

NATIONAL SKILL QUALIFICATION FRAMEWORK QUALIFICATION FILE

Version 6: Draft of 01st September 2016

CONTACT DETAILS OF THE BODY SUBMITTING THE QUALIFICATION FILE

Name and address of submitting body:

Skill Council for Green Jobs,
CIBP Building, Malcha Marg,
Chankyapuri, New Delhi - 110021

Name and contact details of individual dealing with the submission

Name: Dr. Praveen Saxena
Position in the organisation: Chief Executive Officer
Address if different from above: (Same as above)
Tel number(s): 9871119101
E-mail address: psaxena@sscgj.in

Name: Mr. Tanmay Bishnoi
Position in the organisation: Head – Standards and Research
Address if different from above: (Same as above)
Tel number(s): 7838784433
E-mail address: tanmay@sscgj.in

List of documents submitted in support of the Qualifications File

1. Qualifications Pack
2. Industry Validations letters
3. Industry Endorsement tracker
4. Integrated Occupational Map
5. Summary Sheet

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SUMMARY

Qualification Title	Solar Project Helper
Qualification Code	QP SGJ/ Q0111
Nature and purpose of the qualification	Nature of the qualification - Works under instruction and close supervision The main purpose of the qualification - This Qualification will enable the individual to become a helper/ assistant at solar PV project site
Body/bodies which will award the qualification	Skill Council for Green Jobs
Body which will accredit providers to offer courses leading to the qualification	Skill Council for Green Jobs
Body/bodies which will carry out assessment of learners	Affiliated Assessment Agency of SCGJ
Occupation(s) to which the qualification gives access	Solar Project Helper
Licensing requirements	N/A
Level of the qualification in the NSQF	Level 2
Anticipated volume of training/learning required to complete the qualification	200 hours
Entry requirements and/or recommendations	5th pass preferably. No experience in the Solar PV sector is required
Progression from the qualification	Solar PV Installer/ Solar PV Maintenance Technician – Level 4/ Solar PV Assistant Site Surveyor – Level 4/ Solar PV Pump Technician – Level 4/ Solar Off- Grid Installation and Repair Technician – Level 4/ Solar Off Grid Manufacturing Technician – Level 4
Planned arrangements for the Recognition of Prior learning (RPL)	SCGJ recognizes that there project sites where large number of project helpers are employed. There is a need to train these helpers on the basics of solar photovoltaic. - Propose to carry out RPL for solar project helpers at project sites prior to the start of activities - Will cover basics of solar PV component handling and basic health and safety - Linking of this Qualification to Start Up India
International comparability where known	NA
Date of planned review of the qualification.	30 th September 2019

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Formal structure of the qualification			
Title and identification code of component.	Mandatory/ Optional	Estimated size (learning hours)	Level
SGJ/ N0130 Assist in installation and maintenance of solar PV power plant	Mandatory	90	2
SGJ/ N0131 Assist in installation and maintenance of off grid solar systems	Mandatory	90	2
SGJ/ N0106 Maintain personal health & safety at project site	Mandatory	20	2

Please attach any document giving further detail about the structure of the qualification – e.g. a Curriculum Document or a Qualification Pack.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

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SECTION 1 **ASSESSMENT**

Body/Bodies which will carry out assessment:

Affiliated Assessment Agency of SCGJ

How will RPL assessment be managed and who will carry it out?

The RPL assessment will be carried out through pre assessment, identifying the skills gaps, provide bridge training to cover the competency gap, where required, and then conduct final assessment of the candidates .

Confederation of Indian Industry (CII) or any other Affiliated Assessment Agency of SCGJ, as per RPL Policy and Guidelines

Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, reliable and fair and show that these are in line with the requirements of the NSQF.

The emphasis is on examination of existing businesses through case study analysis and practical demonstration of skills and knowledge based on the performance criteria.

The assessment papers are developed by Subject Matter Experts (SME) available with the Assessment Agency, in collaboration with Skill Council for Green Jobs, as per the performance and assessment criteria mentioned in the Qualification Pack. The assessments papers are also checked for the various outcome based parameters such as quality, time taken, precision, tools & equipment requirement etc. The assessment sets are then reviewed for consistency. The technical limitations at the training centres are taken care in theory and viva.

The assessment agencies are instructed to hire assessors with integrity, reliability and fairness. Each assessor shall sign a document with its assessment agency by which they commit themselves to comply with the rules of confidentiality and conflict of interest, independence from commercial and other interests that would compromise impartiality of the assessments. The assessment agencies are instructed to identify assessors as per the Assessment Policy and Guidelines established by Skill Council for Green Jobs relevant for that Qualification.

The assessors selected by Assessment Agencies are scrutinized and made to undergo training and introduction to SCGJ Assessment Framework, competency based assessments, and assessors guides. The assessors are provided with assessors guide developed by the Subject Matter Expert of the assessment agency in collaboration with SCGJ as per the assessment framework. The assessment guides are developed to ensure the maximum possible consistency in the assessment by different assessors and elaborate on the following

- Qualification Pack Structure
- Guidance for the assessor to conduct theory, practical and viva assessments
- Guidance for trainees to be given by assessor before the start of the assessments.
- Guidance on assessments process, practical brief with steps of operations practical observation checklist and mark sheet
- Viva guidance for uniformity and consistency across the batch.

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The assessment by assessment agency is completely based on the assessment criteria as mentioned in the Qualification Pack. Each NOS in the Qualification Pack (QP) is assigned a relative weightage for assessment based on the criticality of the NOS. Therein each Performance Criteria in the NOS is assigned marks for or practical based on relative importance, criticality of function and training infrastructure.

The following tools are proposed to be used for final assessment:

Practical Assessment: This will comprise of a test to evaluate the individual's grasp on domain skills imparted.

Viva/Structured Interview: This tool will be used to assess the conceptual understanding and the behavioural aspects as regards the job role and the specific task at hand. It will also include questions to ascertain the soft skills of interacting with the customer or client.

Written Test: Under this test few key items which cannot be assessed practically will be assessed. The written assessment will comprise of:

- True / False Statements
- Multiple Choice Questions
- Problem Statements
- Case Study Analysis

Please attach any documents giving further information about assessment and/or RPL.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

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ASSESSMENT EVIDENCE

Complete a grid for each component as listed in “Formal structure of the qualification” in the Summary.

NOTE: this grid can be replaced by any part of the qualification documentation which shows the same information – i.e. Learning Outcomes to be assessed, assessment criteria and the means of assessment.

Title of Component: Solar Project Helper

CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role Solar Project Helper

Qualification Pack SGJ/ 0111

Sector Skill Council Green Jobs

Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criterion.
6. To pass the Qualification Pack, every trainee should score a minimum of 50% of aggregate marks to successfully clear the assessment.
7. In case of *unsuccessful completion*, the trainee may seek reassessment on the Qualification Pack.

Assessment Outcomes	Assessment Criteria for outcomes	Total Marks	Marks allocation		
			Out of	Theory	Skills Practical
SGJ/N0130 Assist in installation and maintenance of solar PV power plant	PC1. Identify components of solar PV power plants	100	10	3	7
	PC2. Identify the tools used at a solar PV power plant site		10	3	7
	PC3. Assist in survey of the site for installation of solar power plant		8	3	5
	PC4. Make foundations for module mounting structures and other components under supervision		10	3	7
	PC5. Assist in measurement and recording of readings from various equipment		5	2	3
	PC6. Carry out cleaning of modules as per schedule and standard procedure and remove any		10	3	7

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	shadowing objects				
	PC7. Perform visual inspection for fault identification as per schedule		6	2	4
	PC8. Assist in replacing defective modules from the PV module arrays		10	2	8
	PC9. Assist in repair and replacement of broken foundations for modules, combiner boxes, inverters and transformers, etc.		10	2	8
	PC10. Clean the work area after completing the installation and maintenance activity		10	1	9
	PC11. Remove all the tools, consumables used from the work area and dispose of any waste materials in accordance with safe working practices		5	2	3
	PC12. Fill in the job completion		6	2	4
		TOTAL	100	28	72
SGJ/N0131 Assist in installation and maintenance of off grid solar systems	PC1. Assist in survey of the site for installation of solar modules and pump	100	8	3	5
	PC2. Visually inspect for physical defects of equipment		8	2	6
	PC3. Mount and fix the structures and modules on the foundations under supervision		8	2	6
	PC4. Assist in laying of cables and pipes under supervision		6	2	4
	PC5. Assist in installation and regular maintenance of solar PV pumps		10	3	7
	PC6. Clean the work area after installation		6	2	4
	PC7. Make proper foundation under supervision		8	3	5
	PC8. Assist in erection of the pole under supervision		6	2	4
	PC9. Assist in installation and regular maintenance of street lights		10	3	7
	PC10. Clean the work area after installation		6	2	4
	PC11. Visually inspect all components including batteries, solar modules, cables of small solar systems		8	3	5
	PC12. Assist in installation and regular maintenance of solar modules, lights, fan, etc.		10	3	7
	PC13. Clean the work area after completing the installation		6	2	4

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		TOTAL	100	32	68
SGJ/N0106 Maintain personal health & safety at project site	PC1. Identify requirements for safe work area	50	5	2	3
	PC2. Identify contact person when workplace safety policies are violated and provide information about incident/violation		2	1	1
	PC3. Identify location of first aid materials and administer first aid related to the work being carried out		7	3	4
	PC4. Identify personal safety equipment required for specific locations on-site		4	2	2
	PC5. Identify expiry dates and wear & tear issues of specified equipment		2	1	1
	PC6. Identify protective equipment required for using tools, equipment and testing devices needed to carry out the work		5	2	3
	PC7. Follow safe and accepted practices for personal protection		2	1	1
	PC8. Identify electrical hazards		3	1	2
	PC9. Identify personal safety hazards or work site hazards and report to the supervisor for further action		5	2	3
	PC10. Install fall protection and perimeter protection equipment for working at height as per the directions of the supervisor		4	2	2
	PC11. Follow standard operating procedure for moving tools and equipment to work area and minimize potential hazards associated with tools at height		4	2	2
	PC12. Follow standard operating procedure for placing tools and materials to eliminate/minimize the risk of items being knocked down		4	2	2
	PC13. Clear the work area after completion		3	1	2
	TOTAL	50	22	28	

Means of assessment 1

Means of assessment 2

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Pass/Fail

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SECTION 2 **EVIDENCE OF LEVEL**

Awarding bodies will enter a proposed NSQF level for the qualification in the Qualification File Summary. This section asks for the evidence on which that proposal is based. The evidence must refer to the level descriptors of the NSQF.

NSDA recommends an approach to working out the level of qualifications which starts with the level descriptor domains (Process, Professional knowledge, Professional skill, Core skill and Responsibility: see annex A). Two variants for providing the evidence of level are offered here: Option A and Option B in the following pages. Awarding bodies should choose the option which best suits the qualification

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OPTION A

Title/Name of qualification/component: Solar Project Helper		Level: 2	
NSQF Domain	Key requirements of the job role	How the job role relates to the NSQF level descriptors	NSQF Level
Process	<p>The individual is expected to periodically check and maintain all the electrical components of the solar PV power plant for proper electrical connectivity, incorporating quality craftsmanship and complying with all applicable codes, standards, and safety requirements</p>	<p>The individual independently performs processes that are repetitive, on a regular basis such as assisting the site surveyor in the survey of site like collecting soil samples, mapping of trees and obstructions, assisting the installers during the installation by making foundations for module mounting structures, inverters, transformers, etc., making pathways between module arrays, assisting in maintenance like cleaning the solar modules, assisting in replacement of modules, if necessary and assisting in installation and maintenance of solar off-grid systems like solar PV pumps, solar street lights and small solar PV systems.</p> <p>Since this role requires more of practice and less of understanding, it qualifies as a Level 2 role.</p> <p>Since the role does not involve routine and predictable activities but mostly repetitive work which does not involve much understanding, the role does not qualify for Level 3. For example, the roles incumbent is expected to follow the instructions of the supervisor like collecting samples, assisting in installation and maintenance, cleaning of solar modules as per schedule, etc.</p> <p>Since this role requires the job holder to carry out processes which are repetitive on a regular basis, with more application of practice like s/he is expected to carry out installation and maintenance of solar PV power plant and solar off-grid systems, the role cannot be placed at level 4.</p>	2

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Title/Name of qualification/component: Solar Project Helper		Level: 2	
NSQF Domain	Key requirements of the job role	How the job role relates to the NSQF level descriptors	NSQF Level
Professional knowledge	<p>The individual is expected to exhibit the knowledge of materials, tools and applications in a limited context like usage and handling procedure for solar modules, cleaning procedures for various equipment, tools involved in installation and maintenance activities, precautions to be taken while handling different electrical and mechanical products, etc.</p>	<p>The job holder is expected to exhibit an understanding of the materials, tools and applications in a limited context of work and quality. For example, s/he is expected to know the usage and handling procedures of solar modules, mechanical and electrical equipments and their functioning, tools involved in installation and maintenance, precautions to be taken while handling electrical and mechanical equipments. Further, s/he should also have the ability to speak read and write in the local vernacular language and English.</p> <p>Since all the above mentioned areas are related to the limited context of work and quality related to the solar PV power plant, the role qualifies for Level 2.</p> <p>The job holder is expected to know more than just common trade terminology, instructional words, meaning and understanding, it cannot be pegged at level 1.</p> <p>Further, since the job holder is not expected to be aware of basic facts, process and principles like maintenance procedures, installation and commissioning principles, performance ratios, etc., it can't be pegged at level 3. For example, this role is not expected to have knowledge about the effect of shading, tilt angle, etc. on solar module output in terms of current, voltage, etc.</p>	2
Professional skill	<p>The job holder is expected to operate/ use screw driver, inspection fixtures, wire cutter, pliers, testers, spanner, etc., assist in professional works like installation and maintenance activities. Further, the job holder must be able to take the day to day decisions and solve problem/s at work.</p>	<p>The job holder is expected to have limited skills used in limited context such as selecting the relevant tools required for carrying out the job, using the tools selected, assist in installation of solar PV power plant components like solar modules, interconnection modules like junction boxes, combiner boxes, assist in commissioning checks like measurement and recording of readings from various equipment, assist in checking of</p>	2

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Title/Name of qualification/component: Solar Project Helper		Level: 2	
NSQF Domain	Key requirements of the job role	How the job role relates to the NSQF level descriptors	NSQF Level
		<p>cable connections and assist in maintenance of solar PV power plant components like carrying out cleaning of modules, replacement of defective modules. Further, the incumbent also assists in the installation and maintenance of solar off- grid systems like solar PV pumps, solar street lighting system and small solar PV systems.</p> <p>Since all the above mentioned professional skill are limited to the context of selecting and applying appropriate tools and assisting in professional works, the role qualifies for Level 2.</p> <p>The Job holder is expected to possess professional skills more than just routine and repetitive skills and taking safety and security measures. For example, S/he is expected to select and use the appropriate tools for carrying out the jobs, assisting in installation, commissioning and maintenance of solar PV power plant components and solar off- grid components. Hence, the job holder can't be placed at Level 1.</p> <p>Further the job holder doesn't require to recall and demonstrate much of practical skills which are routine and repetitive in nature. Hence, s/he can't be placed at level 3.</p>	
Core skill	The individual is expected to exhibit effective communication skills by receiving and transmit written and oral messages like receive instructions from the technicians and engineers. Further, the individual is expected to carry out tasks safely and securely and use hygienic and environmentally friendly practices and health and safety for self and that of fellow workers. S/he	The job holder is expected to exhibit effective oral communication skills (including awareness of vernacular language) so as to understand the instructions of the supervisor and carry out the job accordingly. The job holder is also expected to possess some reading and writing skills so as to read and understand health and safety instructions, signage, etc. The job holder is also expected	2

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Title/Name of qualification/component: Solar Project Helper		Level: 2	
NSQF Domain	Key requirements of the job role	How the job role relates to the NSQF level descriptors	NSQF Level
	will possess basic arithmetic like addition and subtraction.	<p>to display basic arithmetic/ algebraic awareness like addition and subtraction required to measure and understand parameters like current, voltages, etc. The incumbent must use hygienic and environmentally friendly practices like cleaning the work area after installation and respect social and religious backgrounds of fellow workers so as to work collaboratively with the workers.</p> <p>Since all the above mentioned core skills are related to receiving information from the supervisors and using hygienic and environmentally friendly practices, the role can be placed at level 2.</p> <p>Since, the Job holder expected to possess core skills more than just reading, writing, addition and subtraction and familiarity with social and religious diversity, hygiene and environment, the job holder can't be placed at Level 1.</p> <p>Further since the job holder doesn't require to use skill of basic arithmetic and algebraic principles, personal banking, basic understanding of social and natural environment, s/he can't be placed at level 3.</p>	
Responsibility	The individual has no responsibility and works under instruction and close supervision	<p>The Solar Project Helper has practically no responsibility and mostly works under instruction and close supervision. S/he is expected to follow the instructions of the supervisor to the word and in report immediately to the supervisor in case of any deviations from normal working. Thus s/he can be placed at level 2.</p> <p>Since s/he is not expected to be responsible of own work and learning but works under the close supervision of the supervisors, s/he can't be placed at level 3.</p>	2

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Title/Name of qualification/component: Solar Project Helper		Level: 2	
NSQF Domain	Key requirements of the job role	How the job role relates to the NSQF level descriptors	NSQF Level
		Also as is evident from the above examples the incumbent also works without continuous instructions such as cleaning of modules, etc. Hence, s/he can't even be placed at Level 1.	

India-EU Skills Development project: Qualification File

SECTION 3 **EVIDENCE OF NEED**

What evidence is there that the qualification is needed?

During extensive industry interactions carried out while creating occupational maps and prioritization of job roles for Qualification Pack development, the mentioned qualification was indicated as a key requirement by the industry. In addition, the Skill Gap Report for the sector has indicated that a significant proportion of the workforce is involved in this work function. The study also indicates that this domain will be in great demand, due to focus of Government of India to support the sector through policy and implementation. Research was conducted in the Renewable energy sector manpower requirement estimates till 2025. The research provides the data that the discussed qualification is one of the critical roles in the sector. The details of statistics and research analysis are provided separately as a research analysis report

Evidence of the qualification is supported by validations with representation from across sub sectors. The complete list of validating companies has been enclosed as an annexure to the Q file.

What is the estimated uptake of this qualification and what is the basis of this estimate?

The increase in manpower requirements (as per projections) from 2017 to 2025 is approx. 10 times for this role. It is estimated that close to 2, 30,000 trained manpower are required for this role by 2025. All the numbers are provided in research analysis study

What steps were taken to ensure that the qualification(s) does/do not duplicate already existing or planned qualifications in the NSQF?

Currently, Skill Council for Green Jobs is the only Sector Skill Council set up which has the mandate of Certification and Assessment of candidates undergoing Skill Development courses in Solar Photovoltaic domain. NSDC list of Approved QPs was checked prior to commissioning the work. There is no overlap of these Qualification Packs with existing Qualification Packs. The NCO/2015 Classification and MES Course List was also cross examined for existing trades, wherein no overlap / existing trade was found.

What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated?

In the Qualification Pack, review date is scheduled for after 3 years in consultation with Subject Matter Experts. The monitoring of evaluation of assessments and Employer feedback will be sought post-placement, for review of the effectiveness of the Qualification.

Please attach any documents giving further information about any of the topics above.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

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SECTION 4 **EVIDENCE OF PROGRESSION**

What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?

1. Discussing the growth trajectory within each occupation after studying organisational charts of various industry players across small, medium and large scale organizations.
2. Exploring various lateral career opportunities for the discussed qualification
3. Ensuring that there is a clear role up in terms of performance criteria qualification experience and skill requirement from lower NSQF Level to higher levels in the hierarchy.

Please refer to attached career path as per annexure 1 which clearly defines the career path.

Please attach any documents giving further information about any of the topics above.

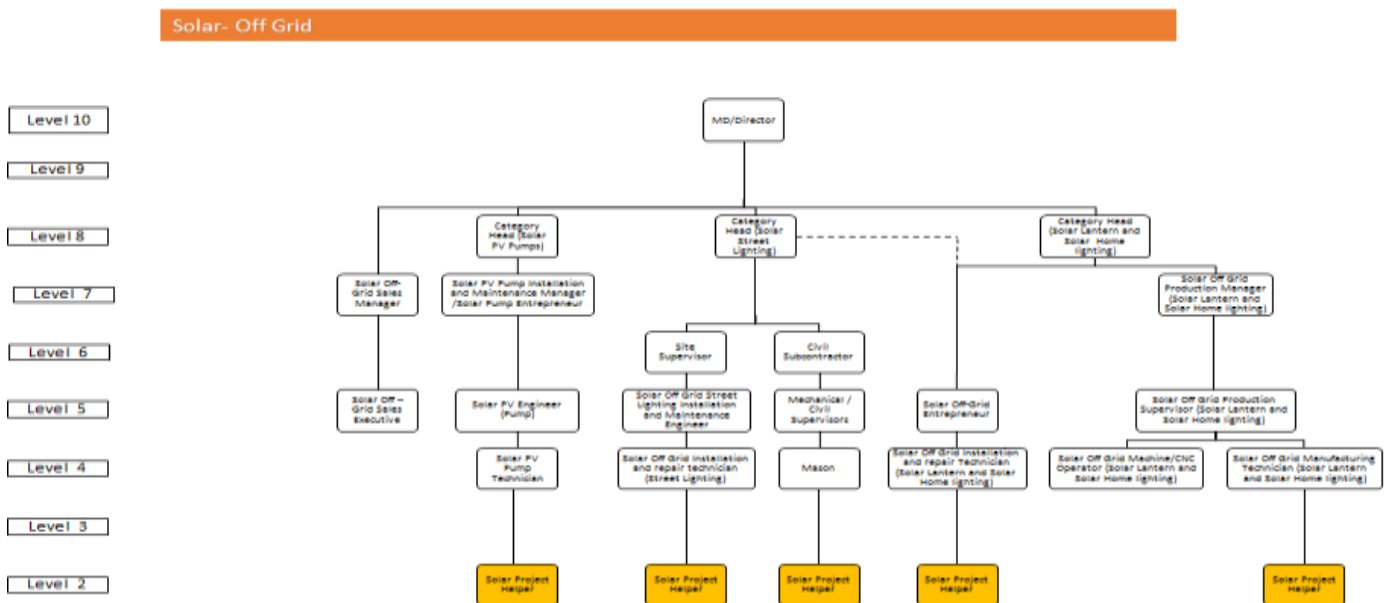
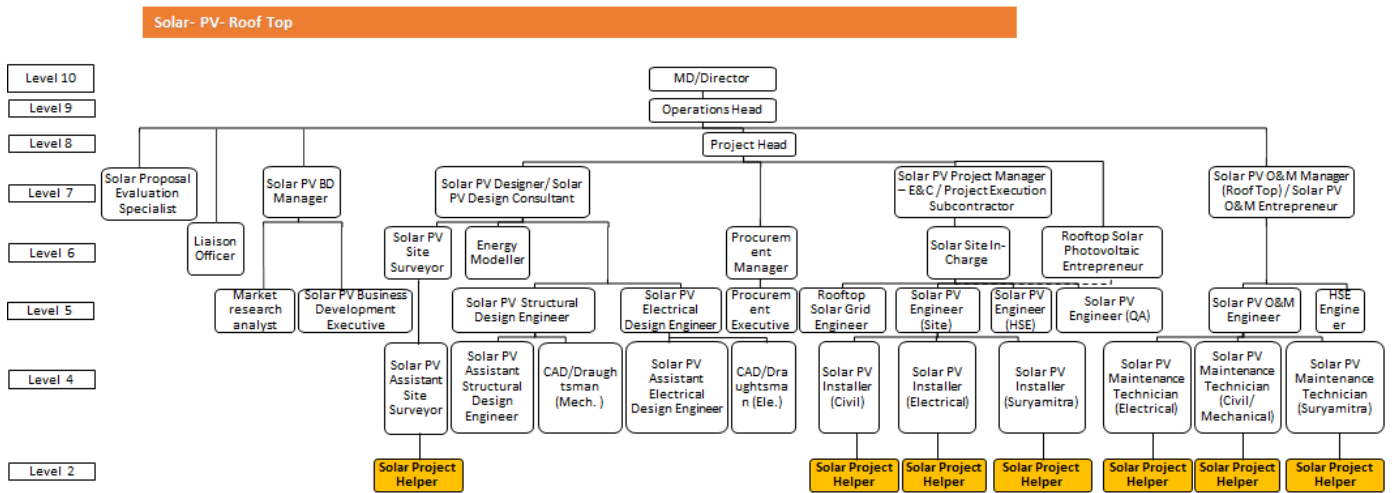
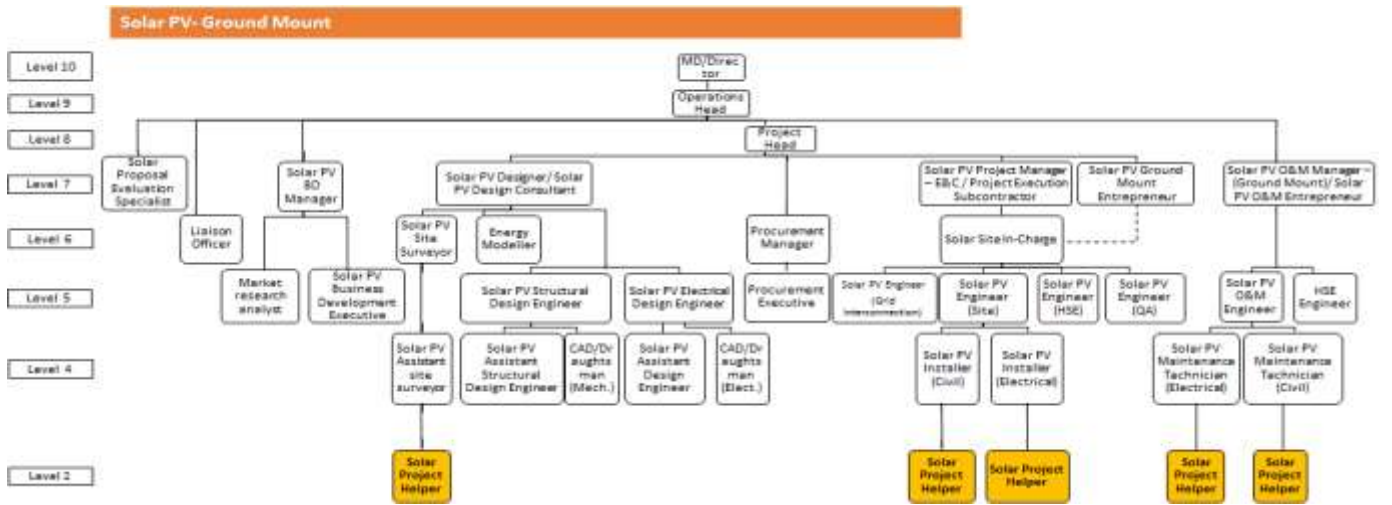
Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

1. Career Map of Solar Project Helper - Annexure 1
2. QP SGJ/Q0111 - Annexure 2

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Annexure 1: Career Map



Annexure 2: QP SGJ/ Q0111