QUALIFICATION FILE

Solar Domestic Product Assembler

☐ **Short Term Training (STT)**

☒ **Future Skills**

NCrF/NSQF Level: 2.5

Submitted By:

Skill Council for Green Jobs

Chief Executive Officer
CBIP Building, Malcha Marg,
Chanakyapuri, New Delhi – 110021
Contact no. and mail: 9871119101, ceo@sscgj.in

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Section 1: Basic Details

1.	**Qualification Name**	Solar Domestic Product Assembler	
2.	**Sector/s**	Environmental Science	
3.	**Type of Qualification: ☒ New**	**NQR Code & version of existing/previous qualification:** QG-2.5-ES-00907-2023-V1-SCGJ & version 1	**Qualification Name of existing/previous version:**
4.	**a. OEM Name** **b. Qualification Name** (Wherever applicable)	**Solar Domestic Product Assembler**	
5.	**National Qualification Register (NQR) Code &Version**	QG-2.5-ES-00907-2023-V1-SCGJ & version 1	**6. NCrF/NSQF Level:** 2.5
7.	**Award (Certificate/Diploma/Advance Diploma/ Any Other**	Certificate	
8.	**Brief Description of the Qualification**	Solar Domestic Product Assembler assembles fabricated parts of small DC light sub assembly units by operating required tools. He/She also test and calibrate the assembled units to ensure the small DC based solar products meet the required quality and safety specifications. The job holder also repairs, refits and handles warranty claims for the concerned assembled units.	

<table>
<tr><td>9.</td><td>Eligibility Criteria for Entry for Student/Trainee/Learner/Employee</td><td colspan="2">a. Entry Qualification & Relevant Experience:
<table>
<tr><th>S. No.</th><th>Academic/Skill Qualification (with Specialization - if applicable)</th><th>Required Experience (with Specialization - if applicable)</th></tr>
<tr><td>1</td><td>8th Class Pass and pursuing continuous schooling</td><td>NA</td></tr>
<tr><td>2</td><td>9th Grade pass with no experience.</td><td>NA</td></tr>
<tr><td>3</td><td>5th grade pass with 4 years of relevant experience.</td><td>4</td></tr>
<tr><td>4</td><td>Previous relevant Qualification of NSQF Level 1 with 1.5 years of relevant experience</td><td>NA</td></tr>
<tr><td>5</td><td>Previous relevant Qualification of NSQF Level 2 with 6 months of relevant experience.</td><td>NA</td></tr>
</table>
b. Age: 14</td></tr>
<tr><td>10.</td><td>Credits Assigned to this Qualification, Subject to Assessment (as per National Credit Framework (NCrF))</td><td>9</td><td>11. Common Cost Norm Category: I</td></tr>
<tr><td>12.</td><td>Any Licensing requirements for Undertaking Training on This Qualification (wherever applicable)</td><td colspan="2">NA</td></tr>
<tr><td>13.</td><td>Training Duration by Modes of Training Delivery (Specify Total Duration as per selected training delivery modes and as per requirement of the qualification)</td><td colspan="2">☒Offline ☐Online ☐Blended
<table>
<tr><th>Training Delivery Modes</th><th>Theory (Hours)</th><th>Practical (Hours)</th><th>OJT Mandatory (Hours)</th><th>OJT Recommended (Hours)</th><th>Employability (Hours)</th><th>Total (Hours)</th></tr>
<tr><td>Classroom (offline)</td><td>125</td><td>85</td><td>30</td><td></td><td>30</td><td>270</td></tr>
<tr><td>Online</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
(Refer Blended Learning Annexure for details)</td></tr>
<tr><td>14.</td><td>Aligned to NCO/ISCO Code/s (if no code is available mention the same)</td><td colspan="2">NCO-2015/8212.9900</td></tr>
<tr><td>15.</td><td>Progression path after attaining the qualification (Please show Professional and Academic progression)</td><td colspan="2">Vertical Progression: Junior Technician- Solar Manufacturing (Level 3)</td></tr>
</table>

16.	**Other Indian languages in which the Qualification & Model Curriculum are being submitted**	**Nil**	
17.	**Is similar Qualification(s) available on NQR-if yes, justification for this qualification**	**☐ Yes ☒ No**	
18.	**Is the Job Role Amenable to Persons with Disability**	**☒ Yes ☐ No** **If "Yes", specify applicable type of Disability:** **☒ Deaf ☒ Hard of Hearing ☒ Acid Attack Victims ☒ Dwarfism**	
19.	**How Participation of Women will be Encouraged**	The programme would be proposed to be incorporated in women ITIs and diploma colleges to train women candidates on the job role. TPs shall be encouraged to on-board at least a certain number of female candidates in each batch	
20.	**Are Greening/ Environment Sustainability Aspects Covered** (Specify the NOS/Module which covers it)	**☒ Yes ☐ No**	
21.	**Is Qualification Suitable to be Offered in Schools/Colleges**	**Schools ☒ Yes ☐ No Colleges ☒ Yes ☐ No**	
22.	**Name and Contact Details of Submitting / Awarding Body SPOC** (In case of CS or MS, provide details of both Lead AB & Supporting ABs)	**Name:** Dr. Praveen Saxena **Email:** ceo@sscgj.in **Contact No.:** 9871119101 **Website: https://sscgj.in/**	
23.	**Final Approval Date by NSQC:31.08.2023**	**24. Validity Duration:** 3 years	**25. Next Review Date: 30.08.2026**

Section 2: Module Summary

NOS/s of Qualifications

(In exceptional cases these could be described as components)

Mandatory NOS/s:

Specify the training duration and assessment criteria at NOS/ Module level. For further details refer curriculum document.

***Th.**-Theory **Pr.**-Practical **OJT**-On the Job **Man.**-Mandatory Training **Rec.**-Recommended **Proj.**-Project*

S. No	NOS/Module Name	NOS/Module Code & Version *(if applicable)*	Core/ Non-Core	NCrF/NSQF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT	Emp.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) *(if applicable)*
1.	**Introduce renewable energy resources**	SGJ/N4901	Core	2.5	1	20	10	30		30	29	21			50	14
2.	**Introduce Solar Energy**	SGJ/N4902	Core	2.5	1	20	10			30	35	15			50	14
3.	**Explain application of Solar PV in small DC system**	SGJ/N4903	Core	2.5	1	20	10			30	30	20			50	14
4.	**Identify and Explain components for small solar lighting system**	SGJ/N4904	Core	2.5	1	20	10			30	28	22			50	14
5.	**Introduce and Explain various DC based solar products, their assembly & repair**	SGJ/N4905	Core	2.5	2	30	30			60	28	22			50	14
6.	**Maintain Personal Health & Safety while handling**	SGJ/N4906	Core	2.5	1	15	15			30	27	23			50	14

S. No	NOS/Module Name	NOS/Module Code & Version *(if applicable)*	Core/ Non-Core	NCrF/NSQF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT	Emp.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) *(if applicable)*
	various DC based solar products															
7.	**Employability Skills**	DGT/VSQ/N0101			1					30	20	30			50	16
8.	**On the Job Training**									30						
Duration (in Hours) / Total Marks					8	125	85	30	30	**270**	197	153			350	100

Assessment - Minimum Qualifying Percentage

Minimum Pass Percentage – Aggregate at qualification level: 70 % *(Every Trainee should score specified minimum aggregate passing percentage at qualification level to successfully clear the assessment.)*

Section 3: Training Related

1.	**Trainer's Qualification and experience in the relevant sector (in years)** *(as per NCVET guidelines)*	ITI /Diploma Electrical, Electronics, Civil, Mechanical, Fitter, Instrumentation or B.Tech (Civil/Mechanical /Electrical/ Instrumentation / Electronics / Electrical and Electronics Eng.) or MSc Physics or The education qualification can be relaxed in case of extraordinary relevant field experience. Or Certified under relevant Craft Instructor Training Scheme (CITS) course Minimum 3 years of relevant industry/teaching experience for ITI /Diploma (Electrical, Electronics, Civil, Mechanical, Fitter, Instrumentation) Or 2. Minimum 2 years of relevant industry/teaching experience for B.Tech (Civil/Mechanical /Electrical/ Instrumentation / Electronics / MSc Physics
2.	**Master Trainer's Qualification and experience in the relevant sector (in years)** *(as per NCVET guidelines)*	B.Tech (Civil/Mechanical /Electrical/ Instrumentation / Electronics / Electrical and Electronics Eng.) or MSc Physics with 4 years' experience in Solar product Manufacturing
3.	**Tools and Equipment Required for Training**	☒Yes ☐No (*If "Yes", details to be provided in Annexure)*
4.	**In Case of Revised Qualification, Details of Any Upskilling Required for Trainer**	Not Applicable

Section 4: Assessment Related

1.	**Assessor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines)*	ITI /Diploma Electrical, Electronics, Civil, Mechanical, Fitter, Instrumentation or B.Tech (Civil/Mechanical /Electrical/ Instrumentation / Electronics / Electrical and Electronics Eng.) or MSc Physics or The education qualification can be relaxed in case of extraordinary relevant field experience.

		Or Certified under relevant Craft Instructor Training Scheme (CITS) course Minimum 4 years of relevant industry/teaching experience for ITI /Diploma (Electrical, Electronics, Civil, Mechanical, Fitter, Instrumentation) Or 2. Minimum 3 years of relevant industry/teaching experience for B.Tech (Civil/Mechanical /Electrical/ Instrumentation / Electronics / MSc Physics
2.	**Proctor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines)*	B.Tech (Civil/Mechanical /Electrical/ Instrumentation / Electronics / Electrical and Electronics Eng.) or MSc Physics with 5 years' experience in Solar product Manufacturing
3.	**Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines)*	B.Tech (Civil/Mechanical /Electrical/ Instrumentation / Electronics / Electrical and Electronics Eng.) or MSc Physics with 5 years' experience in Solar product Manufacturing
4.	**Assessment Mode** *(Specify the assessment mode)*	Online and offline both
5.	**Tools and Equipment Required for Assessment**	☒ Same as for training ☒ Yes ☒ No *(details to be provided in Annexure-if it is different for Assessment)*

Section 5: Evidence of the need for the Qualification

Provide Annexure/Supporting documents name.

1.	**Latest Skill Gap Study (not older than 2 years) (Yes/No):):** Yes available at https://sscgj.in/wp-content/uploads/2022/03/Green-Jobs-Report-Jan27.pdf
2.	**Latest Market Research Reports or any other source (not older than 2 years) (Yes/No):** Yes following key documents are available in the public domain

	a. https://sscgj.in/wp-content/uploads/2022/03/Green-Jobs-Report-Jan27.pdf b. https://jmkresearch.com/wp-content/uploads/2022/02/Photovoltaic-Manufacturing-Outlook-in-India_February-2022_JMK.pdf
3.	**Government /Industry initiatives/ requirement (Yes/No):** Government /Industry initiatives/ requirement (Yes/No): Yes, Government /Industry initiatives/ requirement (Yes/No): Yes Small DC powered applications like Solar home systems (SHS) and solar lamps are stand-alone photovoltaic systems that offer a cost-effective way of supplying power for lighting (and appliances) to remotely located and off-grid households. In rural areas that are not connected to the grid SHS can be used to meet a household's energy demand fulfilling basic electric needs. Globally solar lamps/SHS provide power to many households in remote and rural locations where either grid is not feasible or provision of reliable supply of electricity is not feasible. SHS usually operate at a rated voltage of 12 V direct current (DC) and provide power for low power DC appliances such as lights, mobile charging, radios and small TVs for about 3-5 hours a day. Furthermore, they can also be utilized with cables, switches, mounts, and structural parts and power conditioners / inverters, which change 12/ 24 V power to 240VAC power for larger appliances. SHS are best used with small & efficient appliances so as to limit the size of the module. A SHS typically includes one or more PV modules consisting of solar cells, a charge controller which distributes power and protects the batteries and appliances from damage and at least one battery to store energy for use when the sun is not shining. They contribute to the rural livelihood with the following benefits: • reducing indoor air pollution by displacing kerosene use and therefore improving health • providing lighting while improving opportunity for productive work in evening • Facilitating the access to information and communication (radio, TV, mobile phone charging). Government has encouraged the deployment of small solar products for lighting and various other off- grid applications through various rural electrification measures. The aim of the national solar mission is not limited to offering large-scale grid-connected power but also transform India's rural economy through distributed solar energy applications. Large scale deployment of solar lighting systems, water pumps, and other solar power-based applications will change India's rural economy. The mission is to expand and establish India as a global leader in solar energy sector. In that context, Off grid market will continue to present a great opportunity for new jobs creation and entrepreneurial ventures.

	It is proposed to introduce this qualification for vocationalisation in schools (in Grade IX) along with short term training to ensure a large number of learners/trainees are trained and certified in the concerned job role.
4.	**Number of Industry validation provided:** Up to 10 companies in the solar space are expected to provide validations on the qualification.
5.	**Estimated nos. of persons to be trained and employed:** A large number of work-force (including self-employed) shall be required primarily within the assembly/repair business of small DC lighting and other applications. There are immense opportunities for skilling, jobs creation and entrepreneurship in distributed renewable energy segment. Many candidates can be trained and certified on this through Short Term Training mode. Further, thousands of grade IX students shall also be certified on this if it is successfully introduced in schools.
6.	**Evidence of Concurrence/Consultation with Line Ministry/State Departments:** Concurrence has been requested from the Ministry of New and Renewable Energy

Section 6: Annexure & Supporting Documents Check List

Specify Annexure Name / Supporting document file name

1.	**Annexure:** NCrF/NSQF level justification based on NCrF level/NSQF descriptors *(Mandatory)*	Annexure: Evidence of Level
2.	**Annexure:** List of tools and equipment relevant for qualification *(Mandatory, except in case of online course)*	Annexure: Tools and Equipment (Lab Set-Up)
3.	**Annexure:** Detailed Assessment Criteria *(Mandatory)*	Annexure: Detailed Assessment Criteria (Mandatory)
4.	**Annexure:** Assessment Strategy *(Mandatory)*	Annexure: Assessment Strategy
5.	**Annexure:** Acronym and Glossary *(Optional)*	Annexure: Acronym and Glossary
6.	**Supporting Document:** Model Curriculum *(Mandatory – Public view)*	Attached
7.	**Supporting Document:** Career Progression *(Mandatory - Public view)*	Annexure: Career progression and OM
8.	**Supporting Document:** Occupational Map *(Mandatory)*	Annexure: Career progression and OM

9.	**Supporting Document:** Assessment SOP *(Mandatory)*	Annexure: Assessment Strategy

Annexure: Evidence of Level

Title/Name of qualification/component: Solar Domestic Product Assembler		**Level: 2.5**	
NSQF Domain	**Outcomes of the Qualification/Component**	**How the outcomes relate to the NSQF level descriptors**	**NSQF Level**
Professional Theoretical Knowledge/ Process	Solar Domestic Product Assembler assembles parts of small DC light sub assembly units by operating required tools. He/She also test and calibrate the assembled units to ensure the small DC based solar products meet the required quality and safety specifications. The job holder also repairs, refits and handles warranty claims for the concerned assembled units.	The individual would have a basic knowledge of the assembling Solar based Domestic Products. He needs to know various sub sections of the different types of solar based domestic products. He/She has to be specific knowledge and skills of supply of material required in assembling solar based domestic product. The Job holder is expected to have follow defined procedures in familiar context. Thus, considering the scope of work the job holder can be placed at Level 2.5.	2.5
Professional and Technical Skills/ Expertise/ Professional Knowledge	The individual is expected to exhibit the basic knowledge of assembling various Solar Domestic Products like (dc light, dc fan, solar water heater etc.) including operation and maintenance of various sub assembly units. He/She needs to have skills to deliver job with reasonable precision. He/She has the knowledge and ability to use hand-held tools.	He /She has skills to Prepares for work to be accomplished by studying parts lists and gathering parts, subassemblies, tools, and materials. The job holder has the required skills to provide the maintenance of assembled equipment, analyze it, and ensure any issues are dealt with accordingly. He/She has the required skills for Identification of the problem and issues within the range of familiar contexts and generate possible solution.	2.5

Title/Name of qualification/component: Solar Domestic Product Assembler		Level: 2.5	
NSQF Domain	**Outcomes of the Qualification/Component**	**How the outcomes relate to the NSQF level descriptors**	**NSQF Level**
Employment Readiness & Entrepreneurship **Skills & Mind-set/Professional Skill**	The individual is expected to plan & organize the schedule for all activities related to assembling of solar based products and installation to be undertaken by self. The individual is expected to Display Personal Motivation. Positive Attitude & Passion for Work.	The Job holder is expected to maintain logs, records, and reports concerning production, maintenance, and product inconsistencies. The job holder is expected to represent and demonstrate practical skills, which are routine and repetitive in a narrow range of application such as checking the mechanical and electrical equipment's using standard protocols. Since all the above-mentioned professional skill are related to demonstrating practical skills, which are routine and repetitive in a narrow range and using appropriate rule and tool, the role qualifies for Level 2.5.	2.5
Broad Learning Outcomes/ Core Skill	The individual is expected to have good communications skills with fellow Technician & is capable of understanding the need of fellow Technician.	The Job holder is expected to be possess the technical capabilities like reading and interpreting technical documents and skill of collecting and organizing information to assemble the product efficiently and accurately. Thus, considering the core skills, He/she can be placed at Level 2.5.	2.5
Responsibility	The individual is primarily responsible for own work in define context. The individual is responsible in the planning of the routine and predictable tasks within a specific field.	Individual is responsible for his/ her own work. He/she has to ensure assembling of various types of solar based domestic Product without any Defect. Considering the responsibilities, the individual can be placed at level 2.5.	2.5

Title/Name of qualification/component: Solar Domestic Product Assembler		Level: 2.5	
NSQF Domain	**Outcomes of the Qualification/Component**	**How the outcomes relate to the NSQF level descriptors**	**NSQF Level**

Annexure: Tools and Equipment (Lab Set-Up)

List of Tools and Equipment

Batch Size:

S. No.	Tool / Equipment Name	Specification	Quantity for specified Batch size
1 .	Small size/demonstration assembling of solar domestic products	Standard Make	
2	Personnel Protective Equipment, First aid kit, Material Safety Data Sheet, Gas leakage detector	Standard Make	
3	Tool kit, IR Thermometer ,Barometer, Double ended flat spanner, Double ended ring spanner, Wrenches, Combination pliers, Side cutting pliers, Nose pliers, Screw driver, Vanier caliper, hammer, Cutters, Tweezers, Stripping & Crimping Tools, Safety helmet, electronic pressure gauge, clamp meter, multimeter, KOH concentration measuring tools, gas leakage detector, Nose mask, Safety goggles, Ear plug, PVC hand glove, Cotton hand glove, Reflective jacket, Safety Gloves ,Chemical Mask, Leather gloves, flame proof aprons, Flame proof overalls buttoned to neck, Helmets/hard hats, Full body harness, Hand shields, , fire	Standard Make	

	extinguishers, First aid equipment, Safety instruments		

Classroom Aids

The aids required to conduct sessions in the classroom are:

Marker, chart and visual aid, Pellet production flowchart, raw material supply chain flow chart, Schematics of Solar Domestic Product production plant;

Annexure: Industry Validations Summary

Provide the summary information of all the industry validations in table. This is not required for OEM qualifications.

S. No	Organization Name	Representative Name	Designation	Contact Address	Contact Phone No	E-mail ID	LinkedIn Profile *(if available)*
1.	Bugalia International Pvt. Ltd.	Preeti	Director	47, Ashok Vihar, Jodhpur	9353000097	info@bugaliainternational.com	NA
2.	Gujaraj Institute of Solar Energy	Japen Gor	Project Director	620 Sharan Circle Hub, Opp. BRTS Bus Stop, Zundal, Gandhi Nagar-382421	7201922622	j.gor@gise.in	NA
3.	Greenergy Solar Solutions	S. Kannan	Chief Executive Officer	No.234, 1st Floor, Lawspet Main Road, Pakkamudayanpet, Lawspet, Puducherry-605008	9943256109	greenergypdy@gmail.com	NA
4.	SolarTech Saarthi Pvt. Ltd.	Lucky Aggarwal	Managing Director	17, Amar Colony, Main Rohtak Road,	9711851306	Lucky.solarsaarthi@gmail.com	NA

				Nangloi, Delhi-110041			
5.	Innodust Marketing Private Limited	Sunil Kumar Sahoo	Director	A/63/1, Sahidnagar, Bhubaneswar, Odisha	7894412585	Sunil.innodust@gmail.com	NA
6.	M/s Oriana Power Limited	Parveen Kumar	Director	C-103, 1st Floor, Sec-2, Noida, U.P-201301	+91-120-4114695	Parveen.jangra@orianapower.com	NA
7.	Saitech Energy Space Systems Pvt. Ltd.	Sanyam Indurkhya	Director	Hall No. 1A, Ground Floor, Chittod Complex, Zone 1, M.P Nagar, Bhopal - 462011	9685580822	Saitechsystem471@gmail.com	NA
8.	Shigoto International Pvt. Ltd.	Sunil Kumar	Director	6-B-12, Mahaveer Nagar 3, Kota, Rajasthan	9829707243	shigotointernational@gmail.com	NA
9.	OM Sai Solar Power System	Rajendra Singh	General Manager	Plot No. C 183, Noida, Sector -63, U.P- 201301	9999596127	Omsaisolarpowersystem12@gmail.com	NA

Annexure: Blended Learning

Blended Learning Estimated Ratio & Recommended Tools:

Refer NCVET "Guidelines for Blended Learning for Vocational Education, Training & Skilling" available on:
https://ncvet.gov.in/sites/default/files/Guidelines%20for%20Blended%20Learning%20for%20Vocational%20Education,%20Training%20&%20Skilling.pdf

S. No.	Select the Components of the Qualification	List Recommended Tools – for all Selected Components	Offline : Online Ratio

1	☒Theory/ Lectures - Imparting theoretical and conceptual knowledge	Color code nomenclature chart of Solar Domestic Products, Solar Domestic Product Production unit, flowchart, Solar Domestic Product supply chain flow chart.	60:40
2	☒Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners	Small size/demonstration units of transformer, rectifier, and solar power plant, Visit to a Solar Domestic Product Production unit site; Tool kit, IR Thermometer ,Barometer, Double ended flat spanner, Double ended ring spanner, Wrenches, Combination pliers, Side cutting pliers, Nose pliers, Screw driver, Vanier caliper, hammer, Cutters, Tweezers, Stripping & Crimping Tools, Safety helmet, electronic pressure gauge, clamp meter, multimeter, KOH concentration measuring tools, gas leakage detector, Nose mask, Safety goggles, Ear plug, PVC hand glove, Cotton hand glove, Reflective jacket, Safety Gloves ,Chemical Mask, Leather gloves, flame proof aprons, Flame proof overalls buttoned to neck, Helmets/hard hats, Full body harness, Hand shields, , fire extinguishers, First aid equipment, Safety instruments	
3	☒Showing Practical Demonstrations to the learners		
4	☒Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training		
5	☒Tutorials/ Assignments/ Drill/ Practice		
6	☒Proctored Monitoring/ Assessment/ Evaluation/ Examinations		
7	☒On the Job Training (OJT)/ Project Work Internship/ Apprenticeship Training		

Annexure: Detailed Assessment Criteria

Detailed assessment criteria for each NOS/Module are as follows:

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes			
	Theory	**Practical**	**Project Marks**	**Viva Marks**
Introduce renewable energy resources	29	21		

Introduce Solar Energy	35	15		
Explain application of Solar PV in small DC system	30	20		
Identify and Explain components for small solar lighting system	28	22		
Introduce and Explain various DC based solar products, their assembly & repair	28	22		
Maintain Personal Health & Safety while handling various DC based solar products	27	23		
Employability Skills	20	30		
Grand Total	**197**	**153**		

Annexure: Assessment Strategy

This section includes the processes involved in identifying, gathering, and interpreting information to evaluate the Candidate on the required competencies of the program.

1. Assessment System Overview:

- Batches assigned to the assessment agencies for conducting the assessment on SDSM/SIP or email
- Assessment agencies send the assessment confirmation to VTP/TC looping SSC
- Assessment agency deploys the ToA certified Assessor for executing the assessment
- SSC monitors the assessment process & records

2. Testing Environment:

- Confirm that the centre is available at the same address as mentioned on SDMS or SIP
- Check the duration of the training.
- Check the Assessment Start and End time to be as 10 a.m. and 5 p.m.
- Check that the allotted time to the candidates to complete Theory & Practical Assessment is correct.
- Check the mode of assessment—Online (TAB/Computer) or Offline (OMR/PP).
- Confirm the number of TABs on the ground are correct to execute the Assessment smoothly.
- Check the availability of the Lab Equipment for the particular Job Role.

3. Assessment Quality Assurance levels / Framework:

- Question papers created by the Subject Matter Experts (SME)
- Question papers created by the SME verified by the other subject Matter Experts
- Questions are mapped with NOS and PC
- Question papers are prepared considering that level 1 to 3 are for the unskilled & semi-skilled individuals, and level 4 and above are for the skilled, supervisor & higher management
- Assessor must be ToA certified & trainer must be ToT Certified
- Assessment agency must follow the assessment guidelines to conduct the assessment

4. Types of evidence or evidence-gathering protocol:
    - Time-stamped & geotagged reporting of the assessor from assessment location
    - Center photographs with signboards and scheme specific branding

- Biometric or manual attendance sheet (stamped by TP) of the trainees during the training period
- Time-stamped & geotagged assessment (Theory + Viva + Practical) photographs & videos

5. Method of verification or validation:
   - Surprise visit to the assessment location
   - Random audit of the batch
   - Random audit of any candidate

6. Method for assessment documentation, archiving, and access
   - Hard copies of the documents are stored
   - Soft copies of the documents & photographs of the assessment are uploaded / accessed from Cloud Storage
   - Soft copies of the documents & photographs of the assessment are stored in the Hard Drives

On the Job:

OJT Monitoring Report

- As in Green Jobs Sector, reproducing the evidence for assessment is not feasible due to constraints like cost, confidentiality and controlled environment, every
- Apprentice is required to record the evidences performed during the OJT and the same gets authorized by his/her supervisor.
- The evidence recording is done in a structured monitoring report, termed as OJT Monitoring report.
- During the OJT, every trainee is required to fill the OJT monitoring report which is required to be signed by his/her supervisor.
- Towards the end of OJT period these reports are submitted with the HR department of company
- These duly submitted reports are then verified by an Industry nominated assessor for verification of evidence.

Theory, Practical & Viva:

- Scope – Is used to test the knowledge and understanding and skills acquired during the OJT as well as to conform the OJT monitoring report.
- Some personality traits and generic skills (such as – promptness, sharpness, communication skills, depth of knowledge, comprehension, presentation, patience
- etc) can also be tested, which is also required for the QP.
- Tools – The assessment's questions should be aligned with the Qualification Pack, covering the PCs. There will be summative assessment at the end of the OJT.
- Method – Direct questions open and close ended questions, situation-based questions, analytical questions, and decision-making based

questions for Viva,

- MCQ for the theory and performing QP related operations for practical. Different questions in theory, practical and viva are included to test relevant PCs from
- the QP
- Analysis – Assessor draws a spectrum of ready answers to be expected from trainee for Viva. This reduces effect of subjectivity of the assessor. Comparative
- Quality of trainees within a batch or different institutes can be gauged. The skill is gauged by observing the practical work.

Execution of OJT Assessment:

- HR department hands over the individual OJT monitoring report with Industry nominated assessor and schedules an assessment meeting for each trainee.
- Industry nominated assessor assesses each trainee based on OJT monitoring report, viva on each PC and also takes into account attendance of each trainee towards the end of the OJT period.
- The OJT marks are compiled for each NOS by the Industry nominated assessor and submitted with HR department of company.
- The OJT assessment results are then sent to SCGJ by HR department of company in a sealed envelope for compiling the assessment results in case of offline assessment.

Annexure: Acronym and Glossary

Acronym

Acronym	Description
AA	Assessment Agency
AB	Awarding Body
ISCO	International Standard Classification of Occupations
NCO	National Classification of Occupations
NCrF	National Credit Framework
NOS	National Occupational Standard(s)
NQR	National Qualification Register

NSQF	National Skills Qualifications Framework
OJT	On the Job Training

Glossary

Term	Description
National Occupational Standards (NOS)	NOS define the measurable performance outcomes required from an individual engaged in a particular task. They list down what an individual performing that task should know and also do.
Qualification	A formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards
Qualification File	A Qualification File is a template designed to capture necessary information of a Qualification from the perspective of NSQF compliance. The Qualification File will be normally submitted by the awarding body for the qualification.
Sector	A grouping of professional activities on the basis of their main economic function, product, service or technology.
Long Term Training	Long-term skilling means any vocational training program undertaken for a year and above. https://ncvet.gov.in/sites/default/files/NCVET.pdf

Annexure: Annexure: Career Progression and OM

NSQF	Entrepreneurial value chain	Organizational verticals
LEVEL 5	Solar Photovoltaic Entrepreneur	Solar PV Engineer
LEVEL 4	Solar Photovoltaic Technician/Solar Lightening Assembler/Solar PV Module Manufacturing Technician/Solar PV Installer	Solar Photovoltaic Technician/Solar Lightening Assembler/Solar PV Module Manufacturing Technician/Solar PV Installer

LEVEL 3.5	Solar PV Site Survey Assistant	Solar PV Site Survey Assistant
LEVEL 3.0	Junior Technician- Solar Manufacturing	Junior Technician- Solar Manufacturing
LEVEL 2.5	Solar Domestic Product Assembler	Solar Domestic Product Assembler
LEVEL 2.0	Solar PV Project Helper	Solar PV Project Helper