NSQF QUALIFICATION FILE
Approved in 24th NSQC Meeting-NCVET-Dated 17th Nov,2022

NCVET Code
2022/ES/SCGJ/06460

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:	ceogreenjobs@gmail.com

List of documents submitted in support of the Qualification File

1. Model Curriculum (Annexure-I)

SUMMARY

1	Qualification Title:	Solar Cold Storage Entrepreneur
2	Qualification Code, if any: -	SGJ/Q1802
3	NCO code and occupation: -	NCO-2015/6111.1300 Cultivator, Vegetables
4	Nature and purpose of the qualification (Please specify whether qualification is short term or long term):	**Nature:** This Qualification contains National Occupation Standards with a focus on promoting entrepreneurial ventures on Installation, Operation and Maintenance of Solar Cold Storage solutions. **Purpose of the qualification:** Infrastructure facilities such as cold storage systems are paramount considering that about 5-16% horticulture produce in India deteriorates (depending on the type of produce) due to inadequate cold storage infrastructure[1]. Moreover, for small farmers, lack of aggregation facilities (as provided by solar cold rooms) limits their negotiation power at the Mandi as well as reach to farther and at times more lucrative markets. In order to mitigate the risk of post- harvest losses (and so to improve farmer's income) , solar cold storage is one of the best and sustainable solutions across the post- harvest value chain. As the government's focus on renewable energy (mainly solar) moves ahead, entrepreneurs and investors are increasingly turning their attention to unlocking greater value for farmers with innovative solutions powered by solar energy. This qualification presents an opportunity for the entrepreneurs to harness solar energy and help farmers sell fresh produce by storing crops in a solar-powered cold storage while reducing post-harvest losses.
5	Body/bodies which will award the qualification:	Skill Council for Green Jobs
6	Body which will accredit providers to offer courses leading to the qualification:	Skill Council for Green Jobs
7	Whether accreditation/affiliation norms are already in place or not, if applicable (if yes, attach a copy)	Yes

[1] Source: http://pib.nic.in/newsite/PrintRelease.aspx?relid=148566,

8	Occupation(s) to which the qualification gives access:	Entrepreneur
9	Job description of the occupation:	Solar Cold Storage Entrepreneur sets up an enterprise with an aim to provide a service (to Farmers/FPOs etc) for storing perishable agricultural and horticultural produce for increasing their shelf life and realise better price of the produce. This entrepreneur shall use an innovative solar based cold storage solution that can also be powered through the Grid and has thermal energy storage for providing backup during non-sunny hours.
10	Licensing requirements:	NA
11	Statutory and Regulatory requirement of the relevant sector (documentary evidence to be provided):	-
12	Level of the qualification in the NSQF:	Level 4
13	Anticipated volume of training/learning required to complete the qualification:	390 Hours including 300 hours of mandatory NOS (with 60 hours of employability skills) and 90 hours of On the Job (OJT) training
14	Indicative list of training tools required to deliver this qualification:	As per Model Curriculum attached
15	Entry requirements and/or recommendations and minimum age:	10th Class Pass + NTC (1 year after Class 10th), with 1 year of relevant experience **OR** 10th Class Pass + NTC (2 years after Class 10th) **OR** 10th Class Pass with 3 Year Diploma **OR** 12th Class Pass, with 6 months of relevant experience **OR** Certified on relevant NSQF Level 3, with 2 years of relevant experience **16 years**

16	Progression from the qualification:	**Level-5** (Vertical) Solar Cold Storage Dealership/Channel Partner
17	Arrangements for the Recognition of Prior learning (RPL):	SCGJ recognizes that there may be candidates who have prior learning experience in the Renewable energy industry/ Distributed renewable energy/Cold storage industry, and are desirous of being certified for creating a enterprise/business in Solar Powered cold storage. •Propose to carry out RPL for candidates working with conventional HVAC system and for those who are working in clean energy industry. •Identify the candidates through training need analysis of the Solar cold storage demand for farmer. •Develop the RPL Training Delivery Plan and bridge course for bridging the skill gap
18	International comparability where known (research evidence to be provided):	
19	Date of planned review of the qualification:	16.11.2025
20	Formal structure of the qualification Mandatory/Optional components	

	Title of component and identification code/NOSs/Learning outcomes	**Mandatory /Optional/Elective**	**Estimated size (learning hours)**	**Level**
	Common Module			
(I)	SGJ/N1802: Introduction to Solar cold storage system and the evolving business opportunities it offers	Mandatory	30	4
(II)	SGJ/N1804: Elements of Solar Cold Storage system	Mandatory	30	4

(III)	SGJ/N1805: Survey site and discuss prerequisites for installation of Solar Cold Storage system	Mandatory	30	4
IV	SGJ/N1806: Assess lifecycle cost for installing Solar cold storage system	Mandatory	30	4
V	DGT/VSQ/N0102: Employability Skills	Mandatory	90	4
VI	SGJ/N1807: Key technical and entrepreneurial aspects for supporting growth and business development in solar cold storage	Mandatory	30	4
VII	SGJ/N1809: Oversee the Assembly, Installation and O&M of Solar cold storage System	Mandatory	30	4
VIII	SGJ/N1808: Case studies showcasing best practices in system installation, working and business models of solar cold storage system	Mandatory	30	4
IX	SGJ/N0801: Maintain Health and Safety at Solar cold storage project site	Mandatory	30	4
	On the Job Training (OJT)		**90**	
	Grand Total including 300 hours of mandatory NOS with 60 hours of Employability Skills and 90 hours of OJT		**390**	

SECTION 1
ASSESSMENT

21	**Body/Bodies which will carry out assessment:** Skill Council for Green Jobs through its affiliated and accredited Assessment Agency
22	**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. Final assessment will be carried out by affiliated Assessment Agency of SCGJ, as per RPL Policy and Guidelines
23	**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.** 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

24. Assessment evidences

CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role Solar Cold Storage Entrepreneur

Qualification Pack SGJ/Q1802

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 70% of aggregate marks to successfully clear the assessment.
7. In case of *unsuccessful completion*, the trainee may seek reassessment on the Qualification Pack.

Outcome, Please refer to the QP-NOS for the Assessment outcome

SECTION 2

25. EVIDENCE OF LEVEL

OPTION A

Title/Name of qualification/component: Solar Cold Storage Entrepreneur			**Level: 4**
NSQF Domain	**Outcomes of the Qualification/Component**	**How the job role relates to the NSQF level descriptors**	**NSQF Level**
Process	The Solar Cold Storage Entrepreneur is responsible for the following processes: • Analyse Solar based cold storage system requirement across various users/locations • Survey site and discuss pre-requisites for installation of solar cold storage • Analyse key aspects of the demand for Solar Cold Storage • Oversee the Installation and O&M of Solar Cold Storage • Demonstrate Entrepreneurship and other Employability skills in Solar Cold Storage business. • Maintain Health & Work Safety at project site	Solar Cold Storage Entrepreneur Works in a familiar and to some extent a predictable environment. As he/she has to routinely assess and analyse the demand for cold storage solutions from farmers/ (farmer producer organisations) FPOs etc and match that with the supply situations from mandi, in most of the case he/she has routine and clear choice of procedures. Therefore it is pegged at level 4,	4
Professional knowledge	The Solar Cold Storage Entrepreneur is able to perform: • Business while utilising solar cold	The individual is required to have good command on a wide range of finance models and the various solar business models which	4

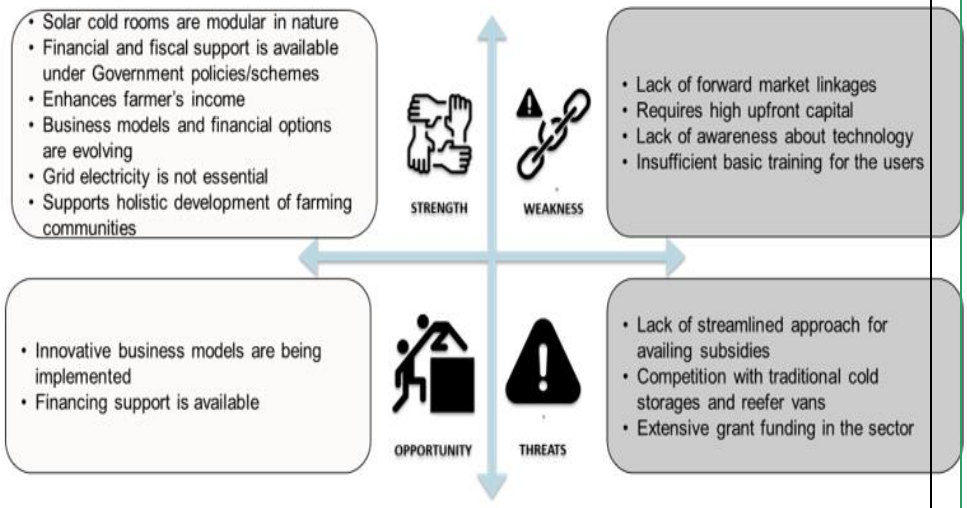
Title/Name of qualification/component: Solar Cold Storage Entrepreneur			**Level: 4**
NSQF Domain	**Outcomes of the Qualification/Component**	**How the job role relates to the NSQF level descriptors**	**NSQF Level**
	storage solution • Explain key elements of solar cold storage system and demonstrate the key functions of the system • Analyse demand and supply aspects from farmer and mandi respectively and mobilise capital from financial institutions and other sources to set up a solar cold storage based enterprise .	exist in the market. Since the individual is evaluating different types of Solar Cold Storage solutions with wider capacities range of projects across a wide range of stakeholders, actual knowledge of the field or study is critical. The individual may be involved in interpretation of information through routine and non-routine tools of evaluation, for e.g. the suitability of the location, assess the financial viability of Solar Cold Storage etc hence it is pegged at Level 4.	
Professional skill	Recall and demonstrate practical skill, routine and repetitive in narrow range of application, using appropriate rule and tool, using quality concepts.	As the individual needs to continuously interact with farmers and other market stakeholders to routinely assess supply and demand of produce, he/she has to demonstrate practical skills which are routine and repetitive in narrow range of application (e.g. farming value chain) while using relevant entrepreneurial concepts.	4
Core skill	The job holder is expected to communicate with clarity, have basic arithmetic skills and a basic understanding of political and natural environment.	S/He routinely communicates with stakeholders from both demand and supply side. Further the entrepreneur must have a basic understanding of the market environment (e.g. pricing of produce) along with the political (subsidy etc) and natural environment (e.g. yield) to successfully create and operate such a business, therefore it is pegged at level 4.	4

Title/Name of qualification/component: Solar Cold Storage Entrepreneur			**Level: 4**
NSQF Domain	**Outcomes of the Qualification/Component**	**How the job role relates to the NSQF level descriptors**	**NSQF Level**
Responsibility	As the entire business enterprise is created and operated by the entrepreneur, the individual is essentially responsible for his/her own work and learning.	The entrepreneur is largely responsible for all business operation so it is pegged at level 4	4

SECTION 3
EVIDENCE OF NEED

26 **What evidence is there that the qualification is needed? What is the estimated uptake of this qualification and what is the basis of this estimate?**

Basis	In case of other Awarding Bodies (Institutes under Central Ministries and states departments)
Need of the qualification	The solar cold rooms/cold storage solutions are modular units and can be customised as per requirement and the policy/financial or market support is available. Solar cold storage solution help in reduction of wastage and enable the farmer to time the market, thus increase farmer's income and supports in holistic development of the community. As per a 2019 report prepared by UNDP in partnership with Meghraj Capital Advisors Pvt Ltd, the business models for solar cold storage are evolving and financial feasibility is being demonstrated through various case studies across the country. Opportunities to explore business models and financial options are largely available to the project owners which are usually prosperous farmers or FPOs. There is still a need to create and demonstrate forward market linkages (with mandi/other bigger markets/exports hub etc) as for a typical farmer the intervention is currently capital intensive, which at times increase the financial risks associated with the project. There is also a lack of awareness about technology and farmers/entrepreneurs/ other stakeholders lack basic training about the installation, usage and O&M. The subsidy support is also not streamlined and extensive grant funding is hampering the large- scale market adoption of the solar cold storage units. Designing and implementing curated trainings on this qualification attempts to address all of these issues. It is expected that entrepreneurs while managing the Installation of solar cold rooms, will also undertake concerned market study, which will also consider the following key points for creating new jobs, livelihood and tangible value across the post- harvest value chain. **Type of produce**: In order to effectively monetize the benefits of investing in a solar cold room, it is expected that FPOs/ FPCs/farmers be encouraged to grow premium or exotic produce including fruits and flowers. In vegetables also, produce that provides better premium in the market must be given preference over other vegetables. The farmers need to be trained to help them optimize the land they have in order to encourage farming of these premium horticulture/agricultural produce. **Building integrated solutions:** Solar cold rooms are only one part of PHM activities and so Integrated solutions need to be developed incorporating irrigation facilities (especially for water stressed areas), market access supply chain, forward market linkages etc. Such an integrated solution will help boost production as well as help FPOs/ FPCs get a better price for their produce. The aggregation facility provided by solar cold rooms also helps in

			improving market access for the FPOs/ FPCs. **Developing production hubs:** Government Support will be extensively required in developing forward market linkages that will help to optimize economics of the increased production due to installation and operation of solar cold rooms. Key findings of a SWOT analysis for such a system adoption is also captured below 
		Industry Relevance	This qualification is largely relevant to Green business Sector, Distributed Renewable energy and agriculture sector
		Usage of the qualification	Across creating new entrepreneurs in solar/DRE/cold storage and agricultural market space. This will also be used to undertake RPL trainings and further upskill/reskill various stakeholders from these thematic areas.
		Estimated uptake	Every year, up to 5000 entrepreneurs may be required to set up solar cold storage enterprises across the country.
27	Recommendation from the concerned Line Ministry of the Government/Regulatory Body. To be supported by documentary evidences Concurrence from the Ministry of New and Renewable Energy (MNRE)shall be sought.		
28	**What steps were taken to ensure that the qualification(s) does (do) not duplicate already existing or planned qualifications in the NSQF? Give justification for presenting a duplicate qualification** We have discussed the growth trajectory within each occupation after studying organisational charts of various industry players active in this market space. We have also explored various lateral career opportunities (organisational verticals) for the discussed qualification. Due to entrepreneurial nature of this qualification, it is expected that the next vertical progression would be a dealership/distributorship who will source product directly from the system integrators/developers and then manage installation and O&M at various locations. We have also ensured 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 in section 4 'Evidence of progression' which clearly defines the career path. National Qualifications Register was searched to assess if there was any similar qualification and no overlap was found with the existing qualification.
29	**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? Specify the review process here** In the Qualification, review date is scheduled after 3 years and accordingly the consultation with Subject Matter Experts/Industry representatives shall be carried out then or earlier depending upon concerned development in the sector/market. The monitoring of evaluation of assessments and Employer(s) feedback will be sought post-placement, for review of the effectiveness of the Qualification.

SECTION 4
EVIDENCE OF PROGRESSION

30	**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?** ***Show the career map here to reflect the clear progression***