site work requirements.
- Site supervision of instrument and control construction project works.
- Check instrument and control construction sub-contractors site work activities.
- Manage day-to-day site work technical issues.
- Coordinate instrument and control materials receipt on site.
- Coordinate instrument and control equipment usage on site.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**

**AREA : Overhead Transmission – Project (Instrument and Control Construction)**

**JOB TITLE : Instrument and Control Construction Technician**

**LEVEL : 3**

### **RESPONSIBILITIES**

Instrument and Control Construction Technician responsible to carry out instrument and control construction project works. Lead workers to execute instrument and control construction works. Instruct instrument and control construction sub-contractors site work activities. Address day-to-day site work technical issues. Report site work activities.

### **Knowledge:**

- Soil, piling and concrete test procedures and regulations
- Malaysia and International standard and procedure
- Various civil measurements and equipment's functionality
- The usage of design software i.e. AutoCAD

### **Skills:**

- Carry out instrument and control construction project works.
- Lead workers to execute instrument and control construction works.
- Instruct instrument and control construction sub-contractors site work activities.
- Address day-to-day site work technical issues.
- Report site work activities.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Overhead Transmission – Operation**  
**JOB TITLE : Shift Manager**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Shift Manager is responsible to manage shift personnel in the operation of overhead transmission. Issue PTW and control of maintenance works. Check plant availability for reporting to system operator (NLDC). Investigate production restriction. Carry out system troubleshooting.

#### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- The usage of planning software
- Comprehend the switching procedure and safety
- Knowledge in Schematic Diagram

#### **Skills:**

- Manage shift personnel in the operation of overhead transmission.
- Issue PTW and control of maintenance works.
- Check plant availability for reporting to system operator (NLDC).
- Investigate production restriction.
- Carry out system troubleshooting.

#### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Overhead – Operation**  
**JOB TITLE : Panel Controller**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Panel Controller is responsible to operate overhead transmission control panel. Carry out plant start-up and shutdown operation. Carry out equipment troubleshooting. Monitor PTW and coordinate maintenance works.

#### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- The usage of planning software
- Comprehend the switching procedure and safety
- Knowledge in schematic diagram

#### **Skills:**

- Operate overhead transmission control panel.
- Carry out plant start-up and shutdown operation.
- Carry out equipment troubleshooting.
- Monitor PTW and coordinate maintenance works.

#### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Overhead Transmission – Operation**  
**JOB TITLE : Plant Operator**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Plant Operator is responsible to Operate sub-marine transmission control panel. Carry out plant start-up and shutdown operation. Carry out equipment troubleshooting.  
Monitor PTW and coordinate maintenance works.

### **Knowledge:**

- Electricity Acts and Regulations
- Malaysia Transmission Handbook
- Knowledge in electrical engineering
- Comprehend the switching procedure and safety

### **Skills:**

- Operate sub-marine transmission control panel.
- Carry out plant start-up and shutdown operation.
- Carry out equipment troubleshooting.
- Monitor PTW and coordinate maintenance works.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Overhead Transmission Maintenance (Civil and Mechanical)**  
**JOB TITLE : Civil and Mechanical Technical Assistant**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Civil and Mechanical Technical Assistant is responsible to provide technical support for civil and mechanical maintenance and plant integrity. Execute implementation of station work policies; HSE and Quality Policies. Perform troubleshooting on civil & mechanical equipment. Perform civil & mechanical section budget for maintenance and new projects. Implement decision and direction for civil & mechanical maintenance section.

### **Knowledge:**

- Soil movement analysis procedures and regulations
- Tower and steel analysis, procedures and regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various civil measurements and equipment's functionality
- Various NDT Test on mechanical apparatus
- The usage of design software i.e. AutoCAD
- Know how on project management software i.e. Microsoft Project

### **Skills:**

- Prepare documents for site status report, incidents and test procedure
- Identified site components required through design and construction technical drawing
- Familiar with all civil and mechanical test equipment and measurement as procedures.
- Utilise measuring and diagnostic tools to adjust and / or troubleshoot problem at site

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Overhead Transmission – Maintenance (Civil and Mechanical)**  
**JOB TITLE : Civil and Mechanical Foreman**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Civil and Mechanical Foreman is responsible to supervise technicians in carrying-out civil and mechanical maintenance works. Supervise contractor's works in carrying-out civil and mechanical maintenance works. Carry out civil & mechanical isolation/de-isolation of electrical equipment. Monitor civil and mechanical maintenance technicians in the implementation of station work policies; HSE and Quality Policies. Perform basic troubleshooting on electrical equipment. Implement decision and direction for civil & mechanical maintenance section.

### **Knowledge:**

- Soil movement analysis procedures and regulations
- Tower and steel analysis, procedures and regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various civil measurements and equipment's functionality
- Various NDT Test on mechanical apparatus
- The usage of design software i.e. AutoCAD
- Know how on project management software i.e. Microsoft Project

### **Skills:**

- Supervise technicians in carrying out civil and mechanical maintenance works.
- Supervise contractor's works in carrying out civil and mechanical maintenance works.
- Carry out civil and mechanical isolation/de-isolation of electrical equipment.
- Monitor civil and mechanical maintenance technicians in the implementation of station work policies; HSE and Quality Policies.
- Perform basic troubleshooting on electrical equipment.
- Implement decision and direction for civil and mechanical maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).



**MSIC GROUP : 351**  
**AREA : Overhead Transmission – Maintenance (Civil and Mechanical)**  
**JOB TITLE : Civil and Mechanical Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Civil and Mechanical Technician is responsible to carry out civil & mechanical maintenance works. Implement station work policies; HSE and Quality Policies. Control of civil and mechanical maintenance tools and equipment. Perform basic troubleshooting on civil and mechanical equipment. Implement decision and direction for civil & mechanical maintenance section.

### **Knowledge:**

- Civil or Mechanical Engineering
- Malaysian and International standards and procedures on electrical tower and pylon
- Various civil measurements and equipment's functionality
- Various NDT Test on mechanical apparatus

### **Skills:**

- Carry out civil and mechanical maintenance works.
- Implement station work policies; HSE and Quality Policies.
- Control of civil and mechanical maintenance tools and equipment.
- Perform basic troubleshooting on civil and mechanical equipment.
- Implement decision and direction for civil and mechanical maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Overhead Transmission – Maintenance (Instrument and Control)**  
**JOB TITLE : Instrument and Control Technical Assistant**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Instrument and Control Technical Assistant is responsible to Provide technical support for instrument and control maintenance and plant integrity. Execute implementation of station work policies; HSE and Quality Policies. Perform troubleshooting on instrument and control equipment. Perform instrument & control section budget for maintenance and new projects. Implement decision and direction for instrument and control maintenance section.

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, Electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Prepare documents for site status report, incidents and test procedure
- Identified site components required through design and as built technical drawing
- Familiar with all electrical and instruments test equipment and measurement as procedures.
- Utilise measuring and diagnostic tools to adjust and / or troubleshoot problem at site

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Intolerant to unsafe work practices.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Overhead Transmission – Maintenance (Instrument and Control)**  
**JOB TITLE : Instrument and Control Supervisor**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Instrument and Control Supervisor is responsible to supervise technicians in carrying-out instrument and control maintenance works. Supervise contractor's works in carrying out instrument and control maintenance works. Carry out instrument and control isolation/de-isolation of electrical equipment. Monitor instrument and control maintenance technicians in the implementation of station work policies; HSE and Quality Policies. Implement decision and direction for instrument and control maintenance section.

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, Electrical procedure and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Supervise technicians in carrying out instrument and control maintenance works.
- Supervise contractor's works in carrying out instrument and control maintenance works.
- Carry out instrument and control isolation/de-isolation of electrical equipment.
- Monitor instrument and control maintenance technicians in the implementation of station work policies; HSE and Quality Policies.
- Perform basic troubleshooting on electrical equipment.
- Implement decision and direction for instrument and control maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Overhead Transmission – Maintenance (Instrument and Control)**  
**JOB TITLE : Instrument and Control Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Instrument and Control Technician is responsible to carry out instrument and control maintenance works. Implement station work policies; HSE and Quality Policies. Control of instrument and control maintenance tools and equipment. Perform basic troubleshooting on instrument and control equipment. Implement decision and direction for instrument and control maintenance section.

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Carry out instrument and control maintenance works.
- Implement station work policies; HSE and Quality Policies.
- Control of instrument and control maintenance tools and equipment.
- Perform basic troubleshooting on instrument and control equipment.
- Implement decision and direction for instrument and control maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Distribution: Sub-Station – Operation**  
**JOB TITLE : Shift Manager**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Shift Manager is responsible to Manage shift personnel in the operation of distribution: sub-station transmission. Issue PTW and control of maintenance works. Check plant availability for reporting to system operator (NLDC). Investigate production restriction. Carry out system troubleshooting.

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Manage shift personnel in the operation of distribution: sub-station transmission.
- Issue PTW and control of maintenance works.
- Check plant availability for reporting to system operator (NLDC).
- Investigate production restriction.
- Carry out system troubleshooting.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Distribution: Sub-Station – Operation**  
**JOB TITLE : Panel Controller**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Panel Controller is responsible to operate distribution: sub-station transmission control panel. Carry out plant start-up and shutdown operation. Carry out equipment troubleshooting. Monitor PTW and coordinate maintenance works.

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Operate distribution: sub-station transmission control panel.
- Carry out plant start-up and shutdown operation.
- Carry out equipment troubleshooting.
- Monitor PTW and coordinate maintenance works.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Distribution: Sub-Station – Maintenance (Instrument)**  
**JOB TITLE : Instrument Technical Assistant**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Instrument Technical Assistant is responsible to provide technical support for instrument maintenance and plant integrity. Execute implementation of station work policies; HSE and Quality Policies. Perform troubleshooting on instrument equipment. Perform instrument section budget for maintenance and new projects. Implement decision and direction for instrument maintenance section.

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Provide technical support for instrument maintenance and plant integrity.
- Execute implementation of station work policies; HSE and Quality Policies.
- Perform troubleshooting on instrument equipment.
- Perform instrument section budget for maintenance and new projects.
- Implement decision and direction for instrument maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : Distribution: Sub-Station – Maintenance (Instrument)**  
**JOB TITLE : Instrument Foreman**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Instrument Foreman is responsible to supervise technicians in carrying-out instrument maintenance works. Supervise contractor's works in carrying out instrument maintenance works. Monitor instrument maintenance technicians in the implementation of station work policies; HSE and Quality Policies. Perform basic troubleshooting on instrument equipment. Implement decision and direction for instrument maintenance section.

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Supervise technicians in carrying out instrument maintenance works.
- Supervise contractor's works in carrying out instrument maintenance works.
- Monitor instrument maintenance technicians in the implementation of station work policies; HSE and Quality Policies.
- Perform basic troubleshooting on instrument equipment.
- Implement decision and direction for instrument maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).



**MSIC GROUP : 351**  
**AREA : Distribution: Sub-Station – Maintenance (Instrument)**  
**JOB TITLE : Instrument Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Instrument Technician is responsible to carry out instrument maintenance works. Implement station work policies; HSE and Quality Policies. Control of instrument maintenance tools and equipment. Perform basic troubleshooting on instrument equipment. Implement decision and direction for instrument maintenance section.

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Carry out instrument maintenance works.
- Implement station work policies; HSE and Quality Policies.
- Control of instrument maintenance tools and equipment.
- Perform basic troubleshooting on instrument equipment.
- Implement decision and direction for instrument maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : 33kV/11kV Transmission – Maintenance (Electrical)**  
**JOB TITLE : Electrical Wireman**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Electrical Wireman is responsible to supervise technicians in carrying out electrical maintenance works. Supervise contractor's works in carrying out electrical maintenance works. Monitor electrical maintenance technicians in the implementation of station work policies; HSE and Quality Policies. Perform basic troubleshooting on electrical equipment. Implement decision and direction for electrical maintenance section.

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Supervise technicians in carrying out electrical maintenance works.
- Supervise contractor's works in carrying out electrical maintenance works.
- Monitor electrical maintenance technicians in the implementation of station work policies; HSE and Quality Policies.
- Perform basic troubleshooting on electrical equipment.
- Implement decision and direction for electrical maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : 33kV/11kV Transmission – Maintenance (Electrical)**  
**JOB TITLE : Electrical Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Electrical Technician is responsible to carry out electrical maintenance works. Implement station work policies; HSE and Quality Policies. Control of electrical maintenance tools and equipment. Perform basic troubleshooting on electrical equipment. Implement decision and direction for electrical maintenance section.

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Carry out electrical maintenance works.
- Implement station work policies; HSE and Quality Policies.
- Control of electrical maintenance tools and equipment.
- Perform basic troubleshooting on electrical equipment.
- Implement decision and direction for electrical maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : 415V/240V Transmission – Maintenance (Electrical)**  
**JOB TITLE : Electrical Wireman**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Electrical Wireman is responsible to supervise technicians in carrying-out electrical maintenance works. Supervise contractor's works in carrying-out electrical maintenance works. Monitor electrical maintenance technicians in the implementation of station work policies; HSE and Quality Policies. Perform basic troubleshooting on electrical equipment. Implement decision and direction for electrical maintenance section.

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Supervise technicians in carrying out electrical maintenance works.
- Supervise contractor's works in carrying out electrical maintenance works.
- Monitor electrical maintenance technicians in the implementation of station work policies; HSE and Quality Policies.
- Perform basic troubleshooting on electrical equipment.
- Implement decision and direction for electrical maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 351**  
**AREA : 415V/240V Transmission – Maintenance (Electrical)**  
**JOB TITLE : Electrical Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Electrical Technician is responsible to carry out electrical maintenance works. Implement station work policies; HSE and Quality Policies. Control of electrical maintenance tools and equipment. Perform basic troubleshooting on electrical equipment. Implement decision and direction for electrical maintenance section.

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Carry out electrical maintenance works.
- Implement station work policies; HSE and Quality Policies.
- Control of electrical maintenance tools and equipment.
- Perform basic troubleshooting on electrical equipment.
- Implement decision and direction for electrical maintenance section.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 352**  
**AREA : Operation – Process**  
**JOB TITLE : Senior Process Field Operator**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Senior Process Field Operator is responsible to Calculate gas ratios, using testing apparatus, to detect deviations from specifications. Test oxygen for purity and moisture content at various stages of process, using burette and moisture meter. Control operation of compressors, scrubbers, evaporators, and refrigeration equipment to liquefy, compress, or degasify natural gas. Control fractioning columns, compressors, purifying towers, heat exchangers, and related equipment, to extract nitrogen and oxygen from air. Observe pressure, temperature, level, and flow gauges to ensure standard operation.

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Calculate gas ratios, using testing apparatus, to detect deviations from specifications.
- Test oxygen for purity and moisture content at various stages of process, using burette and moisture meter
- Control operation of compressors, scrubbers, evaporators, and refrigeration equipment to liquefy, compress, or degasify natural gas.
- Control fractioning columns, compressors, purifying towers, heat exchangers, and related equipment, to extract nitrogen and oxygen from air.
- Observe pressure, temperature, level, and flow gauges to ensure standard operation.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 352**  
**AREA : Operation – Process (Field Operator)**  
**JOB TITLE : Process Field Operator**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Process Field Operator is responsible to calculate gas ratios, using testing apparatus, to detect deviations from specifications. Test oxygen for purity and moisture content at various stages of process, using burette and moisture meter. Control operation of compressors, scrubbers, evaporators, and refrigeration equipment to liquefy, compress, or degasify natural gas. Control fractioning columns, compressors, purifying towers, heat exchangers, and related equipment, to extract nitrogen and oxygen from air. Observe pressure, temperature, level and flow gauges to ensure standard operation.

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Calculate gas ratios, using testing apparatus, to detect deviations from specifications.
- Test oxygen for purity and moisture content at various stages of process, using burette and moisture meter
- Control operation of compressors, scrubbers, evaporators, and refrigeration equipment to liquefy, compress, or degasify natural gas.
- Control fractioning columns, compressors, purifying towers, heat exchangers, and related equipment, to extract nitrogen and oxygen from air.
- Observe pressure, temperature, level, and flow gauges to ensure standard operation.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 352**  
**AREA : Maintenance – Electrical**  
**JOB TITLE : Senior Electrical Maintenance Technician**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Senior Electrical Maintenance Technician is responsible to maintain and repairs plant/facilities' electrical equipment. Perform routine and preventive maintenance on equipment. Surveys the operation of all central utilities systems throughout the plant for defects/malfunctions and determines cause and effect of defects/malfunctions

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Maintains and repairs plant/facility's electrical equipment.
- Perform routine and preventive maintenance on equipment.
- Surveys the operation of all central utility systems throughout the plant for defects/malfunctions and determines cause and effect of defects/malfunctions
- Determines cause and effect of defects/malfunctions.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).



**MSIC GROUP : 352**  
**AREA : Maintenance – Electrical**  
**JOB TITLE : Electrical Maintenance Technician**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Electrical Maintenance Technician is responsible to maintain and repair plant/facility's electrical equipment. Perform routine and preventive maintenance on equipment. Surveys the operation of all central utilities systems throughout the plant for defects/malfunctions and determines cause and effect of defects/malfunctions

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Maintains and repairs plant/facility's electrical equipment.
- Perform routine and preventive maintenance on equipment.
- Surveys the operation of all central utilities systems throughout the plant for defects/malfunctions and determines cause and effect of defects/malfunctions.
- Determines cause and effect of defects/malfunctions.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 352**  
**AREA : Maintenance – Mechanical (Static)**  
**JOB TITLE : Senior Mechanical Static Maintenance Technician**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Senior Mechanical Static Maintenance Technician is responsible to maintain and repair plant/facility's mechanical equipment. Perform routine and preventive maintenance on equipment. Surveys the operation of all central utilities systems throughout the plant for defects/malfunctions and determines cause and effect of defects/malfunctions

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Maintains and repairs plant/facility's mechanical equipment.
- Perform routine and preventive maintenance on equipment.
- Surveys the operation of all central utility systems throughout the plant for defects/malfunctions and determines cause and effect of defects/malfunctions.
- Determines cause and effect of defects/malfunctions.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 352**  
**AREA : Maintenance – Mechanical (Static)**  
**JOB TITLE : Mechanical Static Maintenance Technician**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Mechanical Static Maintenance Technician is responsible to maintain and repair plant/facility's mechanical equipment. Perform routine and preventive maintenance on equipment. Surveys the operation of all central utilities systems throughout the plant for defects/malfunctions and determines cause and effect of defects/malfunctions.

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Maintains and repairs plant/facility's mechanical equipment.
- Perform routine and preventive maintenance on equipment.
- Surveys the operation of all central utility systems throughout the plant for defects/malfunctions and determines cause and effect of defects/malfunctions.
- Determines cause and effect of defects/malfunctions.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 352**  
**AREA : Maintenance – Mechanical (Rotating)**  
**JOB TITLE : Senior Mechanical Rotating Maintenance Technician**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Senior Mechanical Rotating Maintenance Technician is responsible to maintain and repair plant/facility's mechanical equipment. Perform routine and preventive maintenance on equipment. Surveys the operation of all central utilities systems throughout the plant for defects/malfunctions and determines cause and effect of defects/malfunctions.

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Maintains and repairs plant/facility's mechanical equipment.
- Performs routine and preventive maintenance on equipment.
- Surveys the operation of all central utility systems throughout the plant for defects/malfunctions and determines cause and effect of defects/malfunctions.
- Determines cause and effect of defects/malfunctions.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 352**  
**AREA : Maintenance – Mechanical (Rotating)**  
**JOB TITLE : Mechanical Rotating Maintenance Technician**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Mechanical Static Maintenance Technician is responsible to maintain and repair plant/facility's mechanical equipment. Perform routine and preventive maintenance on equipment. Surveys the operation of all central utility systems throughout the plant for defects/malfunctions and determines cause and effect of defects/malfunctions.

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Maintains and repairs plant/facility's mechanical equipment.
- Performs routine and preventive maintenance on equipment.
- Surveys the operation of all central utility systems throughout the plant for defects/malfunctions and determines cause and effect of defects/malfunctions.
- Determines cause and effect of defects/malfunctions.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 352**  
**AREA : Maintenance – Mechanical (Turbine)**  
**JOB TITLE : Senior Mechanical Turbine Maintenance Technician**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Senior Mechanical Turbine Maintenance Technician is responsible to maintain and repair plant/facility's mechanical equipment. Performs routine and preventive maintenance on equipment. Surveys the operation of all central utility systems throughout the plant for defects/malfunctions and determines cause and effect of defects/malfunctions.

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Maintains and repairs plant/facility's mechanical equipment.
- Performs routine and preventive maintenance on equipment.
- Surveys the operation of all central utility systems throughout the plant for defects/malfunctions and determines cause and effect of defects/malfunctions.
- Determines cause and effect of defects/malfunctions.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 352**  
**AREA : Maintenance – Mechanical (Turbine)**  
**JOB TITLE : Mechanical Turbine Maintenance Technician**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Senior Mechanical Turbine Maintenance Technician is responsible to maintain and repair plant/facility's mechanical equipment. Performs routine and preventive maintenance on equipment. Surveys the operation of all central utility systems throughout the plant for defects/malfunctions and determines cause and effect of defects/malfunctions.

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Maintains and repairs plant/facility's mechanical equipment.
- Performs routine and preventive maintenance on equipment.
- Surveys the operation of all central utilities systems throughout the plant for defects/malfunctions and determines cause and effect of defects/malfunctions.
- Determines cause and effect of defects/malfunctions.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 352**  
**AREA : Maintenance – Instrument**  
**JOB TITLE : Senior Instrument Maintenance Technician**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Senior Instrument Maintenance Technician is responsible to maintain and repair plant/facility's instrument equipment. Performs routine and preventive maintenance on equipment. Surveys the operation of all central utilities systems throughout the plant for defects/malfunctions and determines cause and effect of defects/malfunctions.

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Maintains and repairs plant/facility's instrument equipment.
- Performs routine and preventive maintenance on equipment.
- Surveys the operation of all central utility systems throughout the plant for defects/malfunctions and determines cause and effect of defects/malfunctions.
- Determines cause and effect of defects/malfunctions.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).



**MSIC GROUP : 352**  
**AREA : Maintenance – Instrument**  
**JOB TITLE : Instrument Maintenance Technician**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Instrument Maintenance Technician is responsible to maintain and repair plant/facility's instrument equipment. Performs routine and preventive maintenance on equipment. Surveys the operation of all central utility systems throughout the plant for defects/malfunctions and determines cause and effect of defects/malfunctions.

### **Knowledge:**

- Electrical and Control Engineering
- Power Quality Analysis, electrical procedures and regulations
- Malaysia Electricity Acts and Regulations
- Malaysian and International standards and procedures on electrical tower and pylon
- Various electrical and instruments measurements and equipment's functionality
- Various NDT Test on electrical and Scada apparatus
- The usage of design software i.e. AutoCAD

### **Skills:**

- Maintains and repairs plant/facility's instrument equipment.
- Performs routine and preventive maintenance on equipment.
- Surveys the operation of all central utility systems throughout the plant for defects/malfunctions and determines cause and effect of defects/malfunctionss
- Determines cause and effect of defects/malfunctions.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 352**  
**AREA : Construction**  
**JOB TITLE : Construction Engineering Assistant**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Construction Engineering Assistant is responsible to maintain and enforce housekeeping and hygiene standards inside the construction areas. Monitor and enforce the adherence to the safety standards, rules and regulations. Ensure construction is executed in accordance with applicable specifications, drawings and standards with special emphasis on revision control.

### **Knowledge:**

- Knowledge in pipeline construction standards, regulations and procedure.
- Knowledge in pipeline construction flow.
- Management of Project Schedule and daily activities.
- Testing and commissioning procedures.
- Site safety.

### **Skills:**

- Report to the Project Engineer.
- Maintain and enforce housekeeping and hygiene standards inside the construction areas.
- Monitor and enforce the adherence to the safety standards, rules and regulations
- Ensure construction is executed in accordance with applicable specifications, drawings and standards with special emphasis on revision control

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 352**  
**AREA : Construction**  
**JOB TITLE : Construction Supervisor**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Construction Supervisor is responsible for the report to the Construction Engineering Assistant. Daily and summary reporting to Project Engineer Assistant as and when required. Responsible for the supervision of construction of the assigned project. To monitor and manage the construction team/contractors for quality and safe construction site. Ensuring contractors of site construction follow and implement the project requirements.

### **Knowledge:**

- Knowledge in pipeline construction standards, regulations and procedures.
- Knowledge in pipeline construction flow.
- Management of Project Schedule and daily activities
- Testing and commissioning procedures.
- Site safety

### **Skills:**

- Report to the Project Engineering Assistant.
- Daily and summary reporting to Project Engineer Assistant as and when required.
- Responsible for the supervision of construction of the assigned project
- To monitor and manage the construction team/contractors for quality and safe construction site.
- Ensuring contractors of site construction follow and implement the project requirements.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 352**  
**AREA : Operation and Maintenance**  
**JOB TITLE : Operation and Maintenance Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Operation and Maintenance Technician is responsible to operate and maintain various equipment/systems including automatic pigging launchers, manual pigging launchers, pipeline main line block valves, regulators, meters, filters, and gauges. Work within the guidelines and parameters established by the Company for safety and operations.

#### **Knowledge:**

- Standards and regulations.
- Equipment manual/specification (compressor, valve, regulator, meter and etc.)
- Knowledge in pipeline construction standards, regulations and procedures.
- Knowledge in pipeline construction flow.
- Management of Project Schedule and daily activities
- Testing and commissioning procedures.
- Site safety.

#### **Skills:**

- Operate and maintain various equipment/systems including automatic pigging launchers, manual pigging launchers, pipeline main line block valves, regulators, meters, filters and gauges.
- Work within the guidelines and parameters established by the Company for safety and operations.
- Be knowledgeable of company, standards and regulatory requirements.
- Inspect, maintain and repair as needed all facilities as assigned, including but not limited to pipelines, compression and measurement facilities.

#### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 352**  
**AREA : Operation and Maintenance**  
**JOB TITLE : Junior Operation and Maintenance Technician**  
**LEVEL : 2**

### **RESPONSIBILITIES**

Junior Operation and Maintenance Technician is responsible to inspect, maintain and repair as needed all facilities as assigned, including but not limited to pipelines, compression, and measurement facilities. Work within the guidelines and parameters established by the company for safety and operations. Be knowledgeable of the company, standards and regulatory requirements.

#### **Knowledge:**

- Standards and regulations
- Equipment manual/specification (compressor, valve, regulator, meter and etc.)
- Knowledge in pipeline construction standards, regulations and procedures.
- Knowledge in pipeline construction flow.
- Management of Project Schedule and daily activities
- Testing and commissioning procedures.
- Site safety.

#### **Skills:**

- Work within the guidelines and parameters established by the company for safety and operations.
- Be knowledgeable of the company, standards and regulatory requirements.
- Inspect, maintain and repair as needed all facilities as assigned, including but not limited to pipelines, compression, and measurement facilities.

#### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 352**  
**AREA : Gas System Management – Operation Services**  
**JOB TITLE : Operation Services Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Operation Services Technician is responsible for efficiently and safely operate and maintain various equipment/systems including Electronic Volume Corrector (EVC), Electronic Flow Measurement (EFM), SCADA and etc. Work within the guidelines and parameters established by the company for safety and operations. Be knowledgeable of the company, standards and regulatory requirements. Inspect, validate, maintain and repair as needed all facilities as assigned, including but not limited to EVC, EFM, SCADA.

#### **Knowledge:**

- Standards and regulations
- Equipment manual/specification (compressor, valve, regulator, meter and etc.)
- Knowledge in pipeline construction standards, regulations and procedures.
- Knowledge in pipeline construction flow.
- Management of Project Schedule and daily activities
- Testing and commissioning procedures.
- Site safety

#### **Skills:**

- Efficiently and safely operate and maintain various equipment/systems including Electronic Volume Corrector (EVC), Electronic Flow Measurement (EFM), SCADA and etc.
- Work within the guidelines and parameters established by the company for safety and operations.
- Be knowledgeable of the company, standards and regulatory requirements.
- Inspect, validate, maintain and repair as needed all facilities as assigned, including but not limited to EVC, EFM, SCADA.

#### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 352**

**AREA : Gas System Management – Operation Services**

**JOB TITLE : Junior Operation Services Technician**

**LEVEL : 2**

### **RESPONSIBILITIES**

Junior Operation Services Technician is responsible to efficiently and safely operate and maintain various equipment/systems including Electronic Volume Corrector (EVC), Electronic Flow Measurement (EFM) and SCADA. Work within the guidelines and parameters established by the company for safety and operations. Be knowledgeable of the company, standards and regulatory requirements. Inspect, validate, maintain and repair as needed all facilities as assigned, including but not limited to EVC, EFM, SCADA.

#### **Knowledge:**

- Standards and regulations
- Equipment manual/specification (compressor, valve, regulator, meter and etc.)
- Knowledge in pipeline construction standards, regulations and procedure.
- Knowledge in pipeline construction flow.
- Management of Project Schedule and daily activities
- Testing and commissioning procedures.
- Site safety

#### **Skills:**

- Efficiently and safely operate and maintain various equipment/systems including Electronic Volume Corrector (EVC), Electronic Flow Measurement (EFM), SCADA and etc.
- Work within the guidelines and parameters established by the company for safety and operations.
- Be knowledgeable of the company, standards and regulatory requirements.
- Inspect, validate, maintain and repair as needed all facilities as assigned, including but not limited to EVC, EFM, SCADA.

#### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.

- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).



**MSIC GROUP : 352**  
**AREA : Technical Support**  
**JOB TITLE : Technical Support Engineering Assistant**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Technical Support Engineering Assistant is responsible to assist Engineer. To conduct customer's equipment investigation (gas equipment parameters including burner, regulator, valve and etc). To design and propose pipe routing and sizing, metering station size. To assist engineer in recommendations to customers on burner conversion, piping/equipment installation in compliance to regulation/standards in most effective manner.

### **Knowledge:**

- Gas properties and characteristics
- Gas Act and Regulations
- Factory and Machinery Act
- Malaysian Standards

### **Skills:**

- Assist Engineer.
- To conduct customer's equipment investigation (gas equipment parameters including burner, regulator, valve and etc.)
- To design and propose pipe routing and sizing and metering station size.
- To assist engineer in recommendations to customers on burner conversion, piping/equipment installation in compliance to regulations/standards in most effective manner.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 352**  
**AREA : Technical Support**  
**JOB TITLE : Senior Technical Support Technician**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Senior Technical Support Technician is responsible to assist in conducting customer's equipment investigation (gas equipment parameters including burner, regulator, valve and etc.) To assist in designing and proposing pipe routing and sizing, metering station size. To assist engineer for recommendation to customer on burner conversion, piping/equipment installation in compliance to regulations/standards in most effective manner. Attend technical inquiry and troubleshooting on gas supply.

### **Knowledge:**

- Gas properties and characteristics
- Gas Act and Regulations
- Factory and Machinery Act
- Malaysian Standards

### **Skills:**

- To assist in conducting customer's equipment investigation (gas equipment parameters including burner, regulator, valve and etc.)
- To assist in designing and proposing pipe routing and sizing, metering station size.
- To assist engineer in recommendations to customers on burner conversion, piping/equipment installation in compliance to regulations/standards in most effective manner.
- Attend technical inquiry and troubleshooting on gas supply.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP : 352**  
**AREA : Technical Support**  
**JOB TITLE : Technical Support Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Technical Support Technician is responsible to assist in conducting customer's equipment investigation (gas equipment parameters including burner, regulator, valve and etc.). To assist in designing and proposing pipe routing and sizing, metering station size. To assist engineer in recommendations to customers on burner conversion, piping/equipment installation in compliance to regulation/standards in most effective manner. Attend technical inquiry and troubleshooting on gas supply.

### **Knowledge:**

- Gas properties and characteristics
- Gas Act and Regulations
- Factory and Machinery Act
- Malaysian Standards

### **Skills:**

- To assist in conducting customer's equipment investigation (gas equipment parameters including burner, regulator, valve and etc.)
- To assist in designing and proposing pipe routing and sizing, metering station size.
- To assist engineer in recommendations to customer son burner conversion, piping/equipment installation in compliance to regulations/standards in most effective manner.
- Attend technical inquiry and troubleshooting on gas supply.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP** : 353  
**AREA** : Production, collection and distribution of steam and hot water for heating, power and other purposes – Research and Development – Electrical  
**JOB TITLE** : Electrical Technical Assistant  
**LEVEL** : 5

### **RESPONSIBILITIES**

Electrical Technical Assistant is responsible to support technical and engineering personnel with project support duties. Compiles technical reports. Provides input to technical studies/research projects, technical reports, project planning, etc. Produce accurate statistics, relevant figures, etc. Undertakes data analysis, identifies and investigates variations.

### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks and manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

### **Skills:**

- Supports technical and engineering personnel with project support duties
- Compiles technical reports
- Provides input to technical studies/research projects, technical reports, project planning, etc.
- Produces accurate statistics, relevant figures, etc.
- Undertakes data analysis, identifies and investigates variations.
- Prepares technical drawings, datasheets and documents under the direction of engineers.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle).

**MSIC GROUP** : 353  
**AREA** : Production, collection and distribution of steam and hot water for heating, power and other purposes – Research and Development – Electrical  
**JOB TITLE** : Senior Electrical Technician  
**LEVEL** : 4

### **RESPONSIBILITIES**

Senior Electrical Technician is responsible to liaise with production support engineers regarding production issues. Ensures the effective working of the Permit to Work system. Solves problems caused by production outages. Ensures that production losses are minimised. Ensures the production plant, processes and equipment are functioning efficiently.

### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

### **Skills:**

- Liaises with production support engineers regarding production issues
- Ensures the effective working of the Permit to Work system
- Solves problems caused by production outages
- Ensures that production losses are minimised
- Ensures the production plant, processes and equipment are functioning efficiently

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)

**MSIC GROUP** : 353  
**AREA** : Production, collection and distribution of steam and hot water for heating, power and other purposes – Research and Development – Electrical  
**JOB TITLE** : Electrical Technician  
**LEVEL** : 3

### **RESPONSIBILITIES**

Electrical Technician is responsible to design, maintain, implement or improve electrical instruments, facilities, components, equipment products or systems for industrial, commercial or domestic purposes.

#### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

#### **Skills:**

- Designing and laying out new electrical systems
- Creating system models and simulations
- Testing new systems and making design changes if needed
- Producing necessary design reports and documentation
- Assisting in the manufacture of new electrical systems

#### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)

**MSIC GROUP** : 353  
**AREA** : Production, collection and distribution of steam and hot water for heating, power and other purposes – Research and Development – Mechanical  
**JOB TITLE** : Mechanical Technical Assistant  
**LEVEL** : 5

### **RESPONSIBILITIES**

Mechanical Technical Assistant is responsible to design, maintain, implement and improve mechanical instruments, facilities, components, equipment products or systems for industrial, commercial or domestic purposes. Including validation of new designs.

#### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

#### **Skills:**

- Designing, maintaining, implementing or improving mechanical instruments, facilities, components, equipment products or systems for industrial, commercial or domestic purposes.
- Performing a wide range of engineering tasks by operating computer-assisted design or engineering software and equipment.
- Planning and implementing research methodology and procedures to apply principles of mechanical theory to engineering projects.

#### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)

**MSIC GROUP** : 353  
**AREA** : Production, collection and distribution of steam and hot water for heating, power and other purposes – Research and Development – Mechanical  
**JOB TITLE** : Senior Mechanical Technician  
**LEVEL** : 4

### **RESPONSIBILITIES**

Senior Mechanical Technician is responsible to liaise with production support engineers regarding production issues. Ensures the effective working of the Permit to Work system. Solves problems caused by production outages. Ensures that production losses are minimised. Ensures the production plant, processes and equipment are functioning efficiently

### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

### **Skills:**

- Liaises with production support engineers regarding production issues.
- Ensures the effective working of the Permit to Work system.
- Solves problems caused by production outages.
- Ensures that production losses are minimised.
- Ensures the production plant, processes and equipment are functioning efficiently.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)



**MSIC GROUP** : 353  
**AREA** : Production, collection and distribution of steam and hot water for heating, power and other purposes – Research and Development – Mechanical  
**JOB TITLE** : Mechanical Technician  
**LEVEL** : 3

### **RESPONSIBILITIES**

Mechanical Technician is responsible to liaise with production support engineers regarding production issues. Ensures the effective working of the Permit to Work system. Solves problems caused by production outages. Ensures that production losses are minimised. Ensures the production plant, processes and equipment are functioning efficiently.

### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

### **Skills:**

- Liaises with production support engineers regarding production issues.
- Ensures the effective working of the Permit to Work system.
- Solves problems caused by production outages.
- Ensures that production losses are minimised.
- Ensures the production plant, processes and equipment are functioning efficiently.

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)

**MSIC GROUP** : 353  
**AREA** : Production, collection and distribution of steam and hot water for heating, power and other purposes – Production – Hot Water (Maintenance)  
**JOB TITLE** : Maintenance Technical Assistant  
**LEVEL** : 5

### **RESPONSIBILITIES**

Mechanical Technical Assistant is responsible to design, maintain, implement or improve instruments, facilities, components, equipment products or systems for industrial, commercial or domestic purposes. Performing a wide range of engineering tasks by operating computer-assisted design or engineering software and equipment.

#### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

#### **Skills:**

- Designing, maintaining, implementing or improving instruments, facilities, components, equipment products or systems for industrial, commercial or domestic purposes.
- Performing a wide range of engineering tasks by operating computer-assisted design or engineering software and equipment.
- Planning and implementing research methodology and procedures to apply principles of energy theory to engineering projects.
- Preparing specifications for purchase of materials and equipment.

#### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)

**MSIC GROUP** : 353  
**AREA** : Production, collection and distribution of steam and hot water for heating, power and other purposes – Production – Hot Water (Maintenance)  
**JOB TITLE** : Maintenance Supervisor  
**LEVEL** : 4

### **RESPONSIBILITIES**

Maintenance Supervisor is responsible in parameter and procedures development, Safety, Health and Environment Compliance, maintenance management, project management and operation administration.

### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

### **Skills:**

- Develop parameter and procedures.
- Comply with Safety, Health and Environmental requirements
- Supervise maintenance management
- Supervise project management

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)

**MSIC GROUP** : 353  
**AREA** : Production, collection and distribution of steam and hot water for heating, power and other purposes – Production – Hot Water (Maintenance)  
**JOB TITLE** : Maintenance Technician  
**LEVEL** : 3

### **RESPONSIBILITIES**

Maintenance Technician is responsible for Control Room operation, operation monitoring and optimisation, machinery maintenance, lab operation and administrative functions.

#### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

#### **Skills:**

- Control Room operation
- Operation monitoring and optimisation
- Machinery maintenance
- Lab operation
- Administrative functions

#### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)

**MSIC GROUP : 353**  
**AREA : Production, collection and distribution of steam and hot water for heating, power and other purposes – Production – Gas/Biogas/Biomass (Maintenance)**  
**JOB TITLE : Maintenance Technical Assistant**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Maintenance Technical Assistant is responsible to design, maintain, implement or improve instruments, facilities, components, equipment products or systems for industrial, commercial or domestic purposes. Performing a wide range of engineering tasks by operating computer-assisted design or engineering software and equipment.

#### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

#### **Skills:**

- Designing, maintaining, implementing or improving instruments, facilities, components, equipment products or systems for industrial, commercial or domestic purposes.
- Performing a wide range of engineering tasks by operating computer-assisted design or engineering software and equipment.
- Planning and implementing research methodology and procedures to apply principles of energy theory to engineering projects.
- Preparing specifications for purchase of materials and equipment.

#### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)

**MSIC GROUP** : 353  
**AREA** : Production, collection and distribution of steam and hot water for heating, power and other purposes – Production – Gas/Biogas/Biomass (Maintenance)  
**JOB TITLE** : Maintenance Supervisor  
**LEVEL** : 4

### **RESPONSIBILITIES**

Maintenance Supervisor is responsible to develop parameter and procedures as well as Safety, Health and Environment Compliance. Supervise maintenance management and project management.

#### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

#### **Skills:**

- Develop parameter and procedures.
- Safety, Health and Environment Compliance
- Supervise maintenance management
- Supervise project management

#### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)

**MSIC GROUP** : 353  
**AREA** : Production, collection and distribution of steam and hot water for heating, power and other purposes – Production – Gas/Biogas/Biomass (Maintenance)  
**JOB TITLE** : Maintenance Technician  
**LEVEL** : 3

### **RESPONSIBILITIES**

Maintenance Technician is responsible to design, maintain, implement or improve instruments, facilities, components, equipment products or systems for industrial, commercial or domestic purposes.

#### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

#### **Skills:**

- Designing and laying out new electrical systems
- Creating system models and simulations
- Testing new systems and making design changes if needed
- Producing necessary design reports and documentation
- Assisting in the manufacture of new electrical systems

#### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)

**MSIC GROUP** : 353  
**AREA** : Production and distribution of cooled air, chilled water for cooling purposes – Research & Development – Electrical  
**JOB TITLE** : Electrical Technical Assistant  
**LEVEL** : 5

### **RESPONSIBILITIES**

Electrical Technical Assistant is responsible to design, maintain, implement or improve electrical instruments, facilities, components, equipment products or systems for industrial, commercial or domestic purposes.

#### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

#### **Skills:**

- Designing and laying out new electrical systems
- Creating system models and simulations
- Testing new systems and making design changes if needed
- Producing necessary design reports and documentation
- Assisting in the manufacture of new electrical systems

#### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)



**MSIC GROUP : 353**  
**AREA : Production and distribution of cooled air, chilled water for cooling purposes – Research & Development – Mechanical**  
**JOB TITLE : Mechanical Technical Assistant**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Mechanical Technical Assistant is responsible to design, maintain, implement or improve instruments, facilities, components, equipment products or systems for industrial, commercial or domestic purposes. Performing a wide range of engineering tasks by operating computer-assisted design or engineering software and equipment.

#### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

#### **Skills:**

- Designing, maintaining, implementing or improving instruments, facilities, components, equipment products or systems for industrial, commercial or domestic purposes.
- Performing a wide range of engineering tasks by operating computer-assisted design or engineering software and equipment.
- Planning and implementing research methodology and procedures to apply principles of energy theory to engineering projects.
- Preparing specifications for purchase of materials and equipment.

#### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)

**MSIC GROUP** : 353  
**AREA** : Production and distribution of cooled air, chilled water for cooling purposes – Production – Gas/Biogas/Biomass (Operation)  
**JOB TITLE** : Operational Technical Assistant  
**LEVEL** : 5

### **RESPONSIBILITIES**

Operation Technical Assistant is responsible to improve performance and project management. He also responsible to ensure the operation of safety and risk management and operation of resource management.

### **Knowledge:**

- Manage improvement project tender activities
- Manage improvement project
- Review improvement project performance
- Plant operation safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

### **Skills:**

- Performance improvement
- Operation planning and analysis
- Improvement project management
- Operation safety and risk management
- Operation resource management

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)

**MSIC GROUP** : 353  
**AREA** : Production and distribution of cooled air, chilled water for cooling purposes – Production – Gas/Biogas/Biomass (Operation)  
**JOB TITLE** : Senior Operation Technician  
**LEVEL** : 4

### **RESPONSIBILITIES**

Senior Operation Technician is responsible for parameter and procedures development, performance monitoring, Safety, Health & Environment (HSE) compliance, maintenance management, project management and operation administration.

### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

### **Skills:**

- Prepare project/work plans
- Allocate and record usage of financial and physical resources
- Delegate responsibilities and/or authority
- Identify and analyse effect of technology on the environment
- Develop and negotiate staffing plans
- Allocate and record usage of financial and physical resources
- Coordinate contract and tender activities

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)

**MSIC GROUP** : 353  
**AREA** : Production and distribution of cooled air, chilled water for cooling purposes – Production – Gas/Biogas/Biomass (Operation)  
**JOB TITLE** : Operation Technician  
**LEVEL** : 3

### **RESPONSIBILITIES**

Operation Technician is responsible for the control room operation, machinery maintenance, lab operation and administrative functions.

### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

### **Skills:**

- Control room operation
- Operation monitoring and optimisation
- Machinery maintenance
- Lab operation
- Administrative functions

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)

**MSIC GROUP : 353**  
**AREA : Production and distribution of cooled air, chilled water for cooling purposes – Production – Gas/Biogas/Biomass (Maintenance)**  
**JOB TITLE : Maintenance Technical Assistant**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Maintenance Technical Assistant is responsible to design, maintain, implement or improve instruments, facilities, components, equipment products or systems for industrial, commercial or domestic purposes. Performing a wide range of engineering tasks by operating computer-assisted design or engineering software and equipment.

#### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

#### **Skills:**

- Designing, maintaining, implementing or improving instruments, facilities, components, equipment products or systems for industrial, commercial or domestic purposes.
- Performing a wide range of engineering tasks by operating computer-assisted design or engineering software and equipment.
- Planning and implementing research methodology and procedures to apply principles of energy theory to engineering projects.
- Preparing specifications for purchase of materials and equipment.

#### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)

**MSIC GROUP** : 353  
**AREA** : Production and distribution of cooled air, chilled water for cooling purposes – Production – Gas/Biogas/Biomass (Maintenance)  
**JOB TITLE** : Maintenance Supervisor  
**LEVEL** : 4

### **RESPONSIBILITIES**

Maintenance Supervisor is responsible in parameter and procedures development, performance monitoring, Safety, Health and Environment compliance, maintenance management, project management and operation administration.

### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

### **Skills:**

- Parameter and procedures development
- Performance monitoring
- Safety, Health and Environment compliance
- Maintenance management
- Project management
- Operation administration

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)

**MSIC GROUP** : 353  
**AREA** : Production and distribution of cooled air, chilled water for cooling purposes – Production – Gas/Biogas/Biomass (Maintenance)  
**JOB TITLE** : Maintenance Technician  
**LEVEL** : 3

### **RESPONSIBILITIES**

Maintenance Technician is responsible in the control room operation, operation monitoring and optimisation, machinery maintenance, lab operation and administrative functions.

### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

### **Skills:**

- Control room operation
- Operation monitoring and optimisation
- Machineries maintenance
- Lab operation
- Administrative functions

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)

**MSIC GROUP : 353**  
**AREA : Cold Room – Maintenance**  
**JOB TITLE : Maintenance Technical Assistant**  
**LEVEL : 5**

### **RESPONSIBILITIES**

Maintenance Technical Assistant is responsible in parameter and procedures development, performance monitoring, Safety, Health and Environment (HSE) compliance, maintenance management, project management and operation administration.

### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

### **Skills:**

- Parameter and procedures development
- Performance monitoring
- Safety, Health and Environment (HSE) compliance
- Maintenance management
- Project management
- Operation administration

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)



**MSIC GROUP : 353**  
**AREA : Cold Room – Maintenance**  
**JOB TITLE : Senior Maintenance Technician**  
**LEVEL : 4**

### **RESPONSIBILITIES**

Senior Maintenance Technician is responsible in parameter and procedures development, performance monitoring, Safety, Health and Environment (HSE) compliance, maintenance management, project management and operation administration.

### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

### **Skills:**

- Parameter and procedures development
- Performance monitoring
- Safety, Health and Environment (HSE) compliance
- Maintenance management
- Project management
- Operation administration

### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)

**MSIC GROUP : 353**  
**AREA : Cold Room – Maintenance**  
**JOB TITLE : Maintenance Technician**  
**LEVEL : 3**

### **RESPONSIBILITIES**

Maintenance Technician is responsible in Cold Room operation, operation monitoring and optimisation, machinery maintenance, lab operation and administrative functions.

#### **Knowledge:**

- Manage product improvement and maintenance
- Review improvement product performance
- Product safety and risk management
- Gather current information data regarding risk situation
- Analyse potential risks
- Manage risks
- Evaluate Emergency Response Plan (ERP) effectiveness in risk management
- Review safety report

#### **Skills:**

- Cold Room operation
- Operation monitoring and optimisation
- Machinery maintenance
- Lab operation
- Administrative functions

#### **Attributes (Attitude/Safety/Environmental)**

- Meticulous in safe work practices.
- Strict on rules while exercise some discretion towards physical and environmental limitations.
- Focus on detailed requirements and specifications towards safe, quality and timeliness deliverables.
- Adherence to safety procedures.
- Conscious on unsafe conditions surrounding the workplace.
- Concern about sustainability and wastage; practise 3R concept (Reduce, Reuse, Recycle)