THE NATIONAL COUNCIL FOR TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING



OCCUPATIONAL STANDARDS

OCCUPATION: RENEWABLE ENERGY ENGINEER (SOLAR)

LEVEL: NTA LEVEL 8

FEBRUARY 2024

TABLE OF CONTENTS

ABB	REVIATIONS	ii
GLO	SSARY OF TERMS	iv
1.0.	INTRODUCTION	1
2.0.	OCCUPATIONAL STANDARD DEVELOPMENT PROCESS	2
3.0.	THE SCOPE AND OVERVIEW OF THE OCCUPATION STANDARDS FOR RENEWABLE ENER	.GY
	ENGINEERING ENGINEERS (SOLAR)	2
4.0.	VALIDITY PERIOD	3
5.0.	OCCUPATIONAL STANDARDS	4
5.1	OCCUPATIONAL STANDARDS FOR RENEWABLE ENERGY ENGINEER (SOLAR) – NTA LEVE	EL 8
	4	
APP	ENDIX: DACUM CHARTS FOR RENEWABLE ENERGY ENGINEER (SOLAR) - NTA LEVEL 8	66

ABBREVIATIONS

BAPV Building Attached Photovoltaic

BIPV Building Integrated Photovoltaic

BMS Battery Management System

BOS Balance of System-photovoltaic

CBET Competency Based Education and Training

CVT Constant Voltage Packaging

EMS Energy Management System

IEA International Energy Agency

IRENA International Renewable Energy Agency

NACTVET National Council for Technical and Vocational Education and Training

NOS National Occupational Standards

OS Occupational Standards

PCS Power Conversion System

PR Performance Ratio

PVPS PV Power Station

SC Storage Capacitor

TET Technical Education and Training

TVET Technical and Vocational Education and Training

VSG Virtual Synchronous Generator

GLOSSARY OF TERMS

Circumstantial Knowledge:

Detailed knowledge, which allows the decision-making in regard to different circumstances and cross cutting issues.

Competence:

The ability to use knowledge, understanding, practical, and thinking skills to perform effectively to the workplace standards required in employment.

Competency:

A description of the ability one possesses when able to perform a given occupational task effectively and efficiently.

Competency-based Education:

An instructional programme that derives its content from validated tasks and bases assessment on the learner's performance.

Curriculum:

A description or composite of statements about "what is to be learned" by the trainee/student in a particular instructional programme; a product that states the "intended learning outcomes".

Educational/Training Programme:

The complete curriculum and instruction (what and how) that is designed to prepare a person for employment in a job or other particular performance situation.

Occupation:

A specific position requiring the performance of specific tasks - essentially the same tasks are performed by all employees having the same title.

Occupational Area:

Extensive grouping of related work, such as PV module installation.

Occupational Standards:

Specific requirements of competences for personnel in a particular occupational area, including knowledge and relevant attitudes. They also act as performance tools of assessment of the prescribed outcomes.

Occupational/Job Analysis:

A process used to identify the tasks that are important to employees in any given occupation.

Performance Criteria:

Indicate expected end results or outcomes in the form of evaluative statements.

Skills:

The ability to perform occupational tasks with a high degree of proficiency within a given occupation. Skill is conceived of as a composite of three completely interdependent components: cognitive, affective, and psychomotor.

Standards:

A set of statements, which, if proved true under working conditions, means that an individual is meeting an expected level and type of performance.

Task Analysis:

The process of analyzing each task to determine the steps, circumstantial knowledge, attitudes, performance criteria, tools and materials needed, as well as safety concerns required for the employees performing it.

Task:

A work activity that has a definite beginning and ending, is observable or measurable, consists of two or more definite steps, and leads to products, service, or decisions.

Underpinning Knowledge:

Crucial knowledge that an individual must acquire in order to demonstrate competences that are associated in performing a given task.

Verification Process:

The process of having experts review and confirm the importance of the task (competency) statements identified through occupational analysis. Other questions, such as the degree of task learning difficulty are also frequently asked. This process is also sometimes referred to as validation.

Occupational Competence:

The application of knowledge and skills that consistently meet the standards required by the working conditions.

1.0. INTRODUCTION

Technical Education and Training (TET) is one of the most important education sub-sectors in Tanzania, responsible for developing a skilled workforce to support the country's industrialization economic agenda. Tanzania's *Development Vision 2025* intends to raise the country's economy to a middle-income status, with a high level of human development. This requires a skilled workforce that is aligned with the needs of the public and private sectors of the economy. The National Council for Technical and Vocational Education and Training (NACTVET) has begun the job of drafting Occupational Standards (OS) that will eventually be adopted as National Occupational Standards (NOS) for use in the delivery of TET that meets the needs of the labour market and the country's economic agenda.

Occupational Standards (OS) are performance criteria that are matched with labour market demands. Each of them describes the functions, performance standards, and understanding or knowledge underpinning a given occupation. They combine skills, knowledge, and attitudes to describe best practice. They are useful tools for establishing job roles, personnel recruitment, supervision, and appraisal, as well as TET Standards. They are also helpful for benchmarking and harmonizing job qualifications on a national and international level. Standards, in general, provide a solid framework for high-quality TET that is labour market-relevant, current, and consistent in application across all public and private institutions.

However, it must be noted that Occupational Standards are different from Training /Education Standards. Occupational standards are defined in terms of activities performed by a person in a selected occupation (e.g., an electrical engineer designs electrical circuits, performs troubleshooting in electrical circuits, etc.), and are usually defined by Employers following procedures as agreed upon by all the stakeholders. On the other hand, Training and Education Standards are developed from the activities defined in the occupational standards, and they specify learning objectives to ensure that the necessary skills and knowledge are developed by a person to enable him/her to function at an agreed level in an occupation. Training and Education Standards are used to define curricula in training institutions. It is critical, however, to establish a direct link between the occupational standards and the training standards for both of them to respond collaboratively to the demands of the labour market.

For the purpose of TET delivery, Tanzania has adopted the Competence Based Education and Training (CBET) approach. The CBET approach focuses on providing learners with the skills and knowledge required to meet the occupational standards. Occupational standards are thus the starting point for developing competency-based training (CBET) programmes. Therefore, it is quite pertinent for TET institutions to use the relevant occupational standards as a benchmark for formulating their curricula.

Occupational Standards are developed based on a given occupation's current and future demands. As a result, they serve as a means of bridging the gap between the worlds of employment and technical education and training.

The document explains how the occupational standards were developed, as well as the scope, the occupational profile in the form of DACUM charts, and the Occupational Standards.

2.0. OCCUPATIONAL STANDARD DEVELOPMENT PROCESS

The process of developing these Occupational Standards involved both local and international expertise. The process began with an examination of major documents that guide Tanzanian skills development including the 10-year National Skills Development Strategy (2016-2026). NACTVET labour market reports were also used in the literature review to determine the skills demand in the Tanzanian labour market as a whole.

After the literature review, a team of experts in consultation with practitioners developed draft occupational standards. The draft document was used to develop an occupational profile for each occupation (DACUM Chart), which is attached as an **Appendix** to every Occupational Standard.

The occupational standards were validated during the stakeholders' forum held on 22nd and 23rd February 2024 at Morogoro. The information from the stakeholders' forum provides insight from the workplaces, professional bodies, regulatory bodies and sector ministries regarding trends and changes in the profession, including how well graduates are prepared for working in the occupation.

3.0. THE SCOPE AND OVERVIEW OF THE OCCUPATION STANDARDS FOR RENEWABLE ENERGY ENGINEERING ENGINEERS (SOLAR)

The standards cover a broad range of duties and tasks that can be performed by a Renewable Energy engineer (Solar). However, the occupational standards are not meant to replace individual job descriptions. Instead, they are to be used for guidance in defining skill levels and knowledge for the

technician in specific settings or positions. The Renewable Energy engineer (Solar) may perform tasks in a number of key areas of the Occupational Standards, but not necessarily in all areas. For example, in large operations, other individuals may be employed or designated to perform specific tasks.

The Renewable Energy engineer (Solar) refers to the personnel engaged in the design, installation, debugging and maintenance of solar photovoltaic energy system. Generally, the Renewable Energy engineer (Solar)performs the following responsibilities:

- a) Designing of solar photovoltaic energy system
- b) Installation and debugging of solar photovoltaic energy system with tools
- c) Inspection and resolution of faults of solar photovoltaic energy system
- d) Diagnosis on components of solar photovoltaic energy system with professional computer softwares
- e) Interpretation and analysis of results and data
- f) Provision of technical advice and answering of customers' questions
- g) Procurement of solar photovoltaic energy system and selection of best materials for utilization
- h) Management of PV power stations
- i) Operation and maintenance of PV power stations
- j) Analysis of economized operation of PV power stations
- k) Writing of reports and documents
- 1) Relevant researches
- m) Guidance and training
- n) Technical exchange
- o) Supervision on subordinates

The Occupational Standards have been clustered into NTA qualification levels, i.e. NTA 7 and 8.

4.0. VALIDITY PERIOD

Due to the rapid development of technology, the validity period of occupational standards is 3-5 years. The review will proceed in the same manner as the one before it, with new occupational standards being developed based on current trends of the labour market.

5.0. OCCUPATIONAL STANDARDS

5.1 OCCUPATIONAL STANDARDS FOR RENEWABLE ENERGY ENGINEER (SOLAR) - NTA LEVEL 8

OCCUPATION	RENEWABLE ENERGY ENGINEER (SOLAR)	OCCUPATION CODE			
DUTY TITLE	DESIGN THE SCHEME FOR THE CONSTRUCTION OF THE ENERGY STORAGE SYSTEMS	DUTY NO.	801		
TASK TITLE	ANALYZE THE NEEDS FOR THE CONSTRUCTION OF ENERGY STORAGE SYSTEMS TASK NO. 8011				
PERFORMANCE CRITERIA	The person performing this task must be able to analyze the needs for the construction of energy storage systems in accordance with the project plan and the relevant local laws and regulations and industry development status.				
RANGE STATEMENT	The task can be performed in the office under the supervision of senior engineers or project managers. The tools and equipment to be used include: 1. Computer set with computer-aided design software; 2. Printers and scanners; 3. Local geographic map and urban planning data documents; 4. Multimedia conference tools. 5. Safety gear				
EVIDENCE REQUIREMENT					

PRACTICAL PERFORMANCE UNDERPINNING KNOWLEDGE The person performing this task must be able **Detailed knowledge about:** to do the following: 1.0 Methods 1. Conduct research on the project needs of The person performing this task must be able to the owner: project construction scale, explain how to: investment scale, construction period, 1.1 Organize a seminar on the needs of owners; technical requirements, etc.; 1.2 Organize on-site exploration and 2. Understand relevant national and local measurement; government regulations, rules and 1.3 Organize the selection and evaluation of policies; technical schemes for energy storage power 3. Conduct research on the power structure stations. of the local power grid and analyze the characteristics of power load; 2.0 Principle 4. Select the overall technical scheme for The person performing this task must be able to energy storage power stations;

Determine product execution standards explain the following principles: and process flow; 2.1 Design specifications for energy storage 6. Write a demand analysis report for energy power stations; storage power station projects. 2.2 Technical requirements for evaluating the 7. Observe health, occupational and characteristics of energy storage systemsconnected to distribution networks; environmental safety rules and regulations. 2.3 Specifications for construction, operation and acceptance of PV maintenance power stations. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Power load model and indicator calculation; 3.2 The method of connecting PV power stations to the power grid; 3.3 Format of documents used in electro technology series of standards. 4.0 Essential Skills 4.1 Teamwork skills; 4.2 Report writing skills; 4.3 Communication skills; 4.4 Computer application skills. DESCRIPTION OF THE **END** The needs for the construction of energy storage PRODUCT / SERVICE power station are analyzed in accordance with the project plan and the relevant local laws and regulations and industry development status. **Detailed knowledge about:** CIRCUMSTANTIAL KNOWLEDGE Relevant national and local government regulations and policies; Occupational health and safety; 3. Waste disposal methods; 4. Environmental protection and safety management.

OCCUPATION	RENEWABLE ENERGY ENGINEER (SOLAR)	OCCUPATION CODE		
DUTY TITLE	DESIGN THE SCHEME FOR THE CONSTRUCTION OF THE ENERGY STORAGE POWER STATIONS	DUTY NO.	801	
TASK TITLE	ANALYZE THE CONSISTENCY OF SOLAR ENERGY RESOURCES	TASK NO.	8012	
PERFORMANCE CRITERIA	The person performing this task must be able to analyze the consistency of the solar energy resources according to the geographical conditions and basic climatic conditions of the area where the station is to be constructed.,			
RANGE STATEMENT:	The task can be performed in the office under the supervision of senior engineers or project managers. The tools and equipment to be used include: 1. Computers and computer-aided design software; 2. Printers and scanners; 3. Solar energy resource measuring instruments; 4. GPS instrument. 5. Safety gear			

PRACTICAL PERFORMANCE

The person performing this task must be able to do the following:

- 1. Select a reference meteorological station;
- 2. Collect meteorological information from the reference meteorological station;
- 3. Analyze the geographical and climatic consistency between the reference meteorological station and the station site:
- 4. Analyze the changes in annual radiation levels over a long period of time and the inter-annual changes in monthly radiation levels;
- 5. Analyze the annual solar radiation data of various PV array packaging modes;
- 6. Write a report on the analysis of solar energy resources.
- 7. Observe health, occupational and environmental safety rules and

UNDERPINNING KNOWLEDGE

Detailed knowledge about:

1.0 Methods

The person performing this task must be able to explain how to:

- 1.1 Conduct on-site surveys and research on meteorological and geographic information;
- 1.2 Obtain historical meteorological information through meteorological stations;
- 1.3 Collect and analyze solar radiation data.

2.0 Principle

The person performing this task must be able to explain the following principles:

- 2.1 Specification for measurement of solar energy resources;
- 2.2 Specification for the assessment on solar energy resources of solar-thermal power stations;
- 2.3 Technical regulations for the assessment on

regulations.	solar energy resources in solar power generation engineering.	
	3.0 Theories	
	The person performing this task must be able to explain the following:	
	3.1 PV array packaging system;	
	3.2 Assessment methods of solar energy resources;	
	3.3 Direct radiation measurement method for solar trackers.	
	4.0 Essential Skills	
	4.1 Data statistics skills;	
	4.2 Communication skills;	
	4.3 Report writing skills;	
	4.4 Computer application skills.	
DESCRIPTION OF THE END PRODUCT / SERVICE	The consistency of solar energy resources are analyzed according to the geographical conditions and basic climatic conditions of the area where the station is to be constructed	
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about:	
	Relevant national and local government regulations and policies;	
	2. Occupational health and safety;	
	3. Waste disposal methods;	
	4. Environmental protection and safety management.	

OCCUPATION	RENEWABLE ENGINEER (SOLAR)	EÌ	NERGY	OCCUPATION CODE	
DUTY TITLE	DESIGN THE SCHEI CONSTRUCTION OF STORAGE POWER ST	THE E	NERGY	DUTY NO.	801
TASK TITLE		TYPE HE EÌ	AND NERGY	TASK NO.	8013
PERFORMANCE CRITERIA	E The person performing this task must be able to select the type and capacity of the energy storage power station in accordance with the specific demand analysis.				
RANGE STATEMENT:	The task can be performed in the office under the supervision of se engineers or project managers. The tools and equipment to be used include: 1. Computer sets with computer-aided design software; 2. Printers and scanners; 3. A manual for equipment selection; 4. A report on demand analysis of energy storage power stations; 5. A report on the analysis of solar energy resources. 6. Safety gear				
	EVIDENCE	REQU	IREME	NT	
PRACTICAL PER	FORMANCE	UNDE	RPINNI	NG KNOWLEDO	GE
The person performing this task must be able to do the following: 1. Determine the type of energy storage power station; 2. Determine the configuration of		1.0 The per ex	Methods erson per plain how	forming this task	
photovoltaic power generation capacity and energy storage capacity;3. Select the type of solar PV arrays;		1.2 1.3	Select en	ergy storage batteri	es;
4. Design a spot system;5. Design an energy	storage system:	1.4	Calculate	the photovoltaic pay storage capacity.	_
	n photovoltaic energy		Principle	eforming this task	must be able to
7. Determine the installation method8. Write a report configuration of	ods;	explair 2.1	the follo	owing principles: rinciples of focusin	

stations.	2.2 Design specifications for PV power stations;
9. Observe health, occupational and	2.3 Layout specifications for PV arrays;
environmental safety rules and	2.4 Technical requirements for electrochemical
regulations.	energy storage systems in power systems.
	3.0 Theories
	The person performing this task must be able to explain the following:
	3.1 PV generation system theory;
	3.2 Energy storage power station system theory.
	4.0 Essential Skills
	4.1 Communication skills;
	4.2 Safety management skills;
	4.3 Teamwork skills;
	4.4 Report writing skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The type and capacity of the energy storage power station are selected in accordance with the specific demand analysis.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about:
	1. Relevant national and local government regulations and policies;
	2. Occupational health and safety;
	3. Waste disposal methods;
	4. Environmental protection and safety management.

OCCUPATION	RENEWABLE ENGINEER (SOLAR)	ENERGY	OCCUPATION CODE	
DUTY TITLE	DESIGN THE SCHEME CONSTRUCTION OF TO STORAGE SYSTEMS		DUTY NO.	801
TASK TITLE	SELECT THE SITE ANI THE STATION AREA	O ARRANGE	TASK NO.	8014
PERFORMANCE CRITERIA	The person performing this task must be able to select the site and arrange the station area in accordance with the client's needs.			site and arrange
RANGE STATEMENT:	The task can be performed in the office under the supervision of senior engineers or project managers. The tools and equipment to be used include: 1. Computer set with a computer-aided design software; 2. Printers and scanners; 3. Information on geographical disasters, urban planning, etc.; 4. A report on the configuration work of an energy storage power station. 5. Safety gear			
	EVIDENCE R	EQUIREME	NT	
PRACTICAL PER	FORMANCE	UNDERPINNING KNOWLEDGE		
The person performing this task must be able to do the following: 1. Analyze geographical and natural		1.0 Metho	owledge about: ods performing this task	must be able to
inside and outsid3. Determine the site4. Develop flood resistance plans a	ransportation conditions e the power station area; and site size; control and disaster and measures; layout plan of the energy attion.	explain I 1.1 Conduction geogra 1.2 Conduction resourch 1.3 Organic flood measur 2.0 Princi The person	now to: ct on-site surveys phical and natural extense arch on ces at pre-selected size meetings to structure control and disarres.	and research on environment; transportation station sites; udy and review aster resistance
		energy 2.2 Safety	storage power stati	ions; electrochemical

	2.3	Safety code of electric power industry.
	3.0 Theories The person performing this task must be able explain the following:	
	3.1	Analysis methods of geographical and natural environment;
	3.2	Statistics and analysis of transportation resources;
	3.3 Methods of drawing the general la plan.	
	4.0 Essential Skills	
	4.1 Communication skills;	
	4.2	Safety management skills;
	4.3	Teamwork skills;
	4.4	Report writing skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The site is selected and the arrangement for the station area completed in accordance with the needs of the owner is drawn.	
CIRCUMSTANTIAL KNOWLEDGE	Deta	iled knowledge about:
	1.	Relevant national and local government regulations and policies;
	2.	Occupational health and safety;
	3.	Waste disposal methods;
	4.	Environmental protection and safety management.

OCCUPATION	RENEWABLE ENGINEER (SOLAR)	ENERGY	OCCUPATION CODE	
DUTY TITLE	DESIGN THE SCHEN CONSTRUCTION OF STORAGE SYSTEMS		DUTY NO.	801
TASK TITLE	DESIGN THE TECHNICAL SCHEMENERGY STORAGE S		TASK NO.	8015
PERFORMANCE CRITERIA	The person performing this task must be able to design the electrical technical scheme of the energy storage power station in accordance with the type and capacity of the energy storage systems.			
RANGE STATEMENT	The task can be performed in the office under the supervision of senior engineers or project managers. The tools and equipment to be used include: 1. Computers and computer-aided design software; 2. Printers and scanners; 3. A report on the configuration work of an energy storage power station; 4. A general layout design drawing of the station area; 5. Equipment selection and user manual. 6. Safety gear			
		REQUIREME		
PRACTICAL PERFORMANCE The person performing this task must be able to do the following: Select step-up transformers;		Detailed know 1.0 Methods The person per	s rforming this task	
connection; 2. Design a station 3. Design a DC electrons	power system scheme; ctrical system scheme; er distribution system	equipme 1.2 Organize	e a review of the sent; the review of elematic drawings; and review of	

2.0 Principle

The person performing this task must be able to explain the following principles:

- 2.1 Technical code of design for the electric power system;
- 2.2 Technical rules for connecting micro-grid to

scheme;
6. Design an

secondary equipment;

electrical

7. Design a scheme for the overvoltage

protection, insulation coordination and

lightning protection grounding system;

8. Determine the electrical layout plan of

scheme

for

	the station;		power system;
9.	Prepare a cable schedule and laying plan;	2.3	Design specification of PV power station.
10.	Prepare an electrical technical scheme for		
	energy storage power stations.	3.0	Theories
11.	Observe health, occupational and environmental safety rules and		person performing this task must be able to ain the following:
	regulations.	3.1	Basic theory of relay protection automation design;
		3.2	Basic theory of electrical equipment operation and maintenance.
		4.0	Essential Skills
		4.1	Organization and communication skills;
		4.2	Teamwork skills;
		4.3	Report writing skills
		4.4	Computer application skills.
DESCRIPTION OF THE END PRODUCT / SERVICE		syste	electrical technical scheme for energy storage ems is designed in accordance with the type and city of the energy storage power station.
CI	RCUMSTANTIAL KNOWLEDGE	Deta	iled knowledge about:
		1.	Relevant national and local government regulations and policies;
		2.	Occupational health and safety;
		3.	Waste disposal methods;
		4.	Environmental protection and safety management.

TASK TITLE	DESIGN THE SCHEME FOR THE CONSTRUCTION OF THE ENERGY STORAGE POWER SYSTEMS CONDUCT AND PREPARE A FEASIBILITY STUDY REPORT	DUTY NO. TASK NO.	801		
TASK TITLE		TASK NO.	0016		
	TEASIBILIT I STODT KETOKI	NDUCT AND PREPARE A TASK NO. 8016 ASIBILITY STUDY REPORT			
PERFORMANCE CRITERIA	The person performing this task must be able to conduct and prepare a feasibility study report in accordance with the requirement analysis report.				
RANGE STATEMENT	 The task can be performed in the office under the supervision of senior engineers or project managers. The tools and equipment to be used include: 1. Computer sets with a computer-aided design software; 2. Printers and scanners; 3. A report on demand analysis of energy storage power stations; 4. A report on the capacity configuration of energy storage power stations 5. A general layout design drawing of the station area; 6. A technical scheme document for electrical design of energy storage systems. 7. Safety gear 				

EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
The person performing this task must be able to do the following:	Detailed knowledge about:		
•	1.0 Methods		
1. Review the demand analysis report for energy storage power stations;	The person performing this task must be able to explain how to:		
2. Review the electrical technical scheme	1.1 Organize project report review;		
report;	1.2 Coordinate and schedule project resources;		
3. Prepare an environmental protection plan report;	1.3 Review and merge feasibility analysis documents.		
4. Prepare a project implementation	documents.		
arrangement plan;	2.0 Principle		
5. Prepare an economic benefit analysis report;	The person performing this task must be able to explain the following principles:		
6. Prepare a project risk assessment and analysis report;	2.1 Design specification of PV power station;		
7. Prepare a comprehensive evaluation report;	2.2 Design standard for electrochemical energy storage power stations;		
8. Prepare a feasibility study report for the	2.3 Environmental assessment standards;		

project.	2.4 Calculation criteria for economic benefits.	
9. Observe health, occupational and		
environmental safety rules and	3.0 Theories	
regulations.	The person performing this task must be able to explain the following:	
	3.1 Economic evaluation methods and parameters for construction project;	
	3.2 Quality control system.	
	4.0 Essential Skills	
	4.1 Organization and communication skills;	
	4.2 Teamwork skills;	
	4.3 Report writing skills	
	4.4 Computer application skills.	
DESCRIPTION OF THE END PRODUCT / SERVICE	A feasibility study report for the project of energy storage systems is prepared in accordance with the requirement analysis report.	
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about:	
	1. Relevant national and local government regulations and policies;	
	2. Occupational health and safety;	
	3. Waste disposal methods;	
	4. Environmental protection and safety management.	

	1			
OCCUPATION	RENEWABLE ENGINEER	ENERGY	OCCUPATION CODE	
DUTY TITLE	PREPARE A CONSCHEME FOR NEW POWER STATIONS	STRUCTION V ENERGY	DUTY NO.	802
TASK TITLE	SCHEME FOR INFRASTRUCTURE	STRUCTION THE OF NEW TIONS	TASK NO.	8021
PERFORMANCE CRITERIA	The person performing scheme for the infrastruc in accordance with the w the designer, architect and	eture construction with the client's	on of the new energ	gy power station
RANGE STATEMENT:	The task can be performed under the supervision of project managers. The tools and equipment to be used include:			
	1. Computer sets with a computer-aided design software;			
	2. Engineering quality standard documents;			
	3. Engineering quality inspection method documents;			
	4. Standardized construction process and requirement documents;			
	5. Feasibility plan documents for new energy power stations;			
	6. Construction drawings and documents for new energy power stations;			
	7. National and local engineering and construction rules, regulations and policy documents.			
	8. Safety gear			
EVIDENCE REQUIREMENT				
PRACTICAL PER	PRACTICAL PERFORMANCE UNDERPINNING KNOWLEDGE			GE
The person performi	The person performing this task must be able Detailed knowledge about:			
1 1 011		1.0 Methods		
1. Determine the engineering requ				

station; Determine the construction quantity of the 1.1 2. Familiarize with the technical project; requirements, acceptance standards and Review construction drawings and plans; 1.2 relevant regulations for power station 1.3 Coordinate and schedule project resources; engineering construction; 1.4 Merge and review construction scheme 3. Understand relevant national and local documents. regulations, government rules and policies; **Principle** 2.0 4. Preside over the review of construction

drawings and improve the design content; 5. Assist in the on-site investigation and	The person performing this task must be able to explain the following principles:
survey, and improve engineering data;	2.1 The rationality and operability of the plan;
6. Determine the construction process and standard process requirements;	2.2 Construction period standards and dynamic management control principles;
7. Implement environmental protection and	2.3 Project acceptance standard requirements;
water and soil conservation measures;	2.4 The principle of balancing comprehensive
8. Prepare a detailed construction scheme;	costs and benefits.
9. Organize and complete the review and	
countersigning of construction schemes.	3.0 Theories
10. Observe health, occupational and environmental safety rules and	3.1 Civil engineering construction safety and quality control theory;
regulations.	3.2 Civil engineering construction project management theory;
	3.3 Human resources management theory;
	3.4 Civil engineering standard process flow.
	4.0 Essential Skills
	4.1 Teamwork skills;
	4.2 Oral and written communication skills;
	4.3 Communication skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	A construction scheme for the infrastructure construction of new energy power station is prepared in accordance with the owner's need and the technical inputs from the designer, architect and supervisor.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about:
	1. Relevant national and local government regulations and policies;
	2. Occupational health and safety;
	3. Waste disposal methods;
	4. Environmental protection and safety management.

OCCUPATION	RENEWABLE ENERGY ENGINEER	OCCUPATION CODE	
DUTY TITLE	PREPARE A CONSTRUCTION SCHEME FOR SOLAR PV POWER STATIONS	DUTY NO.	802
TASK TITLE	PREPARE A CONSTRUCTION SCHEME FOR SOLAR PV POWER SUBSYSTEMS	TASK NO.	8022
PERFORMANCE CRITERIA	The person performing this task must scheme for the Solar PV power subsyste module manufacturer specifications, the of Solar PV power subsystems, the cli designer, and the supervising engineer.	ms in accordance we electrical engineeri	vith the Solar PVing requirements
RANGE STATEMENT:	 The task can be performed under the sut tools and equipment to be used include: Computer sets with a computer-ai Engineering quality standard doct Engineering quality inspection med Power construction project specifies Documents for technical required project; Construction drawings and documents 	ded design software uments; ethod documents; cations and requirer ments of the PV p	e; ment documents; ower subsystem subsystems;
	7. National and local new energy utilization rules, regulations and polic documents.8. Safety gear		
EVIDENCE REQUIREMENT			

_ : 			
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
 The person performing this task must be able to do the following: Determine the design requirements for PV power subsystems; Master the technical requirements acceptance standards and relevant regulations of power construction projects; Understand relevant national and local government regulations, rules and policies; Preside over the review of construction drawings and improve the design content; Coordinate with equipment manufacturers 	 1.0 Methods The person performing this task must be able to explain how to: 1.1 Confirm project construction needs and goals; 1.2 Review construction drawings and plans; 1.3 Coordinate and schedule project resources; 1.4 Merge and review construction scheme documents. 		

construction parties 2.0 **Principle** and to improve engineering data; The person performing this task must be able to 6. Determine the installation process and explain the following principles: electrical debugging requirements; 2.1 The rationality and operability of the plan; 7. Implement environmental protection and 2.2 Construction period standards water and soil conservation measures; dynamic management control principles; 8. Prepare a detailed construction scheme; 2.3 Project acceptance standard requirements; 9. Organize and complete the review and 2.4 The principle of balancing comprehensive countersigning of the construction scheme costs and benefits. for PV power subsystems. 10. Observe health, occupational and 3.0 **Theories** environmental safety rules and regulations. 3.1 Safety and quality control theory; 3.2 Engineering project management theory; 3.3 Solar PV generation theory; 3.4 Electrical debugging and installation theory. 4.0 **Essential Skills** 4.1 Teamwork skills; 4.2 Written communication skills: 4.3 Communication skills. DESCRIPTION OF THE END PRODUCT / A construction scheme for the Solar PV power **SERVICE** subsystem is prepared in accordance with the Solar PV module manufacturer specifications, the electrical engineering requirements of Solar PV power subsystems, the owner's goal and the inputs from the designer, and the supervising engineer. CIRCUMSTANTIAL KNOWLEDGE **Detailed knowledge about:** 1. Relevant national and local government

2.

3.

4.

regulations and policies;

Waste disposal methods;

management.

Occupational health and safety;

Environmental protection and

safety

OCCUPATION	RENEWABLE ENGINEER	ENERGY	OCCUPATION CODE	
DUTY TITLE	PREPARE A CONS SCHEME FOR ENERGY SYSTEMS	STRUCTION Y STORAGE	DUTY NO.	802
TASK TITLE	PREPARE A CONS SCHEME FOR ENERGY SUBSYSTEMS	STRUCTION Y STORAGE	TASK NO.	8023
PERFORMANCE CRITERIA	The person performing to scheme for the energy stomodule manufacturer specific requirements, the owner's supervising engineer.	orage subsyster cifications, the	ns in accordance w energy storage syst	ith the Solar PV ems engineering
RANGE STATEMENT:	 The task can be performed under the supervision of project managers. The tools and equipment to be used include: Computer set with computer-aided design software; Engineering quality standard documents; Engineering quality inspection method documents; Power construction project specifications and requirement documents; Documents for technical requirements of the energy storage subsystem project; Construction drawings and documents for energy storage subsystems; National and local energy storage systems construction rules, regulations and policy documents. Safety gear 			
EVIDENCE REQUIREMENT				
PRACTICAL PER	PRACTICAL PERFORMANCE UNDERPINNING KNOWLEDGE		OGE	
The person performit to do the following:	ng this task must be able	Detailed kno 1.0 Metho	wledge about: ds	
Clarify the desi energy storage su	Sign requirements for the subsystems; The person performing this task must be able to explain how to:		must be able to	
2. Master the	technical requirements, 1.1 Confirm project construction needs and			

20

1.2

1.3

1.4

goals;

documents.

drawings and plans;

Organize the review of construction

Coordinate and schedule project resources;

Merge and review construction scheme

acceptance

standards

3. Understand relevant national and local

4. Preside over the review of construction

5. Coordinate with equipment manufacturers

regulations of power construction projects;

government regulations, rules and policies;

drawings and improve the design content;

and

relevant

a	and construction parties to improve	2.0	Principle
ϵ	engineering data;	The p	person performing this task must be able to
	Determine the installation process and	expla	in the following principles:
e	electrical debugging requirements;	2.1	The rationality and operability of the plan;
	implement environmental protection and water and soil conservation measures;	2.2	Construction period standards and dynamic management control principles;
8. I	Prepare a detailed construction scheme;	2.3	Project acceptance standard requirements;
C	Organize and complete the review and countersigning of the energy storage subsystems.	2.4	The principle of balancing comprehensive costs and benefits.
10.	Observe health, occupational and	3.0	Theories
e	environmental safety rules and regulations.	3.1	Safety and quality control theory;
		3.2	Engineering project management theory;
		3.3	Energy storage technology theory;
		3.4	Electrical debugging and installation
			theory.
		4.0	Essential Skills
		4.1	Teamwork skills;
		4.2	Report writing skills;
		4.3	Communication skills.
	SCRIPTION OF THE END PRODUCT RVICE	storag	nstruction scheme document for the energy ge subsystem is prepared in accordance with, nergy storage engineering requirements and puts from the designer, and the, supervising eer.
CIR	CUMSTANTIAL KNOWLEDGE	Detai	iled knowledge about:
		1.	Relevant national and local government regulations and policies;
		2.	Occupational health and safety;
		3.	Waste disposal methods;
		4.	Environmental protection and safety management.

OCCUPATION	RENEWABLE ENERGY OCCUPATION CODE			
DUTY TITLE	PREPARE A CONSTRUCTION DUTY NO. 802 SCHEME FOR NEW ENERGY POWER STATIONS			
TASK TITLE	PREPARE A CONS SCHEME FOR GRID-CO SUBSYSTEMS	STRUCTION ONNECTION	TASK NO.	8024
PERFORMANCE CRITERIA	The person performing this task must be able to prepare a construction scheme for the grid connection subsystems in accordance with the manufacturer specifications, the grid-connection engineering requirements, the owner's goal and the inputs from the designer, and the supervising engineer.			
RANGE STATEMENT:	The task can be performed under the supervision of project managers. The tools and equipment to be used include: 1. Computer set with a computer-aided design software; 2. Engineering quality standard documents; 3. Engineering quality inspection method documents; 4. Power construction project specifications and requirement documents; 5. Documents for technical requirements of the grid-connection subsystem project; 6. Construction drawings and documents for grid-connection subsystems; 7. Documents for technical requirements of local power grid-connection access; 8. National and local grid-connection rules, regulations and policy documents.			
	9. Safety gear EVIDENCE REQUIREMENT			
PRACTICAL PER	FORMANCE	UNDERPIN	NING KNOWLE	DGE
The person performing this task must be able to do the following:		1.0 Methods		
1. Determine the design requirements for grid- connection subsystems;		The person p explain how	erforming this task to:	must be able to
 2. Master the technical requirements, acceptance standards and relevant regulations of power construction projects; 3. Understand relevant national and local 		goals; 1.2 Review	m project construct w and organize ngs and plans;	
government regu	ilations rules and policies:			edule project

- 4. Preside over the review of construction drawings and improve the design content;
- 5. Coordinate with equipment manufacturers and construction parties to improve engineering data;
- 6. Determine the installation process and electrical debugging requirements;
- 7. Implement environmental protection and water and soil conservation measures;
- 8. Prepare a detailed construction scheme;
- 9. Organize and complete the review and countersigning of the construction scheme for grid-connection subsystems.
- 10. Observe health, occupational and environmental safety rules and regulations.

resources;

1.4 Merge and review construction scheme documents.

2.0 Principle

The person performing this task must be able to explain the following principles:

- 2.1 The rationality and operability of the plan;
- 2.2 Construction period standards and dynamic management control principles;
- 2.3 Project acceptance standard requirements;
- 2.4 The principle of balancing comprehensive costs and benefits.

3.0 Theories

- 3.1 Safety and quality control theory;
- 3.2 Engineering project management theory;
- 3.3 Power system composition;
- 3.4 Electrical debugging and installation theory.

4.0 Essential Skills

- 4.1 Teamwork skills;
- 4.2 Report writing skills;
- 4.3 Communication skills.

DESCRIPTION OF THE END PRODUCT / SERVICE

A construction scheme document for the gridconnection subsystem is prepared in accordance with the manufacturer specifications, the gridconnection engineering requirements, the owner's goal and the inputs from the designer, and the supervising engineer.

DUTY TITLE PREPARE A CONSTRUCTION SCHEME FOR NEW SOLAR PV POWER STATIONS TASK TITLE PREPARE A CONSTRUCTION TASK NO. 8025 SCHEDULE PLAN The person performing this task must be able to prepare a construction schedule plan in accordance with the overall schedule requirements, the engineering quantities, investment resources and construction sequence. RANGE STATEMENT: The task can be performed under the supervision of project managers. The tools and equipment to be used include: 1. Computer set with a computer-aided design software; 2. Engineering quality standard documents; 3. Engineering quality inspection method documents; 4. Detailed documents for construction resources; 5. Feasibility plan documents for new energy power stations; 6. Construction drawings and documents for new energy power stations	OCCUPATION	RENEWABLE ENERGY ENGINEER	OCCUPATION CODE	
PERFORMANCE CRITERIA The person performing this task must be able to prepare a construction schedule plan in accordance with the overall schedule requirements, the engineering quantities, investment resources and construction sequence. RANGE STATEMENT: The task can be performed under the supervision of project managers. The tools and equipment to be used include: 1. Computer set with a computer-aided design software; 2. Engineering quality standard documents; 3. Engineering quality inspection method documents; 4. Detailed documents for construction resources; 5. Feasibility plan documents for new energy power stations;	DUTY TITLE	SCHEME FOR NEW SOLAR PV	DUTY NO.	802
CRITERIA schedule plan in accordance with the overall schedule requirements, the engineering quantities, investment resources and construction sequence. RANGE The task can be performed under the supervision of project managers. The tools and equipment to be used include: 1. Computer set with a computer-aided design software; 2. Engineering quality standard documents; 3. Engineering quality inspection method documents; 4. Detailed documents for construction resources; 5. Feasibility plan documents for new energy power stations;	TASK TITLE		TASK NO.	8025
tools and equipment to be used include: 1. Computer set with a computer-aided design software; 2. Engineering quality standard documents; 3. Engineering quality inspection method documents; 4. Detailed documents for construction resources; 5. Feasibility plan documents for new energy power stations;		schedule plan in accordance with the	overall schedule re	quirements, the
7. Detailed documents for project resources. 8. Safety gear		tools and equipment to be used include: 1. Computer set with a computer-aid 2. Engineering quality standard docu 3. Engineering quality inspection me 4. Detailed documents for construction 5. Feasibility plan documents for new 6. Construction drawings and documents 7. Detailed documents for project reserved.	ed design software; ments; thod documents; on resources; v energy power stat ents for new energy	ions;

PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE
The person performing this task must be able to do the following:	Detailed knowledge about: 1.0 Methods
1. Determine the requirements for the overall progress target of the project;	The person performing this task must be able to explain how to:
 Organize the review of construction drawings; Organize the implementation of construction resources; Conduct schedule risk analysis and risk control; 	 1.1 Confirm project construction goals; 1.2 Review construction drawings and plans; 1.3 Assess construction progress and risks; 1.4 Merge and review construction progress documents.
5. Determine project management methods and management teams;	2.0 Principle
6. Establish plan control methods and systems;	The person performing this task must be able to explain the following principles:
7. Conduct goal decomposition and determine key progress points;	2.1 The rationality and operability of the schedule;
71 6 1 7	2.2 Construction period standards and dynamic

8. Prepare a detailed construction progress;	management control principles.	
9. Complete the review and countersigning		
of construction schedules.	3.0 Theories	
10. Observe health, occupational and	3.1 Safety and quality control theory;	
environmental safety rules and regulations.	3.2 Engineering project management theory.	
	4.0 Essential Skills	
	4.1 Teamwork skills;	
	4.2 Report writing skills;	
	4.3 Communication skills.	
DESCRIPTION OF THE END PRODUCT / SERVICE	The construction schedule plans are prepared in accordance with the overall schedule requirements, the engineering quantities, investment resources and construction sequence	
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about:	
	1. Relevant national and local government regulations and policies;	
	2. Occupational health and safety;	
	3. Waste disposal methods;	
	4. Environmental protection and safety management.	

OCCUPATION	RENEWABLE ENERGY ENGINEER (SOLAR)	OCCUPATION CODE	
DUTY TITLE	ENSURE THE MANAGEMENT OF THE CONSTRUCTION PROCESS OF ENERGY STORAGE SYSTEMS 803		
TASK TITLE	CARRY OUT THE ENGINEERING TECHNICAL DISCLOSURE AND SAFETY AND QUALITY DISCLOSURE	TASK NO. 8031	
PERFORMANCE CRITERIA	The person performing this task must be able to carry out the engineering technical disclosure and safety and quality disclosure in accordance with technical documents and policies and regulations.		
RANGE STATEMENT:	The task can be performed in the energy supervision of senior engineers or project. The tools and equipment to be used included to the control of the contro	et managers. ude: nts; vings; cuments;	

PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE			
The person performing this task must be able to do the following: 1. Explain the project overview, design intent and requirements;	Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to:			
 Explain the construction process and construction technology requirements; Explain quality standards and acceptance requirements; 	 1.1 Interpret technical documents; 1.2 Interpret quality supervision and management regulations and regulatory documents; 			
4. Prepare technical disclosure reports;5. Prepare documents for construction site safety requirements;	1.3 Interpret documents for work safety policies and regulations.			
6. Observe health, occupational and environmental safety rules and regulations.	2.0 PrincipleThe person performing this task must be able to			
Prepare a safety and quality disclosure report.	explain the following principles: 2.1 Code for construction and acceptance of energy storage power stations;			

	 2.2 Code for construction safety management of energy storage power stations; 2.3 The system composition and working principle of energy storage power stations 3.0 Theories The person performing this task must be able to explain the following: 3.1 Quality standards and process 		
	requirements for energy storage power stations.		
	4.0 Essential Skills		
	4.1 Management skills;		
	4.2 Communication skills;		
	4.3 Report writing skills;		
	4.4 Teamwork skills;		
	4.5 Computer application skills.		
DESCRIPTION OF THE END PRODUCT / SERVICE	The engineering technical disclosure and the safety and quality disclosure carried out in accordance with the national and industrial technical quality requirements and safety and quality regulations.		
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about:		
	1. Relevant national and local government regulations and policies;		
	2. Occupational health and safety;		
	3. Waste disposal methods;		
	4. Environmental protection and safety management.		

OCCUPATION	RENEWABLE ENGINEER (SOLAR)	ENERGY	OCCUPATION CODE	
DUTY TITLE	ENSURE THE MANAGE THE CONSTRUCTION OF ENERGY STORAGE	N PROCESS	DUTY NO.	803
TASK TITLE	DEVELOP A MATER PLAN AND ACCEPTANCE	IAL ENTRY MATERIAL	TASK NO.	8032
PERFORMANCE CRITERIA	The person performing this task must be able to develop a material entry plan and accept materials in accordance with the construction plan and technical requirements.			
RANGE STATEMENT:	The task can be performed in the energy storage systems under the supervision of project managers. The tools and equipment to be used include: 1. Construction plan documents; 2. Material list documents; 3. Material acceptance specification documents; 4. In-station transportation equipment such as forklifts and cranes; 5. Computers and material management software. 6. Safety gear			
	EVIDENCE I	REQUIREME	NT	
PRACTICAL PER	FORMANCE	UNDERPINN	NING KNOWLED	OGE
 to do the following: Develop a materia Inspect and accept Prepare a materia 	ot materials; al acceptance report; station transportation of al receipt.	explain ho 1.1 Determination accorda 1.2 Select equipme 1.3 Select tools. 2.0 Principle	erforming this task ow to: ine the material er nce with the constr appropriate accept ent; suitable in-station	ntry sequence in uction plan; tance tools and n transportation
		explain the fol 2.1 Principl inspecti	lowing principles: es of material p on standards; l quality assurance	rocurement and

	 3.0 Theories The person performing this task must be able to explain the following: 3.1 Items and methods of material quality inspection; 3.2 Material supply assurance methods. 		
	 4.0 Essential Skills 4.1 Management skills; 4.2 Communication skills; 4.3 Report writing skills; 4.4 Computer application skills. 		
DESCRIPTION OF THE END PRODUCT / SERVICE	The material entry plan, acceptance report and material receipt are developed in accordance with the construction plan and technical requirements.		
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about:		
	 Relevant national and local government regulations and policies; Occupational health and safety; Waste disposal methods; Environmental protection and safety management. 		

OCCUPATION	RENEWABLE ENGINEER (SOLAR)	ENERGY	OCCUPATION CODE	
DUTY TITLE	ENSURE THE MANA THE CONSTRUCTIO OF ENERGY STORAG	N PROCESS	DUTY NO.	803
TASK TITLE	MANAGE THE IS CONSTRUCTION COORDINATION CONSTRUCTION PRO	MULTI-TEAM AND OF OGRESS	TASK NO.	8033
PERFORMANCE CRITERIA	The person performing this task must be able to manage multi-team construction and coordinate construction progress in accordance with the construction plan and technical requirements.			
RANGE STATEMENT:	The task can be performed in the energy storage systems under the supervision of project managers. The tools and equipment to be used include: 1. Construction scheme documents; 2. Construction plan documents; 3. Documents for technical requirements of process; 4. Quality supervision regulation documents; 5. Documents for work safety policies and regulations.			
	6. Safety gear			
	EVIDENCE	REQUIREME	NT	
PRACTICAL PER	FORMANCE	UNDERPINNING KNOWLEDGE		
 The person performing this task must be able to do the following: Manage multi-team construction; Supervise construction safety; Supervise the construction progress; Supervise the maintenance of tools and equipment. Observe health, occupational and environmental safety rules and regulations. 		 1.0 Methods The person performing this task must be able to explain how to: 1.1 Develop a construction process flowchart; 1.2 Develop construction safety plans and safeguard measures. 2.0 Principle The person performing this task must be able to explain the following principles: 2.1 Construction site team management system; 		
		2.2 Manager construc3.0 Theories	ment standards tion work safety.	for on-site

	The person performing this task must be able to explain the following:
	3.1 System composition of energy storage power stations;
	3.2 Construction sequence and process.
	4.0 Essential Skills
	4.1 Management skills;
	4.2 Communication skills;
	4.3 Report writing skills;
	4.4 Teamwork skills;
	4.5 Computer application skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The multi-team construction and coordination of construction is managed in accordance with the construction plan and technical requirements.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about:
	1. Relevant national and local government regulations and policies;
	2. Occupational health and safety;
	3. Waste disposal methods;
	4. Environmental protection and safety management.

T				
OCCUPATION	RENEWABLE ENGINEER (SOLAR)	ENERGY	OCCUPATION CODE	
DUTY TITLE	ENSURE THE MAN THE CONSTRUCTI OF ENERGY STORA	ON PROCESS	DUTY NO.	803
TASK TITLE	PREPARE A MODIFICATION RE ON SUDDEN ON-SIT		TASK NO.	8034
PERFORMANCE CRITERIA				
RANGE STATEMENT	The task can be perfo supervision of senior e The tools and equipme 1. Overall technical s	ngineers or project	et managers.	station under the
	2. Documents of a w		ıgs;	
	3. Construction scheme	· ·		
	4. Construction plan	documents.		
	5. Safety gear			
	EVIDENCI	E REQUIREME	NT	
PRACTICAL PER	FORMANCE	UNDERPINNI	NG KNOWLEDG	E
	ing this task must be	Detailed knowle	edge about:	
able to do the follow	to do the following: 1.0 Methods			
1. Verify the verify documents;	ersion of technical	The person person explain how	forming this task to:	must be able to
2. Review on-site d	esign modifications;	1.1 Compare	the on-site tech	nical document

- 3. Write a design modification report;
- 4. Execute the changed design documents and adjust the construction plan.
- 5. Observe health, occupational and environmental safety rules and regulations.
- 1.1 Compare the on-site technical document version with the execution version;
- 1.2 Conduct on-site inspections on the rationality of design modifications;
- 1.3 Submit a change application in accordance with the prescribed process.

2.0 Principle

The person performing this task must be able to explain the following principles:

2.1 Engineering quality control regulation.

	3.0 Theories		
	The person performing this task must be able to explain the following:		
	3.1 Analysis of the rationality of design modifications;		
	3.2 Design and change of the management system;		
	3.3 Change of the application process.		
	4.0 Essential Skills		
	4.1 Management skills;		
	4.2 Communication skills;		
	4.3 Report writing skills;		
	4.4 Computer application skills.		
DESCRIPTION OF THE END PRODUCT / SERVICE	A design modification report based on sudden on- site problems is prepared in accordance with the in accordance with the overall plan and construction plan.		
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about:		
	1. Relevant national and local government regulations and policies;		
	2. Occupational health and safety;		
	3. Waste disposal methods;		
	4. Environmental protection and safety management.		

OCCUPATION	DENEWA DI E	ENIEDCY	OCCUPATION	
OCCUPATION	RENEWABLE ENGINEER (SOLAR)	ENERGY	OCCUPATION CODE	
DUTY TITLE	ENSURE THE MANA THE CONSTRUCTIO OF ENERGY STORAG	N PROCESS	DUTY NO.	803
TASK TITLE	GUIDE THE INSTALI TROUBLESHOOTING PV POWER SUBSYST	OF SOLAR	TASK NO.	8035
PERFORMANCE CRITERIA	The person performing troubleshooting of solar requirements and manuf	PV power subsy	stems in accordance	
RANGE STATEMENT:	The task can be perform supervision of senior engages. The tools and equipment 1. Overall technical 2. Documents of a way 3. Installation tools self. I-V curve tester and 5. Safety gear	gineers or project to be used inclusions scheme docume whole set of draw such as wrench,	et managers. ude: nts; vings; socket, electric dril	
	EVIDENCE	REQUIREME	NT	
PRACTICAL PER	FORMANCE	UNDERPINN	ING KNOWLED	GE
The person performi	ng this task must be able	Detailed know	ledge about:	
to do the following:		1.0 Method	s	
columns, inclined	lation of front and rear d beams and crossbeams,	The person pe explain ho	rforming this task w to:	must be able to
and level the sup	_	1.1 Guide th	e installation of PV	supports;
2. Guide the insta using bolts or pro	llation of PV modules essing blocks:	1.2 Guide th	e installation of PV	modules;
	on of suitable ways to lay		e laying of cables;	
cables, such as trough racks and cable trenches;		1.4 Guide the detection of PV string faults.		tring faults.
4. Guide the use of	I-V curve tester to detect	2.0 Principl	e	
PV string faults.			rforming this task	must be able to
<u> </u>	ougging on the observed	*	owing principles:	:
problems 6. Observe healt environmental saf	th, occupational and ety rules and regulations.	2.1 Quality installati subsyste	on process of	
		2.2 Acceptai	nce specifications a	and standards for

	PV power subsystems.
	3.0 Theories The person performing this task must be able to
	The person performing this task must be able to explain the following:
	3.1 Installation steps and methods for PV power subsystems;
	3.2 Detection and troubleshooting methods for PV string faults.
	4.0 Essential Skills
	4.1 Management skills;
	4.2 Communication skills;
	4.3 Report writing skills;
	4.4 Computer application skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The installation and troubleshooting of solar PV power subsystems is guided in accordance with the technical requirements and manufacturer's specifications and the pre-acceptance of the PV power subsystem.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about:
	1. Relevant national and local government regulations and policies;
	2. Occupational health and safety;
	3. Waste disposal methods;
	4. Environmental protection and safety management.

OCCUPATION	RENEWABLE ENGINEER (SOLAR)	ENERGY	OCCUPATION CODE	
DUTY TITLE	ENSURE THE MANATHE CONSTRUCTION OF ENERGY STORAGE	ON PROCESS	DUTY NO.	803
TASK TITLE	GUIDE THE INSTAL TROUBLE SHOOT ENERGY STORAGE S		TASK NO.	8036
PERFORMANCE CRITERIA	The person performing troubleshooting of the technical requirements	e energy storage	e subsystems in a	
RANGE STATEMENT:	The task can be perfor supervision of senior er. The tools and equipment of a whole the control of a whole of a whole the control of a w	ngineers or project of to be used inclusions cheme documents nole set of drawin tuch as wrench, so	et managers. ude: s; gs; cket, electric drill;	tation under the
	EVIDENCE	REQUIREME	NT	
PRACTICAL PER	FORMANCE	UNDERPINNI	NG KNOWLEDG	SE
The person performable to do the follow	ing this task must be ing:	Detailed knowl 1.0 Methods	edge about:	
1. Guide the lifting storage cabinets;	g and fixing of energy	The person per explain how	forming this task v to:	must be able to
2. Guide the insta Storage Unit System (BMS);	, 0	1.1 Install end	ergy storage cabine e battery modules	Ť
3. Guide the fixing System and connections;	of Power Conversion complete electrical	1.4 Set param	wer Conversion Sy neters for battery ce management units.	ells, cluster tubes
4. Guide the s Management parameters.	setting of Battery System (BMS)	2.0 Principle		
5. Observe health	h, occupational and safety rules and	explain the follo	forming this task wing principles:	
regulations.			requirements for poting of energy sto	
		2.2 Specificat	tions for construction	

	of electrical energy storage systems;
	2.3 Structure and principle of energy storage systems.
	-y
	3.0 Theories
	The person performing this task must be able to explain the following:
	3.1 Installation and debugging steps of energy storage systems.
	4.0 Essential Skills
	4.1 Management skills;
	4.2 Communication skills;
	4.3 Report writing skills;
	4.4 Computer application skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The installation and troubleshooting of the energy storage subsystems are guided in accordance with technical requirements and manufacturer's specifications.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about:
	1. Relevant national and local government regulations and policies;
	2. Occupational health and safety;
	3. Waste disposal methods;
	4. Environmental protection and safety management.

OCCUPATION	RENEWABLE	ENERGY	OCCUPATION	
	ENGINEER (SOLAR)		CODE	
DUTY TITLE	ENSURE THE MANAGE THE CONSTRUCTION OF ENERGY STORAGE	N PROCESS	DUTY NO.	803
TASK TITLE	GUIDE THE INSTALL TROUBLESHOOTING GRID-CONNECTION S	OF THE	TASK NO.	8037
PERFORMANCE CRITERIA	The person performing the troubleshooting of the technical requirements and	grid-connectio	n subsystems in a	
RANGE STATEMENT:	The task can be perform supervision of senior eng The tools and equipment 1. Overall technical sch 2. Documents of a who 3. Installation tools such 4. Testing tools such as 5. Safety gear	ineers or proje to be used incl eme document le set of drawin h as wrench, so	ct managers. ude: ts; ngs; ocket, electric drill;	station under the
	EVIDENCE F	REQUIREME	ENT	
PRACTICAL PER	FORMANCE	UNDERPIN	NING KNOWLEI	OGE
The person performit to do the following:	ng this task must be able		wledge about:	
S	lation of grid-connection		ds erforming this task a how to:	must be able to
	lation and operation of	1.1 Lifte a	nd fix the cabinet be	ody;
	ntion of the central control	1.2 Set par	rameters through the	e display screen.
cabinet;	of inverter parameters;	2.0 Princi	ple	
5. Guide the	setting of controller		erforming this task ollowing principles:	must be able to
communication parameters. 6. Observe health, occupational and			cal requirements for ging of grid-connect	
anzironmontal co		1		
environmental sa	iety fules and regulations.	2.2 Specifi operati system	on of electrical	nstruction and grid-connection

	 3.0 Theories The person performing this task must be able to explain the following: 3.1 Installation and debugging steps of grid connection systems. 	
	4.0 Essential Skills	
	4.1 Management skills;	
	4.2 Communication skills;	
	4.3 Report writing skills;	
	4.4 Computer application skills.	
DESCRIPTION OF THE END PRODUCT / SERVICE	The installation and troubleshooting of the grid- connection subsystem are guided in accordance with technical requirements and manufacturer's specifications and the pre-acceptance of the grid- connection subsystem.	
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about:	
	1. Relevant national and local government regulations and policies;	
	2. Occupational health and safety;	
	3. Waste disposal methods;	
	4. Environmental protection and safety management.	

OCCUPATION	RENEWABLE ENGINEER (SOLAR)	ENERGY	OCCUPATION CODE	
DUTY TITLE	ENSURE THE MANATHE CONSTRUCTION OF ENERGY STORAGE	ON PROCESS	DUTY NO.	803
TASK TITLE	COMPLETE THE OV ACCEPTANCE OF STATION		TASK NO.	8038
PERFORMANCE CRITERIA	The person performing acceptance of the power in accordance with tech	er station and pre	eparation of accepta	-
RANGE STATEMENT:	The task can be perfor supervision of senior er. The tools and equipment 1. Overall technical 2. Documents of a volument 3. Multimeter; 4. Resistance tester 5. Insulation and with 6. Comprehensive to 7. Safety gear	ngineers or project int to be used included scheme docume whole set of draw	et managers. ude: nts; vings;	station under the
	EVIDENCE	REQUIREME	NT	
PRACTICAL PER	FORMANCE	UNDERPINN	ING KNOWLEDO	GE
to do the following:	ng this task must be able earance and quantity of	Detailed know 1.0 Methods The person perexplain how to:	forming this task	must be able to
2. Detect the tilt a module installati	angle deviation of PV	1.1 Inspect to	he quantity and ins	stallation quality
3. Inspect the approximation wiring of the energy4. Test the working	pearance and internal ergy storage battery; g curve of the battery Battery Management	documen 1.2 Select ap	ment in accordance ts; opropriate tools to ormance of the equi	e with technical test the function
3. Inspect the approximation wiring of the energy wiring of the energy wiring of the working pack under the System (BMS);5. Detect the characteristics.	pearance and internal ergy storage battery; g curve of the battery Battery Management erging and discharging idirectional converter; ey of the inverter;	document 1.2 Select apand performand performance perfo	ts; opropriate tools to ormance of the equivers. efforming this task owing principles: ace standards for	test the function pment.

environmental safety rules and	acceptance regulations for energy storage		
regulations.	power stations.		
	3.0 Theories		
	The person performing this task must be able to explain the following:		
	3.1 The process and steps for acceptance of energy storage power stations;		
	3.2 Methods for detecting the function and performance of energy storage power station subsystems.		
	4.0 Essential Skills		
	4.1 Management skills;		
	4.2 Communication skills;		
	4.3 Report writing skills;		
	4.4 Computer application skills.		
DESCRIPTION OF THE END PRODUCT / SERVICE	The overall pre-acceptance of the power station and preparation of acceptance of materials are completed in accordance with technical requirements.		
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about:		
	1. Relevant national and local government regulations and policies;		
	2. Occupational health and safety;		
	3. Waste disposal methods;		
	4. Environmental protection and safety management.		

DUTY TITLE ENSURE THE MANAGEMENT OF THE OPERATION AND MAINTENANCE OF ENERGY STORAGE SYSTEMS TASK TITLE DEVELOP THE INSPECTION PROCEDURES PERFORMANCE CRITERIA The person performing this task must be able develop the inspection procedure in accordance with national and industrial technical quality requirements and safety and quality. RANGE STATEMENT: The task can be performed in the energy storage power station under the supervision of senior engineers or project managers. The tools and equipment to be used include: 1. Overall technical scheme documents; 2. Documents of a whole set of drawings; 3. Inspection scheme documents; 4. Regulations and regulatory documents on quality supervision and management of energy storage power station project inspections; 5. Documents for safety inspection policies and regulations. 6. Safety gear	OCCUPATION	RENEWABLE ENERGY ENGINEER (SOLAR)	OCCUPATION CODE		
PERFORMANCE CRITERIA The person performing this task must be able develop the inspection procedure in accordance with national and industrial technical quality requirements and safety and quality. RANGE STATEMENT: The task can be performed in the energy storage power station under the supervision of senior engineers or project managers. The tools and equipment to be used include: 1. Overall technical scheme documents; 2. Documents of a whole set of drawings; 3. Inspection scheme documents; 4. Regulations and regulatory documents on quality supervision and management of energy storage power station project inspections; 5. Documents for safety inspection policies and regulations.	DUTY TITLE	THE OPERATION AND MAINTENANCE OF ENERGY	DUTY NO.	804	
CRITERIA procedure in accordance with national and industrial technical quality requirements and safety and quality. RANGE The task can be performed in the energy storage power station under the supervision of senior engineers or project managers. The tools and equipment to be used include: 1. Overall technical scheme documents; 2. Documents of a whole set of drawings; 3. Inspection scheme documents; 4. Regulations and regulatory documents on quality supervision and management of energy storage power station project inspections; 5. Documents for safety inspection policies and regulations.	TASK TITLE		TASK NO.	8041	
supervision of senior engineers or project managers. The tools and equipment to be used include: 1. Overall technical scheme documents; 2. Documents of a whole set of drawings; 3. Inspection scheme documents; 4. Regulations and regulatory documents on quality supervision and management of energy storage power station project inspections; 5. Documents for safety inspection policies and regulations.		procedure in accordance with national and industrial technical quality			
		supervision of senior engineers or project. The tools and equipment to be used included. Overall technical scheme documents. Documents of a whole set of drawns. Inspection scheme documents; Regulations and regulatory documents are greater to energy storage portage.	et managers. ude: nts; vings; uments on quality wer station project	supervision and inspections;	

EVIDENCE REQUIREMENT

	-		
PRACTICAL PERFORMANCE	UNDERPINNING KNOWLEDGE		
The person performing this task must be able	Detailed knowledge about:		
to do the following:	1.0 Methods		
1. Explain the equipment overview, design intent and requirements;	The person performing this task must be able to explain how to:		
2. Explain the inspection process and	1.1 Interpret technical documents;		
requirements;	1.2 Interpret inspection quality supervision and		
3. Explain quality standards and acceptance requirements;	management regulations and regulatory documents;		
4. Prepare technical disclosure reports;	1.3 Interpret safety inspection policies and		
5. Prepare documents for inspection site	regulatory documents.		
safety requirements;			
6. Prepare a safety and quality disclosure	2.0 Principle		
report.	The person performing this task must be able to		
7. Observe health, occupational and	explain the following principles:		
environmental safety rules and regulations.	2.1 Code for inspection and acceptance of		
regulations.	energy storage power stations;		

	2.2 Safety management of energy storage power station inspections.
	3.0 Theories
	The person performing this task must be able to explain the following:
	3.1 System composition and inspection indicators of energy storage power stations;
	3.2 Quality standards and inspection requirements for energy storage power stations.
	4.0 Essential Skills
	4.1 Management skills;
	4.2 Communication skills;
	4.3 Report writing skills;
	4.4 Teamwork skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The inspection procedure is developed in accordance with national and industrial technical quality requirements and safety and quality regulations.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about:
	1. Safety inspection terms;
	2. Environmental protection measures at the inspection site;
	3. Occupational health and safety;
	4. Waste disposal methods.

OCCUPATION	RENEWABLE ENGINEER (SOLAR)	ENERGY	OCCUPATION CODE	
DUTY TITLE	ENSURE THE MANATHE OPERATION MAINTENANCE OF STORAGE SYSTEMS	ON AND	DUTY NO.	804
TASK TITLE	DEVELOP REGUI AND QUALITY PROCEDURES	LAR SAFETY Y TEST	TASK NO.	8042
PERFORMANCE CRITERIA				•
RANGE STATEMENT:	 The task can be performed in the energy storage power station under the supervision of senior engineers or project managers. The tools and equipment to be used include: Overall technical scheme documents; Documents of a whole set of drawings; Test scheme documents; Regulations and regulatory documents on quality supervision and management of energy storage power station project tests; Documents for safety test policies and regulations. Safety gear 			
	EVIDENCE	REQUIREME	NT	
PRACTICAL PER	FORMANCE	UNDERPINN	ING KNOWLEDO	GE
The person performing this task must be able to do the following:		Detailed know 1.0 Methods	S	
intent and require 2. Explain the explain technology;	oject overview, design ements; perimental process and quality standards and	explain ho	experimental techn	

- 3. Explain test quality standards and acceptance requirements;
- 4. Prepare test technology disclosure reports;
- 5. Prepare documents for test site safety requirements;
- 6. Prepare a test safety and quality disclosure report.
- 7. Observe health, occupational and

- 1.2 Interpret test quality supervision and management regulations and regulatory documents;
- 1.3 Interpret safety test policies and regulatory documents.

2.0 Principle

The person performing this task must be able to explain the following principles:

2.1 Code for test and acceptance of energy

environmental safety rules and	storage power stations;
regulations.	2.2 Code for test safety management of energy storage power stations;
	2.3 The system composition and working principle of energy storage power stations.
	3.0 Theories
	The person performing this task must be able to explain the following:
	3.2 Test quality standards and test process requirements for energy storage power stations.
	4.0 Essential Skills
	4.1 Management skills;
	4.2 Communication skills;
	4.3 Test report writing skills;
	4.4 Teamwork skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The regular safety and quality test procedures are developed in accordance with the national and industrial technical quality requirements and safety test quality regulations.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about:
	1. Work safety terms;
	2. Environmental protection measures at the test site;
	3. Occupational health and safety;
	4. Waste disposal methods.

OCCUPATION	RENEWABLE ENGINEER (SOLAR)	ENERGY	OCCUPATION CODE	
DUTY TITLE	ENSURE THE MAN THE OPERATI MAINTENANCE O STORAGE SYSTEMS	ON AND OF ENERGY	DUTY NO.	804
TASK TITLE	DEVELOP AN SAFETY AND QU PLAN	OVERHAUL JALITY TEST	TASK NO.	8043
PERFORMANCE CRITERIA	The person performing and quality test plan in and regulations.		-	•
RANGE STATEMENT:	The task can be performed in the energy storage power station under the supervision of senior engineers or project managers. The tools and equipment to be used include: 1. Overall technical scheme documents; 2. Documents of a whole set of drawings; 3. Overhaul scheme documents; 4. Regulations and regulatory documents on overhaul quality supervision and management of energy storage power station project; 5. Documents for safety overhaul policies and regulations. 6. Safety gear			
PRACTICAL PER	FORMANCE	UNDERPINNING KNOWLEDGE		
able to do the follow	0	Detailed knowledge 1.0 Methods		
design intent and	haul project overview, requirements;	The person per explain how	forming this task to:	must be able to
2. Explain the overhaul process and technology;		-	overhaul technology	
3. Explain overhaul quality standards and acceptance requirements;		-	•	supervision and and regulatory
4. Prepare overhaul reports;	epare overhaul technology disclosure ports;		safety overhaul documents.	policies and
safety requireme 6. Prepare a safety	overhaul and quality	2.0 Principle The person per	forming this task	must be able to
disclosure report	•	explain the follo	wing principles:	

	quality requirements and maintenance safety quality regulations.
DESCRIPTION OF THE END PRODUCT / SERVICE	An overhaul safety and quality test plan is developed in accordance with national and industrial technical
	4.4 Teamwork skills.
	4.2 Communication skills;4.3 Overhaul report writing skills;
	4.1 Management skills;
	4.0 Essential Skills
	3.1 Overhaul quality standards and process requirements for energy storage power stations.
	The person performing this task must be able to explain the following:
	3.0 Theories The person performing this task must be able to
	2.3 The system composition and working principle of energy storage power stations.
regulations.	2.2 Safety overhaul for maintenance of energy storage power stations;
environmental safety rules and	2.1 Code for overhaul and acceptance of energy storage power stations;

OCCUPATION	RENEWABLE ENGINEER (SOLAR)	ENERGY	OCCUPATION CODE	
DUTY TITLE	ENSURE THE MAN THE OPERATE MAINTENANCE OF STORAGE SYSTEMS	ION AND OF ENERGY		804
TASK TITLE	DEVELOP THE OPERATION	OPERATIONAL NUAL POWER		8044
PERFORMANCE CRITERIA	The person performing for the annual power g policies and regulation	eneration in acco	•	• •
RANGE STATEMENT:	and management of5. Power generation6. Safety gear	engineers or project to be used income scheme documer whole set of draws operation plan degulatory document of energy storage	ect managers. lude: ats; angs; cocuments; ents on power general power station proje es and regulatory doc	ation supervision ct;
PRACTICAL PER			ING KNOWLEDG	E
able to do the follow 1. Explain the prointent and require 2. Explain the conconstruction tech 3. Explain the quacceptance require generation operat 4. Prepare a technic power generation 5. Prepare a do	ject overview, design ements; struction process and nology; nality standards and nirements for power tion; al disclosure report on	explain how 1.1 Interpret generation 1.2 Interpret managen documen plans; 1.3 Interpret	rforming this task of w to: technical docume on operation plans; the quality su	ents for power appervision and and regulatory ration operation s and regulatory

6. Prepare a safety and quality disclosure	2.0 Principle			
report for power generation operation.	The person performing this task must be able to			
7. Observe health, occupational and	explain the following principles:			
environmental safety rules and regulations.	2.1 Specifications for the operation and inspection of the power generation capacity of energy storage power stations;			
	2.2 Safety management of power generation operation in energy storage power stations;			
	2.3 The system composition and working principle of energy storage power stations.			
	3.0 Theories			
	The person performing this task must be able to explain the following:			
	3.1 Quality standards and process requirements for the operation of energy storage power stations.			
	4.0 Essential Skills			
	4.1 Management skills;			
	4.2 Communication skills;			
	4.2 Communication skills;4.3 Skills in writing power generation operation plan reports;			
	4.3 Skills in writing power generation operation			
DESCRIPTION OF THE END PRODUCT / SERVICE	4.3 Skills in writing power generation operation plan reports;4.4 Teamwork skills			
	 4.3 Skills in writing power generation operation plan reports; 4.4 Teamwork skills The operation plan for the annual power generation is developed in accordance with technical documents 			
PRODUCT / SERVICE	 4.3 Skills in writing power generation operation plan reports; 4.4 Teamwork skills The operation plan for the annual power generation is developed in accordance with technical documents and policies and regulations. 			
PRODUCT / SERVICE	 4.3 Skills in writing power generation operation plan reports; 4.4 Teamwork skills The operation plan for the annual power generation is developed in accordance with technical documents and policies and regulations. Detailed knowledge about: 1. Power generation operation terms; 2. Environmental protection measures at the power 			
PRODUCT / SERVICE	 4.3 Skills in writing power generation operation plan reports; 4.4 Teamwork skills The operation plan for the annual power generation is developed in accordance with technical documents and policies and regulations. Detailed knowledge about: 1. Power generation operation terms; 2. Environmental protection measures at the power generation operation site; 			
PRODUCT / SERVICE	 4.3 Skills in writing power generation operation plan reports; 4.4 Teamwork skills The operation plan for the annual power generation is developed in accordance with technical documents and policies and regulations. Detailed knowledge about: 1. Power generation operation terms; 2. Environmental protection measures at the power 			

OCCUPATION	RENEWABLE ENGINEER (SOLAR)	ENERGY	OCCUPATION CODE	
DUTY TITLE	ENSURE THE MANAGE THE OPERATION OF STORAGE SYSTEMS	N AND	DUTY NO.	804
TASK TITLE	SUGGEST THE OP PLANS FOR POWER S	TIMIZATION TATIONS	TASK NO.	8045
PERFORMANCE CRITERIA	The person performing this task must be able to suggest the optimization plans for the power station in accordance with the technical documents, national and international policies and regulations and the existing productivity of the station.			ical documents,
RANGE STATEMENT:	 The task can be perform supervision of senior enger. The tools and equipment. Overall technical schools. Documents of a whole. Power station optime. Regulations and remanagement of energy. Documents for power regulations. Safety gear. 	to be used included in the control of the control o	et managers. ude: s; ags; euments; ments on quality er station projects;	supervision and
	EVIDENCE 1	REQUIREME	NT	
PRACTICAL PERI	FORMANCE	UNDERPINNING KNOWLEDGE		
The person performing this task must be able to do the following: 1. Explain the power station optimization project overview, design intent and requirements;		explain ho	erforming this task ow to:	
 Explain the optitechnology of the Explain the quacceptance require optimization; 	timization process and power station; quality standards and rements for power station cal disclosure report for	station of 1.2. Interpre docume manager 1.3. Interpre	t the technical document of the regulations on quality someon to the policy and the policy are the policy and the policy and the policy and the policy are the policy and the policy and the policy are the policy are the policy and the policy are the policy are the policy and the policy are t	and regulatory upervision and on optimization; and regulatory

power stations.

power station optimization;

5. Prepare a safety requirement document

for optimizing the construction site of a	2.0 Principle
power station;	The person performing this task must be able to
6. Prepare a safety and quality disclosure	explain the following principles:
report for power station optimization.	2.1. Code for optimization and acceptance of
7. Observe health and environmental safety rules and regulations.	energy storage power stations;
raios and regulations.	2.2. Safety management for optimization of energy storage power stations;
	2.3. The optimization system composition and working principle of energy storage power stations.
	3.0 Theories
	The person performing this task must be able to explain the following:
	3.1. Optimization quality standards and process requirements for energy storage power stations.
	40 Facantial Chilla
	4.0 Essential Skills
	4.1. Management skills;
	4.1. Management skills;
	4.1. Management skills;4.2. Communication skills;
DESCRIPTION OF THE END PRODUCT / SERVICE	4.1. Management skills;4.2. Communication skills;4.3. Skills in writing optimization plan reports;
	 4.1. Management skills; 4.2. Communication skills; 4.3. Skills in writing optimization plan reports; 4.4. Teamwork skills. The optimization plans for the power station are suggested in accordance with national and industrial technical quality requirements, safety quality regulations and the productivity plans of
PRODUCT / SERVICE	 4.1. Management skills; 4.2. Communication skills; 4.3. Skills in writing optimization plan reports; 4.4. Teamwork skills. The optimization plans for the power station are suggested in accordance with national and industrial technical quality requirements, safety quality regulations and the productivity plans of the power station.
PRODUCT / SERVICE	 4.1. Management skills; 4.2. Communication skills; 4.3. Skills in writing optimization plan reports; 4.4. Teamwork skills. The optimization plans for the power station are suggested in accordance with national and industrial technical quality requirements, safety quality regulations and the productivity plans of the power station. Detailed knowledge about:
PRODUCT / SERVICE	 4.1. Management skills; 4.2. Communication skills; 4.3. Skills in writing optimization plan reports; 4.4. Teamwork skills. The optimization plans for the power station are suggested in accordance with national and industrial technical quality requirements, safety quality regulations and the productivity plans of the power station. Detailed knowledge about: 1. Work safety terms; 2. Environmental protection measures at the

OCCUPATION	RENEWABLE ENGINEER (SOLAR)	ENE	RGY	OCCUPATION CODE	
DUTY TITLE	ORGANIZE AND GUIDANCE AND TRA	COND AINING	OUCT	DUTY NO.	805
TASK TITLE	CONDUCT BASIC OF SKILLS TRAINING PERSONNEL		NAL FOR	TASK NO.	8051
PERFORMANCE CRITERIA	The person performing this task must be able to conduct basic operational skills training for personnel in accordance with technical requirements and government policies.				
RANGE STATEMENT:	engineers or project man 1. Relevant national a documents;	The task can be performed on site and indoors under the supervision engineers or project managers. The tools and equipment to be used 1. Relevant national and local government regulations, rules a documents;			be used include: rules and policy
	regulations and prod	 Current technical documents related to safety technology standards regulations and products; 			ology standards,
	3. Computer and computer-aided design software;4. Technical index documents related to project preparation, construction and installation, and organization and acceptance.				
	5. Safety gear				
	EVIDENCE	<u> </u>			
PRACTICAL PEI	RFORMANCE	UNDERPINNING KNOWLEDGE			
	ing this task must be able	1.0 M	ethods	5	
to do the following:		The person performing this task must be able to explain how to:			
safety precauti	as based on health and ons; le cycle of survey, design	1.1 De	etermiı	ne the construction	C
and constructi engineering pro	on of renewable energy ojects;		• •	, design, accept PV projects.	, operate and
	personnel and subsystem assign specific duties and	2.0 Pr	rincipl	e	
4. Evaluate the re		-		forming this task	must be able to
5. Conduct real-ti-	me monitoring of project	2.1 M op			
7. Develop a train8. Conduct train	ning program;	_		ntation schemes, o	construction and

energy engineering.

coordination work;

9. Conduct a training summary.	3.0 Theories
10. Observe health, occupational and environmental safety rules and	The person performing this task must be able to explain the following principles:
regulations.	3.1 Safety and quality control;
	3.2 Engineering project management;
	3.3 Standard process flow;
	3.4 Guidance and training on relevant skills and safety knowledge.
	4.0 Essential Skills
	4.1 Communication skills;
	4.2 Teamwork skills;
	4.3 Skills in using computer-aided design software;
	4.4 Report writing skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The basic operational skills training for personnel is conducted in accordance with the users' operation guidelines and the technical requirements and contract agreements.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about:
	Relevant national and local government regulations and policies;
	2. Occupational health and safety;
	3. Waste disposal methods;
	4. Environmental protection and safety management;
	5. Water and soil conservation.

OCCUPATION	RENEWABLE ENGINEER (SOLAR)	ENERGY	OCCUPATION CODE	
DUTY TITLE	ORGANIZE AND GUIDANCE AND TR		DUTY NO.	805
TASK TITLE	CONDUCT TRAINI INSTALLATION AND OF SOLAR F SUBSYSTEMS			8052
PERFORMANCE CRITERIA	The person performing installation and operation the technical requirement power system.	on of solar PV p	ower subsystems in	accordance with
RANGE STATEMENT:	 The task can be performed on site and indoors under the supervision of senior engineers or project managers. The tools and equipment to be used include: Relevant national and local government regulations, rules and policy documents; Computer set with computer-aided design software; Engineering quality standard documents; Power construction project specifications and requirement documents; Regulations and legal and regulatory documents on the quality control of PV power subsystem engineering technology. 			
	6. Safety gear	E REQUIREME	ent	
PRACTICAL PER			ING KNOWLEDG	EE
able to do the follow 1. Determine the requirements,	ning this task must be ring: ne project design technical requirements standards for PV power	explain how to: 1.1 Determine requirements	rforming this task ne the construction the engineer	on goals and
2. Guide specific p subsystem en	personnel and PV power gineering to assign and responsibilities;	1.3 Coordina	inverters and maintante and guide the interest subsystem project	nplementation of
3. Conduct real-project progress4. Evaluate results5. Hold the staff n	y; ;;	explain the foll	rforming this task owing principles:	
6. Develop trainin	g needs and goals;	2.1 Design 1	requirements, imple	mentation plans,

project

construction

specifications for PV power subsystems;

 $\quad \text{and} \quad$

acceptance

Develop training needs and goals;

Develop a training program;

8. Conduct training implementation and 2.2 The principle of overall dynamic coordination work; controllable construction period; 2.3 9. The completeness of the training program. Conduct a training summary. 10. Observe health, occupational and environmental safety rules and 3.0 **Theories** regulations. The person performing this task must be able to explain the following: 3.1 The principle and characteristics of PV power generation; 3.2 The composition and type of PV generation system; 3.3 Electrical debugging and installation theory. 4.0 **Essential Skills** 4.1 Management skills; 4.2 Communication skills; 4.3 Teamwork skills; Report writing skills. 4.4 **DESCRIPTION OF** THE **END** The training on the installation and operation of PV PRODUCT / SERVICE power subsystems is conducted in accordance with the technical requirements and the installation and operation manuals of the power subsystems CIRCUMSTANTIAL KNOWLEDGE **Detailed knowledge about:** Relevant national and local government regulations and policies; Occupational health and safety; 3. Waste disposal methods; Environmental protection and safety management.

OCCUPATION	RENEWABLE ENGINEER (SOLAR)	ENERGY	OCCUPATION CODE	
DUTY TITLE	ORGANIZE AND GUIDANCE AND TRA	CONDUCT AINING	DUTY NO.	805
TASK TITLE	CONDUCT TRAINING INSTALLATION AND OF ENERGY SUBSYSTEMS		TASK NO.	8053
PERFORMANCE CRITERIA	The person performing this task must be able to conduct training on the installation and operation of energy storage subsystems in accordance with technical requirements and government policies in accordance with the technical requirements and the installation and operation manuals of the energy storage subsystems.			accordance with rdance with the
RANGE STATEMENT:	 The task can be performed on site and indoors under the supervision of senior engineers or project managers. The tools and equipment to be used include: Relevant national and local government regulations, rules and policy documents; Computer and computer-aided design software; Engineering quality standard documents; Power construction project specifications and requirement documents; Regulations and regulatory documents on quality supervision and 			be used include: rules and policy nent documents;
	6. Safety gear			
		REQUIREME		
PRACTICAL PER			ING KNOWLEDG	SE .
The person performing to do the following:	ng this task must be able	1.0 Methods The person per	forming this task	must be able to
 Master new energy storage group application technology, system integration technology and energy storage power supply system engineering technology; Determine the project design requirements, technical requirements and acceptance standards for energy storage subsystems; Guide specific personnel and energy storage system engineering to assign 		explain how to: 1.1 Determine requirement 1.2 Master the storage power of the storage power	the construction that of the engineering technical indexes wer supply system; and guide the impage system projects of the forming this task	on goals and g project; s of the energy plementation of s.
_	nd responsibilities; ne monitoring of project	explain the follo	owing principles:	
	2 r J			

progress; 5. Evaluate results; 6. Hold the staff meetings; 7. Develop training needs and goals; 8. Develop a training program; 9. Conduct training implementation and coordination work; 10. Conduct a training summary. 11. Observe health, occupational and environmental safety rules and regulations.	 2.1 Design requirements, implementation plan, project construction and acceptance specifications for the energy storage subsystem; 2.2 The principle of overall dynamic and controllable construction period; 2.3 The completeness of the training program. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Underpinning knowledge of energy storage; 3.2 Application scenarios for energy storage; 3.3 New type of energy storage technology; 3.4 Electrical debugging and installation theory. 4.0 Essential Skills 4.1 Management skills; 4.2 Communication skills; 4.3 Teamwork skills; 4.4 Report writing skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The training on the installation and operation of energy storage subsystems is conducted in accordance with the technical requirements and the installation and operation manuals of the energy storage subsystems.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about:
	 Relevant national and local government regulations and policies; Occupational health and safety; Waste disposal methods; Environmental protection and safety management.

OCCUPATION	RENEWABLE ENGINEER (SOLAR)	ENERGY	OCCUPATION CODE	
DUTY TITLE	ORGANIZE AND GUIDANCE AND TRA	CONDUCT AINING	DUTY NO.	805
TASK TITLE	CONDUCT TRAINING INSTALLATION AND OF GRID-COSUBSYSTEMS		TASK NO.	8054
PERFORMANCE CRITERIA	The person performing this task must be able to conduct training on the installation and operation of grid-connection subsystems in accordance with the technical requirements and the installation and operation manuals of grid-connection subsystems.			
RANGE STATEMENT:	 The task can be performed on site and indoors under the supervision of senior engineers or project managers. The tools and equipment to be used include: Relevant national and local government regulations, rules and policy documents Computer and computer-aided design software; Engineering quality standard documents; Specification and requirement documents for power construction project; Quality control regulations and legal and regulatory documents for the grid-connection subsystem project. Safety gear 			
	EVIDENCE	REQUIREME	NT	
PRACTICAL PER	FORMANCE	UNDERPINN	ING KNOWLED	GE
The person performing this task must be able to do the following: 1. Determine the project design requirements, technical requirements and acceptance standards for grid-connection subsystems;		1.0 Methods The person pe explain how to 1.1 Determine requirement engineering	the construction	

Guide specific personnel and grid-1.2 Coordinate and guide the implementation of connection subsystem engineering to grid-connection subsystem projects; specific duties assign and 1.3 Provide guidance and training on gridresponsibilities; connection definitions, conditions and Conduct real-time monitoring of project problems that may arise during the gridprogress; connection process. Evaluate results; 4. Hold the staff meetings; 5. 2.0 Principle Develop training needs and goals; The person performing this task must be able to

7. Develop a training program; explain the following principles: 8. Conduct training implementation and 2.1 Design requirements, implementation plan, coordination work; project construction and acceptance grid-connection specifications for the 9. Conduct a training summary. subsystem; 10. Observe health, occupational and 2.2 Overall dynamic controllability environmental safety rules and construction period; regulations. 2.3 The completeness of the training program. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Grid-connection system scheme; 3.2 Principle of project approval and engineering construction; 3.3 Grid-connection acceptance and debugging methods; 3.4 Professional qualification for project operation. 4.0 Essential Skills 4.1 Communication skills; 4.2 Skills in using computer-aided design software: 4.3 Teamwork skills; 4.4 Report writing skills. DESCRIPTION THE **END** The training on the installation and operation of OF PRODUCT / SERVICE grid-connection subsystems conducted accordance with technical requirements and the installation and operation manuals of the energy storage subsystems. CIRCUMSTANTIAL KNOWLEDGE **Detailed knowledge about:** Relevant national and local government regulations and policies; 2. Occupational health and safety; 3. Waste disposal methods; 4. Environmental safety protection and management.

OCCUPATION	RENEWABLE ENGINEER (SOLAR)	ENERGY	OCCUPATION CODE	
DUTY TITLE	ADAPT NEW TEC	HNOLOGIES	DUTY NO.	806
TASK TITLE	CONDUCT RESEAU CHOOSE THE A NEW TECHNOLO PROCESS	PPROPRIATE	TASK NO.	8061
PERFORMANCE CRITERIA	The person performing this task must be able to conduct research and choose the appropriate new technology and process in accordance with technical and engineering requirements and the market demand products from new technologies			ith technical and
RANGE STATEMENT:	The task can be performed in the energy storage power station under the supervision of senior engineers or project managers. The tools and equipment to be used include: 1. Computer;			station under the
	2. Telephone;3. Survey questionnaire	1		
1	e documents;	A 1		
	4. Documents, books a			
	EVIDENCE	REQUIREME	NT	
PRACTICAL PER	FORMANCE	UNDERPINN	NING KNOWLED	OGE
The person performito do the following:	ng this task must be able	Detailed knowledge about: 1.0 Methods		
 Determine the s Release demand 	•	The person pe	erforming this task	must be able to
3. Refer to docur materials;	ments, books and other		ew technology and such as questionnais	
exhibitions;	4. Participate in industry conferences or		data through me al analysis and	
5. Conduct field re		analysis.		
6. Collect and analyze survey data;		2.0 Principle		
7. Write technical survey report.		The person pe	erforming this task lowing principles:	must be able to
		_	pecifications for	energy storage
			requirements for a contract for the following formula of the following for the following formula of the following formula	-

	3.0 Theories	
	The person performing this task must be able to explain the following:	
	3.1 Collect methods for new technology and process;	
	3.2 Methods of writing a survey report.	
	4.0 Essential Skills	
	4.1 Computer application skills;	
	4.2 Communication skills;	
	4.3 Data analysis skills;	
	4.4 Report writing skills.	
DESCRIPTION OF THE END PRODUCT / SERVICE	The research is conducted and the new technology and process are chosen in accordance with the technical and engineering requirements and the market demand for new product from new technologies. s	
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about:	
	Relevant national and local government regulations and policies;	
	2. Occupational health and safety;	
	3. Waste disposal methods;	
	4. Environmental protection and safety management.	

OCCUPATION	RENEWABLE	ENERGY	OCCUPATION	
	ENGINEER (SOLAR	•	CODE	
DUTY TITLE	ADAPT NEW T TIMELY	ECHNOLOGIES	DUTY NO.	806
TASK TITLE	CARRY OUT THE NEEDS ASSESSMEN		TASK NO.	8062
PERFORMANCE CRITERIA	The person performing this task must be able to carry out the customer needs assessment aiming at improving the product design scheme in accordance with the collected customer needs.			
RANGE STATEMENT:	The task can be performed in the energy storage power station under the supervision of senior engineers or project managers. The tools and equipment to be used include: 1. Computer set; 2. Internet connection and telephone; 3. Survey questionnaire documents;			station under the
	4. Design scheme do	ocuments.		
	EVIDENC	E REQUIREME	NT	
PRACTICAL PER	FORMANCE	UNDERPINNIN	G KNOWLEDG	E
The person perform	ing this task must be	Detailed knowle	dge about:	
able to do the following:		1.0 Methods		
1. Release demand	•	The person performing this task must be able to		
2. Interview people	by phone;	explain how to:		
3. Conduct visits ar4. Collect and analy	_	1.1 Collect customer needs through methods such as questionnaire;		
5. Write a survey needs.	report on customer	1.2 Analyze data through methods such a differential analysis and comparative analysis.		
		2.0 Principle		
		The person performing this task must be able to explain the following principles:		must be able to
		2.1 Design speci stations;	fications for energ	y storage power
			requirements for fenergy storage por	1
		3.0 Theories		
		The person perf	forming this task i	must be able to

	explain the following:	
	3.1 Methods for collecting customer needs;	
	3.2 Methods of writing a survey report.	
	4.0 Essential Skills	
	4.1 Computer application skills;	
	4.2 Communication skills;	
	4.3 Data analysis skills;	
	4.4 Report writing skills.	
DESCRIPTION OF THE END PRODUCT / SERVICE	The customer needs assessment is carried out and a report on customer needs is written in accordance with the findings.	
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about:	
	1. Relevant national and local government regulations and policies;	
	2. Occupational health and safety;	
	3. Waste disposal methods;	
	4. Environmental protection and safety management.	

OCCUPATION	RENEWABLE ENGINEER (SOLAR	ENERGY	OCCUPATION CODE	
DUTY TITLE	ADAPT NEW TI	ECHNOLOGIES	DUTY NO.	806
TASK TITLE	ENSURE TIMELY P PROCESS OF TE MATERIALS FOR TECHNOLOGY	HE QUALITY	TASK NO.	8063
PERFORMANCE CRITERIA	process of the quality	The person performing this task must be able to ensure timely procurement process of the quality materials for the new technology in accordance with engineering quality requirements of the new technology to ensure procurement quality.		
RANGE STATEMENT:	The task can be performed in the energy storage power station under the supervision of senior engineers or project managers. The tools and equipment to be used include: 1. Computer set; 2. Internet network and telephone; 3. Quality system and management method documents.			tation under the
	EVIDENC	E REQUIREME	NT	
PRACTICAL PER	FORMANCE	UNDERPINNIN	NG KNOWLEDG	E
able to do the follow 1. Evaluate indicat management system and reputation; 2. Specify important specification, quantime for the purch 3. Test whether specifications of requirements;	ors such as supplier stem, product quality t terms such as quality, uantity and delivery hased materials; the quality and the sample meet the procurement process	explain how 1.1 Review supp 1.2 Sign a procu 1.3 Test the sam 2.0 Principle The person perfexplain the follow	Forming this task of to: olier qualifications; arement contract; aples before procure. Forming this task of the	ement. must be able to
		3.0 Theories The person perf	Forming this task i	must be able to

	explain the following:	
	3.1 Methods of evaluating suppliers;	
	3.2 Sample detection methods.	
	4.0 Essential Skills	
	4.1 Computer application skills;	
	4.2 Communication skills;	
	4.3 Data analysis skills;	
	4.4 Report writing skills.	
DESCRIPTION OF THE END	Timely procurement process of the quality materials	
PRODUCT / SERVICE	for the new technology is ensured in accordance with	
	the technical requirements and the findings from the	
	customer needs assessment.	
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about:	
	1. Relevant national and local government regulations and policies;	
	2. Occupational health and safety;	
	3. Waste disposal methods;	
	4. Environmental protection and safety	
	management.	

APPENDIX: DACUM CHARTS FOR RENEWABLE ENERGY ENGINEER (SOLAR) - NTA LEVEL 8

	DUTIES		TASKS	ENABLERS
1.0	Design the scheme for the construction of	1	Analyze the needs for the construction of energy storage systems	General skills and knowledgeCommunication skillsTeamwork skills
	the energy storage systems	,	Analyze the consistency of solar energy resources.	Technical drawing interpretation knowledgeReport writing skills
			Select the type and capacity of the energy storage systems.	Tools and equipment Computers and computer-aided
			Select the site and arrange the station area.	design software • Printers and scanners
			Design the electrical technical scheme for energy storage systems.	A manual for equipment selectionSolar energy resource measuring instrument
			Conduct and prepare a feasibility study report.	· GPS instrument
				Materials
				 Printing consumables such as toner cartridges and ink cartridges
				• Binding supplies such as binding clips and rubber rings
				 Printing paper, fax paper and other office paper
				 Folders such as board clips and data books
				Requirements for employees
				· Carefulness and conscientiousness
				· Honesty and trustworthiness
				· Solidarity and cooperation
2.0	Prepare a construction scheme for new energy power stations	:	Prepare a construction scheme for the infrastructure construction of the new energy power stations.	General skills and knowledgeCommunication skillsTeamwork skills

DUTIES	TASKS	ENABLERS
	 2.2 Preparation of a construction scheme for Solar PV power subsystems. 2.3 Prepare a construction scheme for energy 	 Technical drawing interpretation knowledge Report writing skills Skills in using computer-aided design software
	storage subsystems.	Tools and equipment
	 2.4 Prepare a construction scheme for grid-connection subsystems. 2.5 Prepare a construction schedule plan. 	 Computer Design scheme documents Documents on engineering quality inspection methods Specification and requirement documents for power construction project;
		 Materials Printing consumables such as toner cartridges and ink cartridges Binding supplies such as binding clips and rubber rings Printing paper, fax paper and other office paper Folders such as board clips and data books Requirements for employees Carefulness and conscientiousness Honesty and trustworthiness Solidarity and cooperation
3.0 Ensure the management of the construction process of energy storage systems	 3.1 Carry out the engineering technical disclosure and safety and quality disclosure. 3.2 Develop a material entry plan and material acceptance. 3.3 Manage the multi-team 	 General skills and knowledge Communication skills Teamwork skills Technical drawing interpretation knowledge Report writing skills Guidance and training skills
	construction and coordination of	Tools and equipment

DUTIES	TASKS	ENABLERS
	construction progress. 3.4 Prepare a design modification report based on sudden on-site problems.	 Installation tools such as wrench, socket, electric drill Testing tools such as multimeter, tramegger
	3.5 Guide the installation and troubleshooting of solar PV power subsystems. 3.6 Guide the installation and troubleshooting of the energy storage subsystem. 3.7 Guide the installation and troubleshooting of the grid-connection subsystem. Materials Traverse Fuse tube Heat shrinkable tube Requirements for employees Carefuommunication	TraverseFuse tubeInsulation tapeHeat shrinkable tube
		· Carefuommunication
	3.8 Complete the overall pre-acceptance of the power station and preparation of acceptance of materials.	
4.0 Ensure the Management of the operation and maintenance of energy storage systems	4.1 Develop the inspection procedures.	General skills and knowledge Communication skills
	4.2 Develop regular safety and quality test procedures.	· Teamwork skills
	4.3 Develop an overhaul safety and quality test plan.	Technical drawing interpretation knowledgeReport writing skills
	4.4 Develop the operational plan for the annual power generation.	Tools and equipment Clamp multimeter, temperature tester, leakage tester, screwdriver, wrench, electrician's plier, etc
	4.5 Suggest the optimization plans for power stations.	Materials Traverse Fuse tube

DUTIES	TASKS	ENABLERS
		 Toner cartridge, ink cartridge and other office supplies Insulation tape, heat shrinkable tube Requirements for employees
		Carefulness and conscientiousnessHonesty and trustworthinessTeamwork
5.0 Organize and conduct guidance and training	operational skills	General skills and knowledge Communication skills Teamwork skills Reading of project manuals Interpretation of technical data Skills in using computer-aided design software Report writing skills Tools and equipment Relevant national and local

DUTIES	S	TASKS	ENABLERS
			Specification and requirement documents for power construction project
			Materials
			· Traverse
			• Fuse tube
			Insulation tape, heat shrinkable tube
			Toner cartridge, ink cartridge and other office supplies
			Requirements for employees
			· Carefulness and conscientiousness
			Honesty and trustworthiness
CO 11	(1	0.1	· Teamwork
6.0 Adapt technolog	new 6.1	Conduct research and choose the appropriate	General skills and knowledge Communication skills
timely		new technology and	Teamwork skills
(Technica		process.	· Interpretation of technical
exchange	6.2	Carry out the customer	drawings
		needs assessment.	· Contract management skills
	6.3	Ensure timely	• Buying and selling negotiation
		procurement process of the quality materials for	skills
		the new technology.	Tools and equipment
			· Computer
			Design scheme documents
			 Documents, books and other reading materials
			Quality system and management method documents
			Materials
			Printing consumables such as toner cartridges and ink cartridges
			· Binding supplies such as binding
			clips and rubber rings

DUTIES	TASKS	ENABLERS
		 Printing paper, fax paper and other office paper
		 Folders such as board clips and data books
		Requirements for employees
		· Carefulness and conscientiousness
		 Honesty and trustworthiness
		· Solidarity and cooperation