

GENERIC FRAMEWORK FOR UNIFIED SOLAR ROOFTOP WEB PORTAL

PACE-D TA PROGRAM



USAID
FROM THE AMERICAN PEOPLE



GOVERNMENT OF INDIA
MINISTRY OF NEW
AND RENEWABLE ENERGY

PARTNERSHIP TO ADVANCE CLEAN ENERGY
DEPLOYMENT (PACE-D)

Technical Assistance Program

Generic Framework for Unified Solar
Rooftop Web Portal

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Table Of Contents

List of Figures	
List of Tables	
List of Acronyms	vi
1 Introduction	1
1.1 Background and Need for Development of Unified Solar Rooftop Web Portal	1
1.2 Implementation of Pilot Project — Key Learnings and Recommendations	3
1.3 Purpose of Generic Framework Document and Intended Audience	4
1.4 Project Objective	4
1.5 Approach	5
1.6 Benefits	5
1.7 Major Stakeholders of Solar Rooftop Program	6
1.8 Project Scope	6
1.8.1 In-Scope Functionalities	6
1.8.2 Out of Scope Functionalities	7
1.9 Key Assumptions, Constraints, Risks and Dependencies	7
1.9.1 Assumptions	7
1.9.2 Constraints	7
1.9.3 Risks	7
1.9.4 Dependencies	7
2 Proposed Process and Business Requirements	8
2.1 Proposed Business Process	8
2.2 Business Requirements	10
2.3 Use Cases	12
2.3.1 Use Cases for Registration Functionalities	12
2.3.2 Use Cases for DISCOMs Functionalities	15
2.3.3 Use Cases for SNA Functionalities	26
2.3.4 Use Cases for EI Functionalities	45
2.3.5 Use Case for Bank/FI Functionalities	49
2.3.6 Use Cases for Information Functionalities	50
2.3.7 Login Requirements	56
2.3.8 Reporting Requirements	57
3 System Architecture	58
3.1 Hosting Requirement — Hardware/Software	58

4	Versions and Approvals	59
4.1	Version History	59
4.2	Approvals.....	59
	Annexures.....	60

LIST OF FIGURES

Figure 1: Stakeholder Interactions on the Portal.....	9
Figure 2: Registration Process	13
Figure 3: Apply to DISCOM.....	16
Figure 4: Filling of DISCOM Application Form Online	17
Figure 5: Fee Payment and Receipt of Acknowledgement for DISCOM Application.....	18
Figure 6: DISCOM Review Process	19
Figure 7: Interaction During Installation Process	21
Figure 8: Meter Procurement Process.....	22
Figure 9: Commissioning Process.....	24
Figure 10: Escalation Process for DISCOMs.....	25
Figure 11: Process Flow Chart for Subsidy Application	28
Figure 12: Flow Chart to Fill Subsidy Application Form	29
Figure 13: Flow Chart for Subsidy Application Fee Payment.....	31
Figure 14: Flow Chart of Acknowledgement Receipt on Subsidy Application	32
Figure 15: Review of Subsidy Application	33
Figure 16: Scheduling Site Visit	34
Figure 17: Review of Completed Subsidy Application	35
Figure 18: Review of Subsidy Application at HO	36
Figure 19: Issuance of In-Principle Sanction Letter	37
Figure 20: Process Flow for Subsidy Disbursement	40
Figure 21: Flow Chart for Scheduling and Conducting Joint Inspection.....	41
Figure 22: Submission of Documents for Subsidy Disbursal	42
Figure 23: Verification of Submitted Documents for Subsidy Disbursal at HO	43
Figure 24: Disbursement of Subsidy	44
Figure 25: Process for Registration and Addressing of Complaints.....	45
Figure 26: Drawing Approval Process for EI.....	46
Figure 27: Process for Safety Approval by EI.....	48
Figure 28: Interaction Between Consumers and Banks.....	50
Figure 29: Publicly Accessible Informational Functionalities.....	53
Figure 30: Informational Functionality	54
Figure 31: Help Related Functionalities.....	55
Figure 32: Updates on the Portal	55

Figure 33: System Architecture for Portal..... 58

LIST OF TABLES

Table 1: Stakeholders of the Solar Rooftop Program	6
Table 2: Functional Requirements.....	10
Table 3: Residential Consumer Registration Details	14
Table 4: Non-Residential Consumer Registration Details.....	15
Table 5: List of Documents to Be Uploaded With Form 1(A)	17
Table 6: List of Documents to Be Uploaded During Subsidy Application	30
Table 7: List of Documents to Be Uploaded With Form E1.....	46
Table 8: Version History of the Document.....	59
Table 9: Approvals for the Document.....	59

LIST OF ACRONYMS

Acronyms	Definition
AE	Assistant Engineer
ADE	Assistant Divisional Engineer
AP	Andhra Pradesh
APEPDCL	Eastern Power Distribution Company of Andhra Pradesh Limited
API	Application Programming Interface
APPC	Average Power Purchase Cost
APSPDCL	Southern Power Distribution Company of Andhra Pradesh Limited
BESCOM	Bangalore Electricity Supply Company Limited
BIS	Bureau of Indian Standards
BOS	Balance of System
BRD	Business Requirement Definition
C, O&M	Commercial Operation and Maintenance
CEIG	Chief Electrical Inspector to Government
CERC	Central Electricity Regulatory Commission
CFA	Central Financial Assistance
CGM	Chief General Manager
CMD	Chairman and managing Director
CSC	Customer Support Centre
DC	Direct Current
DE	Divisional Engineer
DES – CEIG	Directorate of Electrical Safety – Chief Electrical Inspector to Government of Andhra Pradesh
DGM	Deputy General Manager
DISCOMs	Distribution Companies
DM	District Manager
DO	District Office
DSM	Demand Side Management
EE	Executive Engineer
EODB	Ease of Doing Business
EOI	Expression of Interest
EPC	Engineering, Procurement, and Construction
FIT	Feed-in Tariff
FI/FIs	Financial Institutions
FY	Fiscal Year
GM	General Manager
GOI	Government of India
GOK	Government of Karnataka
GOAP	Government of Andhra Pradesh
GST	Goods and Service Tax
GW	Gigawatt
GWp	Gigawatt Peak
HLU	High Level Use

Acronyms	Definition
HO	Head Office
HT	High Tension
HTML	Hypertext Markup Language
IFSC	Indian Financial System Code
JNNSM	Jawaharlal Nehru National Solar Mission
JS	JavaScript
KERC	Karnataka Electricity Regulatory Commission
KPTCL	Karnataka Power Transmission Corporation Limited
KREDL	Karnataka Renewable Energy Development Limited
kV	Kilovolt
kVA	Kilovolt Ampere
kWp	Kilowatt Peak
LCOE	Levelized Cost of Energy
LDC	Load Dispatch Center
LEC	Licensed Electrical Contractor
LLU	Low Level Use
LT	Low Tension
M and P	Metering and Protection
MD	Managing Director
MCB	Miniature Circuit Breaker
MCCB	Molded Case Circuit Breaker
MNRE	Ministry of New and Renewable Energy
MOV	Metal Oxide Varistors
MT	Meter Testing
MVC	Model View Controller
MW	Megawatt
MWp	Megawatt Peak
NEFT	National Electronic Funds Transfer
NOC	No Objection Certificate
NREDCAP	New and Renewable Energy Development Corporation of Andhra Pradesh Limited
O&M	Operations and Maintenance
OSD	Officer on Special Duty
P and MM	Purchase and Material Management
PACE-D	Partnership to Advance Clean Energy – Deployment
PERT	Program Evaluation Review Technique
PPA	Power Purchase Agreement
PSU	Public Sector Undertaking
PV	Photovoltaic
R and IA	Revenue and Internal Audit
RDBMS	Relational Database Management System
RESCO	Renewable Energy Services Company
RTGS	Real Time Gross Settlement
ROI	Return on Investment

Acronyms	Definition
SECI	Solar Energy Corporation of India
SERC	State Electricity Regulatory Commission
SE	Superintending Engineer
SNA	State Nodal Agency
SOE	Statement of Expenditure
SPDs	Surge Protection Devices
SPIN	Online Application for Solar Photovoltaic Installation
SRTPV	Solar Rooftop Photovoltaic
TA	Technical Assistance
URL	Uniform Resource Locator
USAID	United States Agency for International Development
USRTP	Unified Solar Rooftop Transaction Portal
VC	Vice Chairman
XML	Extensible Markup Language

1 INTRODUCTION

1.1 BACKGROUND AND NEED FOR DEVELOPMENT OF UNIFIED SOLAR ROOFTOP WEB PORTAL

The Government of India (GOI) in the pursuit of promoting ecologically sustainable growth and addressing India's energy security challenge launched the Jawaharlal Nehru National Solar Mission (JNNSM). The solar rooftop target under JNNSM is to achieve 40 gigawatt (GW) of installed capacity. For this, state specific targets have been allotted under this national target. Enabling mechanisms should be facilitated to accelerate solar rooftop deployment to achieve state specific targets under the national target.

Clean energy policy and regulatory support is one of the focal areas of United States Agency for International Development (USAID) funded Partnership to Advance Clean Energy - Deployment (PACE-D) Technical Assistance (TA) Program. As a part of this initiative, the Program aims to strengthen organizational, institutional, and resource capabilities of the State Nodal Agencies (SNA) and distribution companies (DISCOMs) in the 11 states, namely Karnataka, Rajasthan, Madhya Pradesh, Andhra Pradesh, Assam, Haryana, Maharashtra, Punjab, Telangana, Uttar Pradesh, and West Bengal. The Program is actively involved in developing solar rooftop market ecosystem in India.

Solar rooftop market is still at a nascent stage and numerous critical links are required for development of the market ecosystems for scaling of deployment. Also, institutional framework is yet to be fully developed or matured for the solar rooftop development and deployment. For instance, any Consumer who desires to install the solar rooftop system, may not have the detailed information available at one place regarding the potential for installation of solar rooftop systems on their roofs, area requirements, different types of technologies, information related to major vendors/implementing agencies, processes/procedures to be followed for interconnection, availability of subsidy, and finance. Simultaneously, the DISCOMs also have limited manpower and skill sets which hamper the process of reviewing and approving the applications received from different types of consumers. Banks/financial institutions (FIs) also lack the trained manpower with an understanding of technical aspects of solar rooftop systems and standardized process for review and approval of financing the solar rooftop projects.

To understand the challenges affecting the sector and constraining scale-up, the Program, as a part of its support to Bangalore Electricity Supply Company Limited (BESCOM) in Karnataka, undertook a study to understand the state of deployment of solar rooftop systems. The objectives of the study were to (a) identify the key drivers and influencers for solar rooftop installation across consumer categories; (b) identify challenges being faced by each stakeholder, i.e., developers, engineering, procurement and construction (EPC) players and consumers in scaling up of solar rooftop systems; and (c) recommend interventions that can provide impetus to the solar rooftop system installation in the distribution area of DISCOM. The study was undertaken through personal interview and online survey of consumers from different consumer categories and identified the following major issues:

- Time consuming nature of the solar rooftop system installation process.
- Time consuming approval process.

- Non-availability of monitoring and evaluation framework at DISCOM (circle level, sub-division level or headquarter level).
- Multiple rounds of follow up required with DISCOM to confirm the site visit.
- Lack of feedback and penal mechanism for not adhering to the timelines for each process.
- Low consumer awareness (especially domestic consumer category) regarding solar rooftop system installation and its benefits.
- Challenges in securing non-recourse financing from public or private sector banks and inadequate knowledge of banking staff.
- Limited interaction with FIs.

To address the above-mentioned challenges, the Program listed several recommendations covering operational and informational aspects as provided below:

- **Operational:** To make approval and commissioning process time bound, the Program suggested to develop a **web-based dashboard**, which allows stepwise tracking from submission of consumer application to final interconnection with the grid. It also suggested that timelines for each step of the processes should be defined and made available online. Target dates for approvals for each Applicant should be set for every step based on the date of application. In case of delay, specific reasons for delays should be updated, as this will help the consumers to track their application and know the reason for delay.
- **Informational:** Consumers will be able to make informed investment decisions if the information on empaneled vendors, past performance records of installations and projects, satisfaction ratings from past consumers who have installed solar rooftop systems, etc., is made available on a centralized dashboard. In addition, need for development of a simple tool to help the consumers assess the system size, investment required, and financial attractiveness will be beneficial to increase the awareness among the consumers regarding solar rooftop system installation and its benefits.

Subsequently, the Program in the bid to provide TA undertook an interaction with the solar rooftop developers in eight partner states and identified the following issues:

- Need for clarity in guidelines, procedure to apply for net metering and availability of forms and formats.
- Absence of online application system which makes tracking of solar rooftop application under net metering tedious. Hence, there is a need to develop an online system to facilitate ease of application.
- Offline solar rooftop application procedure does not follow timelines provided in the policy.
- The process to avail subsidy should be better defined to facilitate ease in disbursement of subsidy.
- Problems are faced in availing loan due to lack of awareness among banks and FIs regarding solar rooftop, benefits and risks. Availing loans is tedious for small developers and residential consumers.

- Time taken to get Electrical Inspectorate (EI) approval for projects is lengthy.
- Enhanced inter-departmental coordination in DISCOM will facilitate faster solar rooftop deployment process.
- Enhanced coordination between important stakeholders such as DISCOM, SNA, and EI is essential.
- Delay in meter procurement and testing and lack of availability of meters.

The study conducted in Karnataka and the developer survey conducted in the states emphasized on the need for development of an online platform to expedite the process of seeking approvals for solar rooftop installation and development of a one stop solution for information related to application and installation of solar rooftop systems.

1.2 IMPLEMENTATION OF PILOT PROJECT — KEY LEARNINGS AND RECOMMENDATIONS

The Program has provided support to New and Renewable Energy Development Corporation of Andhra Pradesh Limited (NREDCAP) in Andhra Pradesh and developed a Unified Solar Rooftop Transaction Portal (USRTP). The USRTP facilitates application submission by consumers of both Andhra Pradesh DISCOMs for enabling interconnection of Grid Connected Solar Rooftop Projects (GCSRPs). The USRTP also enables eligible consumers to apply for central and state government subsidy for solar rooftop projects. It also provides essential information to the Consumers to enable a smooth application and approval process. In Andhra Pradesh, the portal has been hosted by NREDCAP. On completion of development, the USRTP was showcased to several state agencies and several recommendations and inputs were received.

The key learnings of the Program and recommendations are as follows:

- The Department of Energy in the state should assign the responsibility of developing a Unified Solar Rooftop Web Portal to a state agency which would coordinate with the multiple stakeholders and bring about effective implementation of the portal.
- To establish a single portal bringing together multiple stakeholders on a single platform it is essential to standardize the application and approval process. Hence, all the DISCOMs in any particular state should streamline their procedures in mutual agreement to enable a standardized application process.
- The information collated on installed projects should be linked to MNRE's SPIN portal to enable visualization of data at national level and populate the national level database. This will reduce the time invested by the SNA's in uploading information received offline and enable real time update of data in the national level portal.
- The Unified Solar Rooftop Web Portal should enable submission of application for load enhancement.
- Although MNRE has developed a national level solar rooftop calculator each state should develop their own state specific calculator as the discovered L1 rates should be used in calculation to determine the required investment.
- A provision to seek extension for installation of the project should be enabled through the portal.

- Each stakeholder should define the escalation process on the portal to ensure adherence to the defined timelines in case of non-compliance by the approving officials.
- Provisions must be made to send reminders to the applicants to take action after receiving approvals and reminders to officials to take action on pending applications at various stages.
- Create a provision for consumers to register complaints on the portal.
- While developing the portal it should provide a language option to view the site in English as well as in local languages as per the requirement in the particular state.
- During development of the portal, IT developers should ensure that a provision exists to make changes such that if a new circle/division/sub-division/section is added the same can be updated on the portal for any DISCOM in the state. Also, provision should exist to create login IDs for the relevant approving authorities of such newly added circle/division/sub-division/section.
- DISCOMs should maintain a record of the DT capacities and available capacity for installation of GCSRP on each DT based on permissible limits. Applications received through the portal should be tracked to the relevant transformer for DISCOMs to have a clear understanding of the number and capacity of GCSRP installations on any transformer. Such tracking would enable faster determination and sanction of technical feasibility and provide visualization to DISCOM regarding requirement of upgrading infrastructure.

1.3 PURPOSE OF GENERIC FRAMEWORK DOCUMENT AND INTENDED AUDIENCE

The Program based on its learning has developed this generic framework for Unified Solar Rooftop Web Portal which can be adopted by all states. The generic framework can be used as a standard template by all states and according to their existing interconnection, subsidy, and drawing and safety approval process can be customized to suit the specific needs of the respective states. This document intends to describe a generic framework detailing the business requirements in developing a Unified Solar Rooftop Web Portal for installation of GCSRP. The business requirements have been described in this document using the 'Use Case' approach. This document is prepared for the solar rooftop stakeholders which include SNAs, DISCOMs, Banks and FIs, and EI. This document will provide information to system developers while designing solutions to the business requirements. Prior to the adoption of this generic framework by states, inputs of each stakeholder is essential in finalizing their specific requirements.

1.4 PROJECT OBJECTIVE

The objective is to provide a detailed list of requirements for development of a Unified Solar Rooftop Web Portal for GCSRP enabling interaction of multiple stakeholders on one platform providing a one-stop solution for all the stakeholders involved in the process of providing approvals for installation of GCSRP. The objective of the project is to provide information on details to be digitized for the complete process of application, approval, and implementation of solar rooftop. This will avoid delays in seeking approvals and thus ensure faster installation of solar rooftop plants. Ultimately, aiding in fulfilling the national level target of

deploying 40 GW of solar rooftop systems in the country by 2022 under the target of the JNNSM.

This document aims to cover the business requirements of the following key areas:

- Consumer interactions with:
 - SNA
 - DISCOMs
 - EI
 - Banks and FIs
- Informative content and dashboard

1.5 APPROACH

The Program studied the websites of 40 DISCOMs and 16 SNAs in India to check the presence of solar rooftop portals and to identify key functionalities for incorporation on the portal. The Program has prepared a model interconnection framework and defined forms and formats for the interconnection process. A comparative analysis of the model interconnection process vis-à-vis the interconnection process presently adopted in nine partner states was undertaken to identify the process gaps that can be bridged through the Unified Solar Rooftop Web Portal.

The subsidy process adopted by eight states was studied and the Program proposed six critical steps for inclusion on the portal. The processes adopted by the EIs of 10 different states was studied and based on the best measures and processes adopted across states, the Program has proposed the most inclusive online process to be followed by EI for drawing and safety approval of solar rooftop projects. For the development of a generic framework, the Program also sought inputs from DISCOMs and SNA representatives of 11 states during the State Knowledge Exchange Workshop conducted by the Program on March 15-16, 2018. The Program noted and considered the suggestions received while demonstrating the pilot USRTP developed for AP while developing and finalizing the overall functionalities of generic framework.

1.6 BENEFITS

The benefits are as follows:

- Integration of multiple stakeholders on a single platform enabling seeking of approvals through a single medium.
- Accountability of each approving authority within each stakeholder organization in case of non-adherence to timelines due to designing of escalation process.
- Enhanced intra-stakeholder interactions.
- Access to all informational content such as procedures, guidelines, regulations, and policies pertaining to solar rooftop.
- Establishment and implementation of definite timelines from submission of application to commissioning of system which helps in addressing operational issues.
- Short meter procurement and testing process.

- Banks will receive the genuine loan applicants directly through the portal with less efforts.
- Only the serious applicants will submit an EOI to the Banks/FI after obtaining due approvals from state DISCOMs and State Nodal Agency.

1.7 MAJOR STAKEHOLDERS OF SOLAR ROOFTOP PROGRAM

The major stakeholders of solar rooftop program include SNA, DISCOMs, EI, Banks/FIs, Consumers, and Implementing Agency.

Table 1: Stakeholders of the Solar Rooftop Program

Stakeholder	Role
SNA	<ul style="list-style-type: none"> • SNA is responsible for promotion and development of renewable energy in the states. SNAs are also responsible for disbursement of subsidy from central and state governments.
DISCOMs	<ul style="list-style-type: none"> • DISCOMs interpret the provisions of policy and follow guidelines thereby allowing consumers to interconnect their solar rooftop system to the grid.
EI	<ul style="list-style-type: none"> • The EI scrutinizes and approves drawings for solar power plants. It inspects installation for which drawings have been approved and issues Safety Certificate/No Objection Certificate (NOC) on completion of inspection and receipt of complete compliance reports.
Consumers	<ul style="list-style-type: none"> • They are the consumers of DISCOMs on whose rooftops the solar rooftop systems will be installed. • Consumers collect information available from the DISCOM/system installer and evaluate investment, payback, and risk associated with the installation of solar rooftop system.
Banks and FIs	<ul style="list-style-type: none"> • Banks and FIs provide majority of the capital required for the implementation of solar rooftop projects. They also undertake a detailed technical, financial, commercial, and regulatory due diligence before finalizing on financing of these projects.
System Installers/ Implementing Agency	<ul style="list-style-type: none"> • These are agencies empaneled by the SNAs that facilitate individual and small group of clients to access the provisions/benefits available to solar rooftop system owners. • The implementing agencies include Renewable Energy Service Providing Companies (RESCO), system integrators, project developers, vendors/suppliers of solar equipment, and manufacturers of solar equipment, etc.

1.8 PROJECT SCOPE

This section depicts the scope of the portal both in terms of In-Scope and Out of Scope Functionalities.

1.8.1 In-Scope Functionalities

The in-scope functionalities recommended by the Program:

- Development of interactive functions between —
 - Consumer and DISCOMs.

- Consumer and SNA.
- Consumer and Banks/FIs.
- Consumer and EI.
- Track status of solar rooftop application.
- Geo-tagging of projects.
- Provide informative content such as policies, regulations, guidelines, and notifications related to solar rooftop.

1.8.2 Out of Scope Functionalities

Each state prior to the development of a portal must reassess the requirements stated in this document and realign the requirements and 'In-Scope' and 'Out of Scope' functionalities of the portal.

1.9 KEY ASSUMPTIONS, CONSTRAINTS, RISKS AND DEPENDENCIES

1.9.1 Assumptions

- The process adopted for all the DISCOMs is the same.
- Regulations/Policy/Guidelines for solar rooftop will be updated indicating implementation of the portal.
- The system installer will have access to the portal through individual registered consumer's interface.

1.9.2 Constraints

The requirements stated in this document for the portal cater to enabling installation of only GCRSP.

1.9.3 Risks

Change in subsidy allocation by MNRE to different categories of consumers and removal of subsidy provision may result in redundancy of subsidy module.

1.9.4 Dependencies

- Installation of GCSR in the state will be expedited through the implementation of the portal.
- Through establishment of web linkages with MNRE's Online Application for Solar Photovoltaic Installation (SPIN) portal, the Unified Solar Rooftop Web portal will be able to aid in building national level repository of installed solar rooftop projects.

2 PROPOSED PROCESS AND BUSINESS REQUIREMENTS

This chapter defines the proposed process for integration of multiple stakeholders on the portal and details the requirements of each stakeholder. While adopting the generic framework in any state it is critical for each stakeholder to review the requirements defined. These requirements can further be customized by each stakeholder as per their own specific requirements in consultation with other stakeholders. The requirements of consumers, DISCOMs, SNA, EI, and Banks/FIs are defined in this chapter.

2.1 PROPOSED BUSINESS PROCESS

The proposed process intends to mediate the entire submission of application, allotment of time slot, grant of internal approval, receipt of approval by consumer, and subsidy disbursement process through the online portal. All inter and intra stakeholder interactions between Consumer, SNA, DISCOM, and EI will be facilitated through the portal.

Additionally, the portal should also have a feature for the consumers to approach Banks/FIs to avail loans. The stakeholder interactions via the portal is presented in Figure 1.

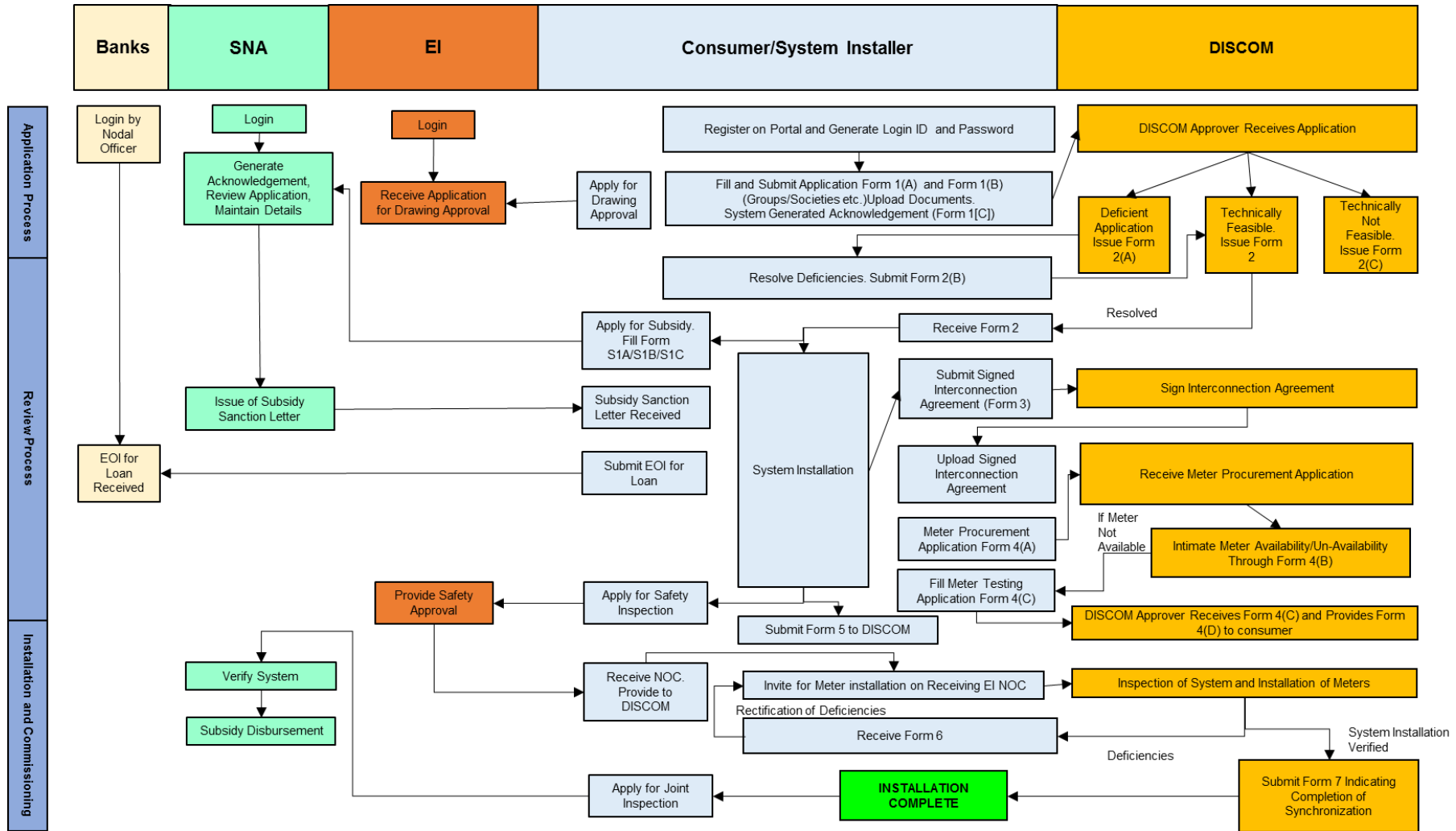


Figure 1: Stakeholder Interactions on the Portal

2.2 BUSINESS REQUIREMENTS

This section lists the generic functional and non-functional requirements of the portal. The user requirements have been captured and organized adopting the use case approach. The High Level Use (HLU) Cases depict the overall process flow and the Low Level Use (LLU) Cases depict the business requirements, as elaborated in Section 2.3. The functional requirements for the portal are illustrated in Table 2.

Table 2: Functional Requirements

Requirement Number	Description	Use Case Number	Impacted Stakeholders
General Functionalities for Registration			
FR-G-001	Registration Process	HLU1	Consumers
FR-G-002	Residential Consumer Registration Process	LLU1.1	Residential Consumers
FR-G-003	Non-Residential Consumer Registration Process	LLU1.2	Non-Residential Consumers
General Functionalities for DISCOMs			
FR-GFD-001	Procedure for Application Submission to DISCOM to Install Grid Connected Solar Rooftop Systems	HLU2	Consumers and DISCOM Officials
FR-GFD-002	Filling DISCOM Application Form	LLU2.1	Consumers
FR-GFD-003	Fee Payment and Receipt of Acknowledgement for DISCOM Application	LLU2.2	Consumers and DISCOM Officials
FR-GFD-004	Technical Feasibility Determination and Intimation to Consumer About Outcome of Feasibility Study and Inspection	HLU3	Consumers and DISCOM Officials
FR-GFD-005	Procedure for Interaction During Installation Process	HLU4	Consumers and DISCOM Officials
FR-GFD-006	Meter Procurement Process	LLU4.1	Consumers and DISCOM Officials
FR-GFD-007	Inspection and Commissioning Process by DISCOM	HLU5	Consumers and DISCOM Officials
FR-GFD-008	Escalation Process for DISCOMs	HLU6	Consumers and DISCOM Officials
General Functionalities for SNA			
FR-GFN-001	Application for Subsidy Process	HLU7	Consumers and SNA Officials
FR-GFN-002	Filling Subsidy Application Form	LLU7.1	Consumers
FR-GFN-003	Subsidy Application Fee Payment	LLU7.2	Consumers
FR-GFN-004	Generating Acknowledgement Receipt on Subsidy Application	LLU7.3	Consumers and SNA Officials
FR-GFN-005	Reviewing Subsidy Application and Addressing Deficiencies	LLU7.4	Consumers and SNA Officials
FR-GFN-006	Scheduling Site Visit by SNA	LLU7.5	Consumers and SNA Officials
FR-GFN-007	Reviewing Completed Subsidy Application at District Office (DO), SNA	LLU7.6	Consumers and SNA Officials
FR-GFN-008	Reviewing Subsidy Application at HO, SNA	LLU7.7	Consumers and SNA

Requirement Number	Description	Use Case Number	Impacted Stakeholders
			Officials
FR-GFN-009	Issuing In-Principle Subsidy Sanction Letter	LLU7.8	Consumers and SNA Officials
FR-GFN-010	Subsidy Disbursement	HLU8	Consumers and SNA Officials
FR-GFN-011	Scheduling and Conducting Joint Inspection by SNA	LLU8.1	Consumers and SNA Officials
FR-GFN-012	Submitting Documents for Subsidy Disbursal	LLU8.2	Consumers and SNA Officials
FR-GFN-013	Verifying Submitted Documents for Subsidy Disbursal at HO	LLU8.3	Consumers and SNA Officials
FR-GFN-014	Subsidy Disbursement	LLU8.4	Consumers and SNA Officials
FR-GFN-015	Procedure for Registration and Addressing Complaints	LLU8.5	Consumers and SNA Officials
General Functionalities for EI			
FR-GFE-001	Application for Drawing Approval to EI	HLU9	Consumer and EI Officials
FR-GFE-002	Application for Safety Approval	HLU10	Consumers and EI Officials
General Functionalities for Banks/FIs			
FR-GFB-001	Functionalities Related to Banks	HLU11	Consumers and Bank Officials
General Information Functionalities			
FR-GIF-001	Informational Functionalities on Consumer/DISCOM/SNA/EI/Bank/FI Dashboard	HLU12	Consumers, DISCOM Officials, SNA Officials, EI Officials, and Bank Officials
FR-GIF-002	Publicly Accessible Informational Functionalities	HLU13	Consumers, DISCOM Officials, SNA Officials, EI Officials, and Bank Officials
FR-GIF-003	Information Functionalities	LLU13.1	Consumers
FR-GIF-004	Help Related Functionalities	LLU13.2	Consumers
FR-GIF-005	Updates	LLU13.3	Consumers, DISCOM Officials, and SNA Officials
Login Requirements			
FR-GL-001	Logins for SNA Officials	HLU14	SNA Officials
FR-GL-002	Logins for DISCOM Officials	HLU15	DISCOM Officials
FR-GL-003	Logins for EI Officials	HLU16	EI Officials
FR-GL-004	Logins for Bank/FI Officials	HLU17	Bank/FI Officials
Usability Requirements			
FR-U-001	The Portal Should Be Active 24/7		
FR-U-002	Portal Should Be Viewable on Desktop, Laptops, Tablets, and Mobiles		
Scalability Requirements			
FR-SC-001	There Should Not Be Any Restriction on		

Requirement Number	Description	Use Case Number	Impacted Stakeholders
	the Number of Users That Can Be Accommodated Concurrently		
FR-SC-002	Amount of Data That Can Be Accommodated on the Portal Should Be at Least 100 GB and Should Be Scaled Up in the Future as per Requirements		
Reporting Requirements			
FR-R-001	Report Generation for DISCOM, SNA, EI and Banks/FI	HLU 18	

2.3 USE CASES

This section defines the HLU and LLU Cases capturing user requirements.

2.3.1 Use Cases for Registration Functionalities

HLU Case Number: HLU1

Description: Registration Process

Actors: Consumers

Flow Chart

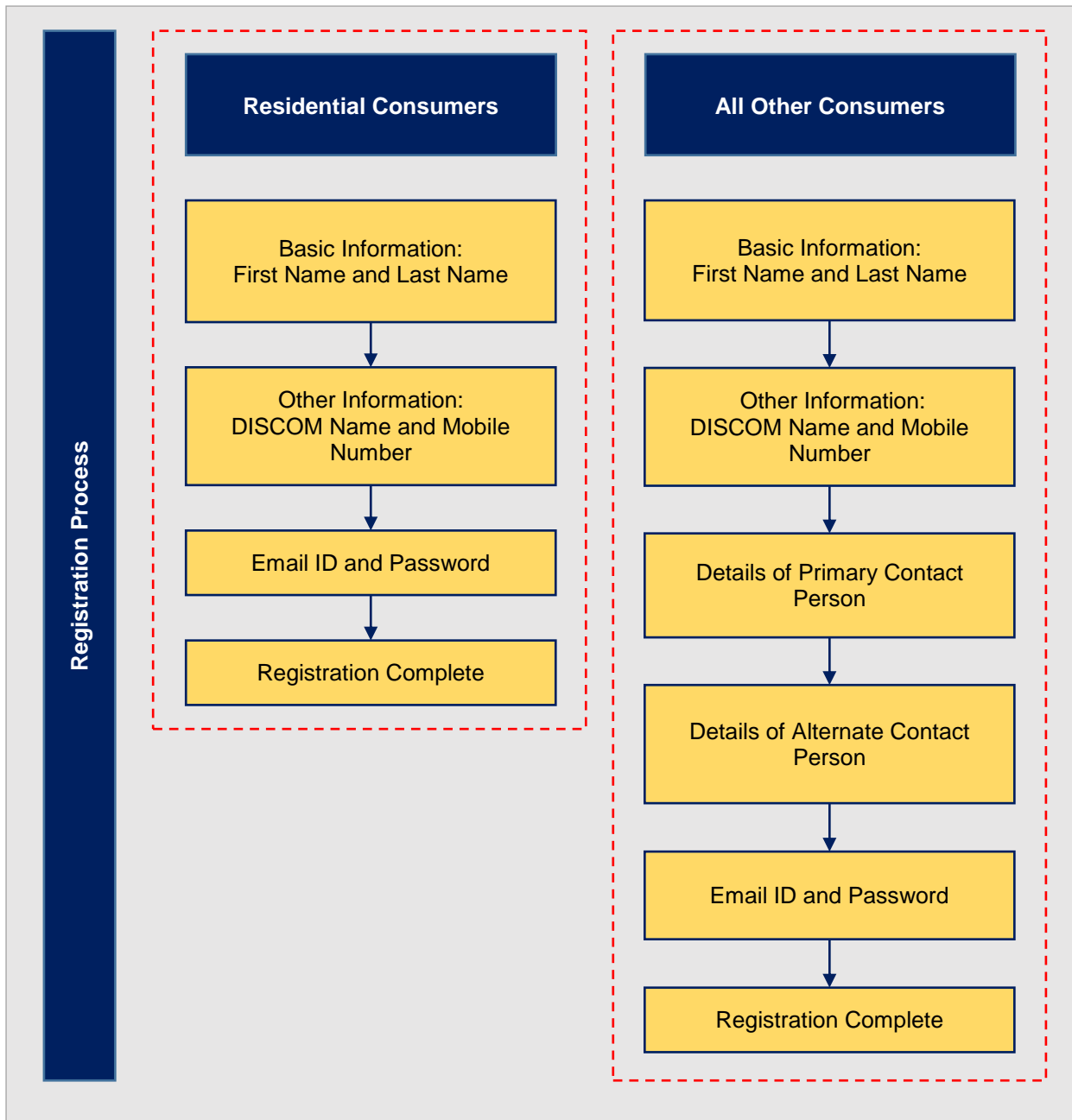


Figure 2: Registration Process

Business Rules:

- To avail access to the online application process, the portal should enable all types of consumers to register themselves on the portal.
- The consumer should be first provided with a choice of selecting Consumer Type from the following options.
 - Residential
 - Institutional
 - Social Sector
 - Government Buildings
 - Government Institutions

- Private, Commercial, and Industrial Sector
- Based on this selection, the eligibility/ineligibility of the consumer to avail subsidy should be assessed. The application for subsidy through the subsidy module should be open only to the eligible consumer.
- Consumer’s basic contact details such as Name, Address, Contact Number, Email ID and a Password of their choice should be collected at registration stage. Two different registration form types have been defined for Residential Consumers and Non-Residential Consumers (Institutional, Social Sector, Government Buildings, Government Institutions and Private, Commercial and Industrial Sector).
- A forgot password provision should be implemented on the login page in case the consumer needs to reset the password for the registered email ID.
- Consumer No. should be collected at this stage to authenticate registration by sending a one-time password (OTP) to the mobile number available in DISCOM records.

LLU Case Number: LLU1.1

Description: Residential Consumer Registration Process

Actors: Residential Consumers

Flow Chart/Format

Table 3: Residential Consumer Registration Details

Details
Consumer Type
First Name
Last Name
DISCOM Name
Consumer Number
Mobile Number
Email ID
Password
Confirm Password

Business Rules:

- The residential consumer’s basic details specified in Table 3 should be collected during the registration process.
- A password of consumer’s choice should be collected at registration stage to enable logging on to the portal.
- On fulfillment of filling these criteria, the registration for residential consumers will be complete.
- On completion of registration, an intimation regarding successful registration will be sent to the consumer on their registered email address.
- Additionally, the Consumer No. may be collected at this stage and authentication of registration can be conducted by sending an OTP to the mobile number available in DISCOM records.

LLU Case Number: LLU1.2

Description: Non-Residential Consumer Registration Process

Actors: Non-Residential Consumers

Flow Chart/Format

Table 4: Non-Residential Consumer Registration Details

Non-Residential Consumer Registration Details	
Consumer Type	
Name	
DISCOM Name	
Consumer Number	
Phone Number	
Fax Number	
Website (if any)	
Email ID	
Password	
Confirm Password	
Primary Contact Person	Alternate Contact Person
Name	Name
Designation	Designation
Mobile Number	Mobile Number
Phone Number	Phone Number

Business Rules:

- The non-residential consumer's basic details specified in Table 4 should be collected via registration process.
- Details of the primary contact person of the organization such as Name, Designation, Mobile Number, and Phone Number should be collected.
- A provision to collect details of an alternate contact should be available as depicted in Table 4.
- On fulfillment of filling these criteria, the registration for the non-residential consumers will be complete.
- On completion of registration, an intimation regarding successful registration will be sent to the consumer on the registered email address.
- Additionally, the Consumer No. may be collected at this stage and authentication of registration can be conducted by sending an OTP to the mobile number available in DISCOM records.

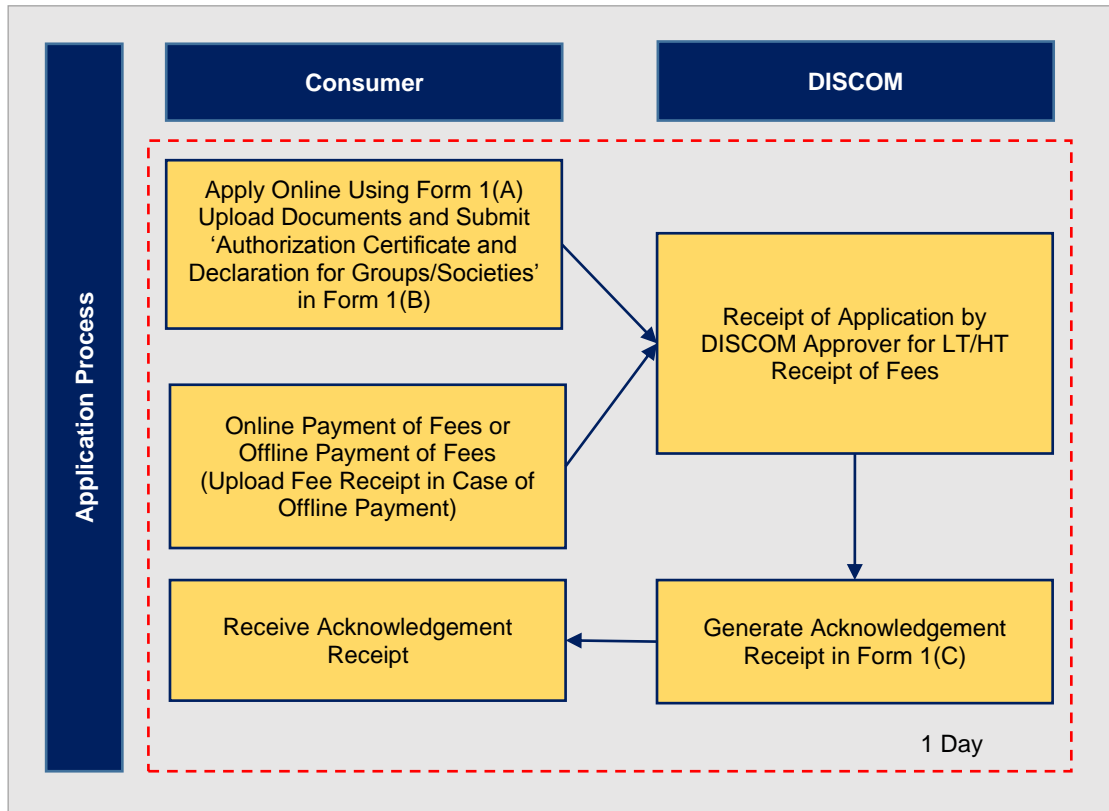
2.3.2 Use Cases for DISCOMs Functionalities

HLU Case Number: HLU2

Description: Procedure for Application Submission to DISCOM to Install Grid Connected Solar Rooftop Systems

Actors:

- Consumers
- DISCOM Official - Approver for LT
- DISCOM Official - Approver for HT



Flow Chart

Figure 3: Apply to DISCOM

Business Rules:

- On completion of registration on the portal, the consumer should apply online for interconnection of the solar rooftop system through the portal.
- The DISCOM officials should receive the DISCOM application form.
- The Consumer should upload additional documents as required along with the application form on the portal.
- The Applicant should complete online/offline payment of fees prior to the submission of application form.
- A system generated acknowledgement should be generated confirming receipt of application and fees, specifying the application number.

LLU Case Number: LLU2.1

Description: Filling DISCOM Application Form

Actors: Consumers
Flow Chart

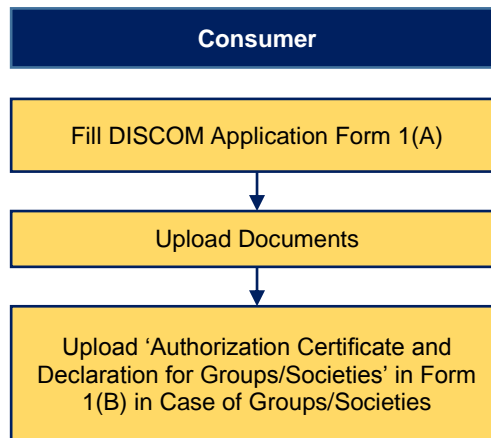


Figure 4: Filling of DISCOM Application Form Online

Business Rules:

- The Applicant should fill the DISCOM Application Form (Form 1[A]) online on the portal. Form 1(A) is attached as Annexure I.
- If the Applicant is a Group/Society etc., the Applicant should fill additional Declaration Form/Authorization Letter (Form 1[B]) and submit as an attachment along with the Application Form (Form 1[A]). Form 1(B) is attached as Annexure II.
- The Applicant should submit/upload the documents specified in Table 5 along with the Application Form.

Table 5: List of Documents to Be Uploaded With Form 1(A)

Sr. No.	Documents
1	Copy of Latest Electricity Bill
2	Identity Proof (Aadhar Card)
3	Authorization Certificate and Declaration for Groups/Societies in Format 1(B) in Case Applicant is Group/Society (If Applicable)
4	Passport Size Photograph
5	Signature of Consumer/Authorized Signatory
6	Document Establishing Ownership of Premises Where RTSPV System is Being Installed (If Required)

LLU Case Number: LLU2.2

Description: Fee Payment and Receipt of Acknowledgement for DISCOM Application

Actors:

- Consumers
- DISCOM Official - Approver for LT
- DISCOM Official - Approver for HT

Flow Chart

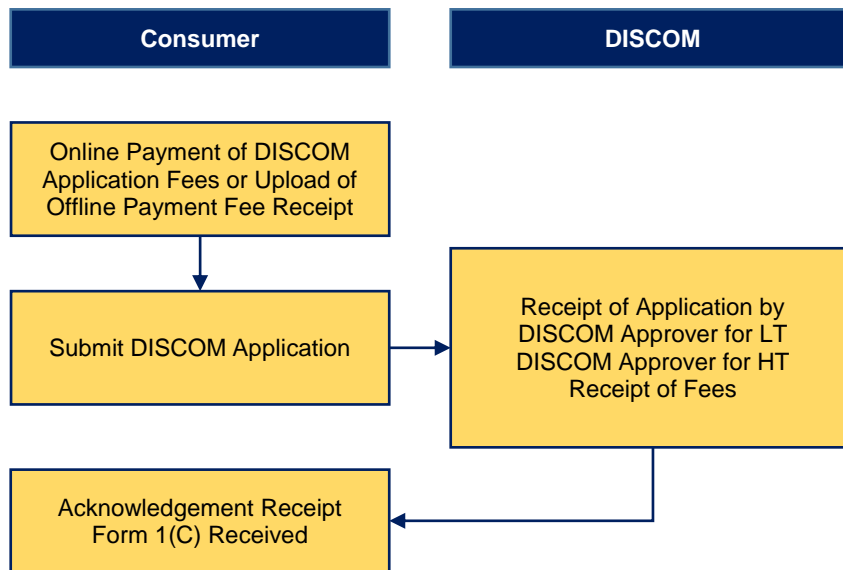


Figure 5: Fee Payment and Receipt of Acknowledgement for DISCOM Application

Business Rules:

- Prior to the submission of DISCOM Application Form, the Applicant should complete the process of online/offline fee payment. The Applicant must pay fees as specified by the DISCOM.
- The portal should allow submission of DISCOM Application Form only on completion of fee payment through the portal/upload of payment receipt in case of offline payment.
- The application form should be submitted to DISCOM Approver for LT connectivity/HT connectivity defined by the DISCOM.
- After submission, the Applicant should receive an automatically generated acknowledgement in Form 1(C) upon submission of application form. The acknowledgement receipt should have unique application number assigned to each Applicant for future correspondence. Form 1(C) is attached as Annexure III.
- The acknowledgement must also be received in the form of an email on the registered email ID and through an SMS.

HLU Case Number: HLU3

Description: Technical Feasibility Determination and Intimation to Consumer About Outcome of Feasibility Study and Inspection

Actors:

- Consumers
- DISCOM Official – Approver for LT
- DISCOM Official – Approver for HT

Flow Chart

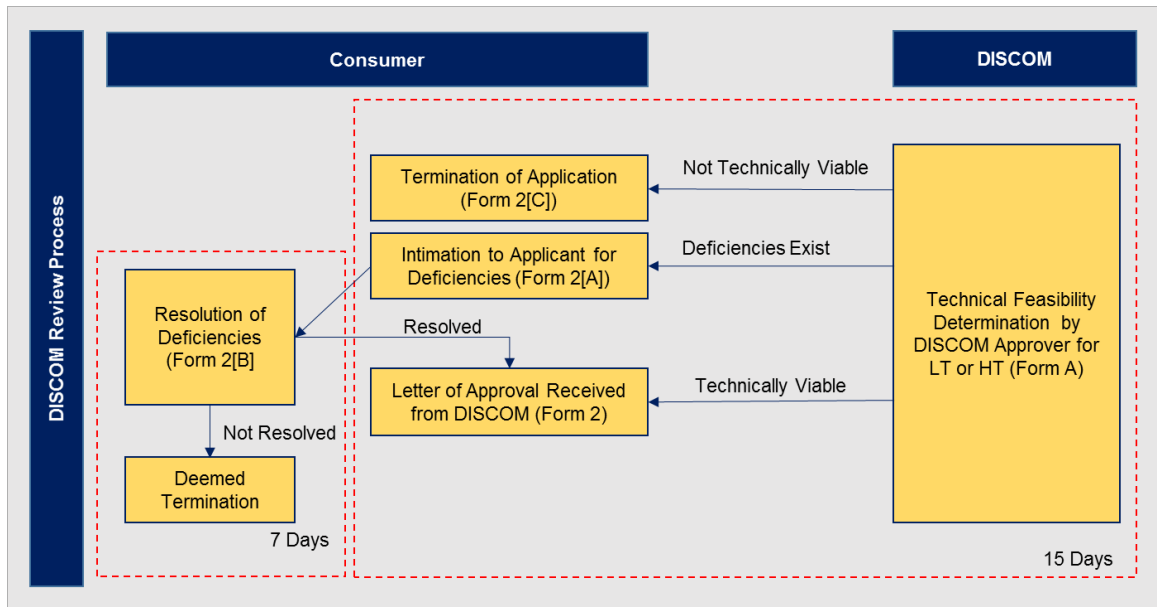


Figure 6: DISCOM Review Process

Business Rules:

- On receipt of the DISCOM Application Form, the DISCOM should undertake the technical feasibility determination of the rooftop site within seven days of the date of receipt of the application.
- The DISCOM Approver for LT/HT should undertake the technical feasibility study and should intimate the consumer regarding the feasibility through the portal.
- The Feasibility Inspection Authority should prepare the Technical Feasibility Report in Form A and upload it online to share with the Applicant. The feasibility inspection process should be completed within 15 days of the receipt of application. Form A is attached as Annexure IV.
- There are three possible outcomes of the technical feasibility inspection:
 - **Technically Feasible:** If the technical feasibility is satisfactory, DISCOM shall approve the application and intimate the same to the Applicant by providing a Letter of Approval (LOA) (Form 2) within 15 days from the receipt of application. Form 2 is attached as Annexure V. This LOA must be provided through the portal.
 - **Deficiencies and Resolution of Deficiencies:** In case of deficiencies in the application form, which can be rectified, the DISCOM shall intimate the same to the Applicant online through Form 2(A) within 15 days from the receipt of the application. Further, if any technical constraints are observed during inspection due to which, it is not feasible for DISCOM to provide connectivity up to the capacity proposed by the Applicant, in such case the Applicant shall be given an option to install the system at a reduced capacity or withdraw the application. This should be intimated through Form 2(A) attached as Annexure VI.
 - The Applicant shall then remove the identified deficiencies in the application form within a period of seven days from the receipt of intimation (Form 2(A)) and intimate the DISCOM about the resolution of the deficiencies in Form 2(B)

attached as Annexure VII. Further, DISCOM will assess the response and provide a LOA (Format 2) to the Applicant upon satisfaction. If the deficiencies are not removed in the said period, the application shall stand cancelled/deemed terminated.

- **Technically Not Feasible:** In case the technical feasibility is negative/unsatisfactory, the same shall be intimated to the Applicant within 15 days from the receipt of application. The DISCOM shall send the intimation online about the termination of application in Form 2(C) attached as Annexure VIII. The signing authority is same as the feasibility inspecting and approving authority.

- The DISCOM Approver for LT/HT shall communicate through Form 2(A), Form 2(C), and Form 2 on the portal.

HLU Case Number: HLU4

Description: Procedure for Interaction During Installation Process

Actors:

- Consumers
- DISCOM Official – Approver for LT
- DISCOM Official – Approver for HT

Flow Chart

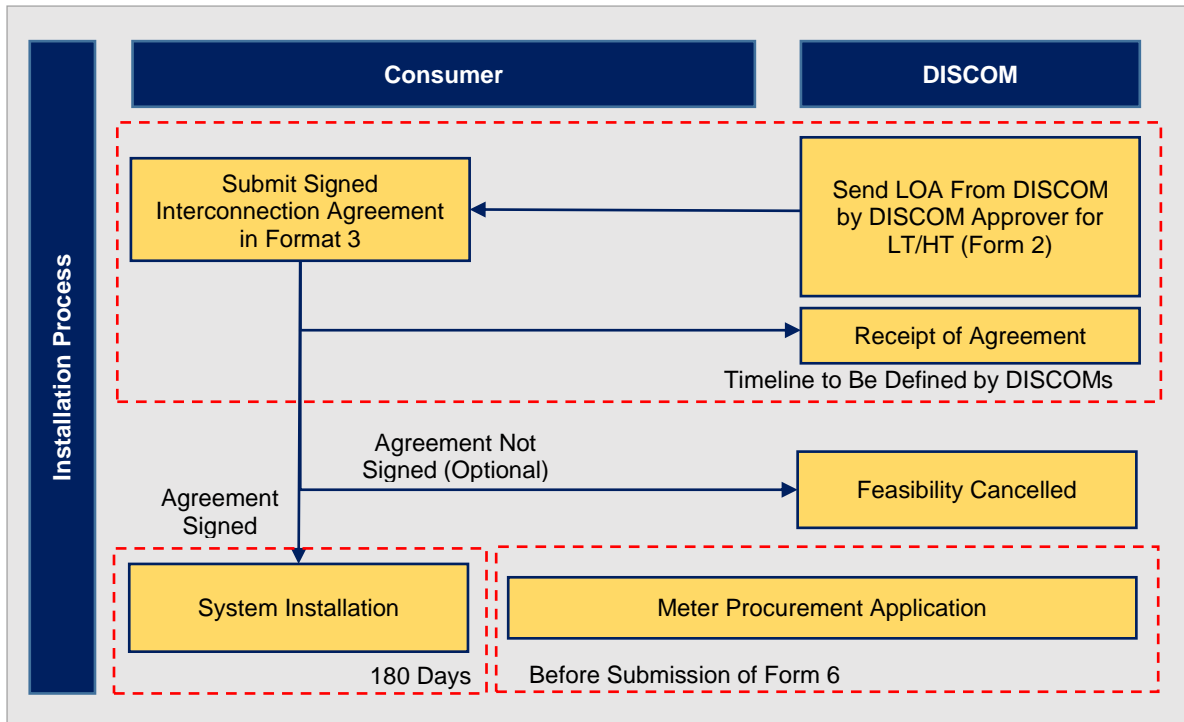


Figure 7: Interaction During Installation Process

Business Rules:

- The Interconnection Agreement between the DISCOM and the Applicant shall be signed physically. Format 3 of the Interconnection Agreement is attached as Annexure IX. The consumer should upload a scanned copy of the document agreement signed by both DISCOM and consumer on the portal.
- The Interconnection Agreement must be signed and uploaded within timeframe defined by the DISCOM from the receipt of LOA. If the agreement is not signed within the stipulated time frame, then the feasibility should be cancelled by DISCOM if required.
- The Applicant should complete the installation of solar rooftop project within 180 days of submission of the Interconnection Agreement to DISCOM. However, the Applicant shall be at liberty to complete the installation process before this period and approach the DISCOM for initiating the next step.
- The application for procurement of net meter from the DISCOM should be submitted simultaneously to the installation process. The Intimation of meter procurement should be submitted at least 30 days before the submission of Form 5 (Work Completion Report). Consumer shall have an option of procurement of meter from DISCOM or self-procurement of meter. If the consumer applies to DISCOM for meter procurement, and the DISCOM communicates unavailability of meters, the consumer shall procure meters by themselves.

LLU Case Number: LLU4.1

Description: Meter Procurement Process

Actors:

- Consumers
- DISCOM Official – Approver for LT
- DISCOM Officials – Approver for HT

Flow Chart

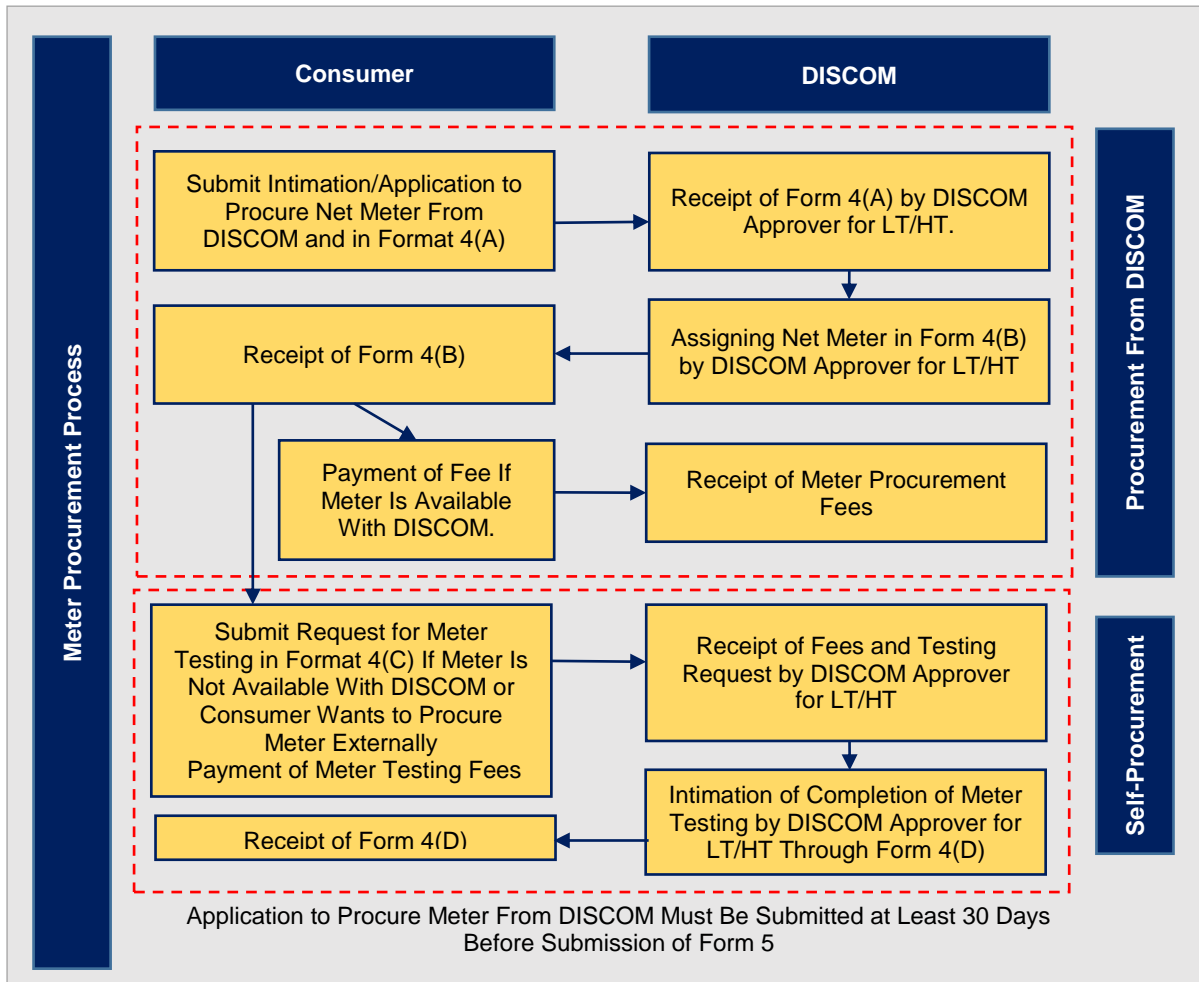


Figure 8: Meter Procurement Process

Business Rules:

- **Procurement From DISCOM:**
 - In case the Applicant wants to procure net meter from DISCOM, the Applicant should submit an Intimation Form (Form 4[A]) to DISCOM at least 30 days prior to the expected date of submission of Form 5. Form 4(A) is attached as Annexure X. The DISCOM should intimate the Applicant regarding availability/allotment/assigning of the net meter through Form 4(B), attached as Annexure XI. Upon receipt of Form 4(B) from the DISCOM, the Applicant should make online/offline payment as intimated in Form 4(B) for procurement and testing of net meter to the DISCOM while submitting Form 5.

- The DISCOM authorities receiving application in Format 4(A) and providing response through Form 4(B) should be defined by the DISCOM.
- **Non-Availability of Meters With DISCOM and Self-Procurement:**
 - In the case of self-procurement of meters or in case of non-availability of meters with DISCOM, the Applicant should purchase meter from an external agency. The Applicant should submit the procured meter along with the test certificate (received from manufacturer), a copy of LOA and 'Request for Meter Testing' Form 4(C) filled online with fee payment receipt, to the DISCOM. Form 4(C) is attached as Annexure XII.
 - The Applicant should make an online/offline payment for testing of the meters as per the charges prescribed by the DISCOM in Form 4(B).
 - The DISCOM authorities receiving application in Form 4(C) for self-procurement should be defined.
 - The DISCOM/test centers should intimate the Applicant via Form 4(D) regarding the completion of testing of meter. Form 4(D) is attached as Annexure XIII.

HLU Case Number: HLU5

Description: Inspection and Commissioning Process by DISCOM

Actors:

- Consumers
- DISCOM Official – Approver for LT
- DISCOM Official – Approver for HT

Flow Chart

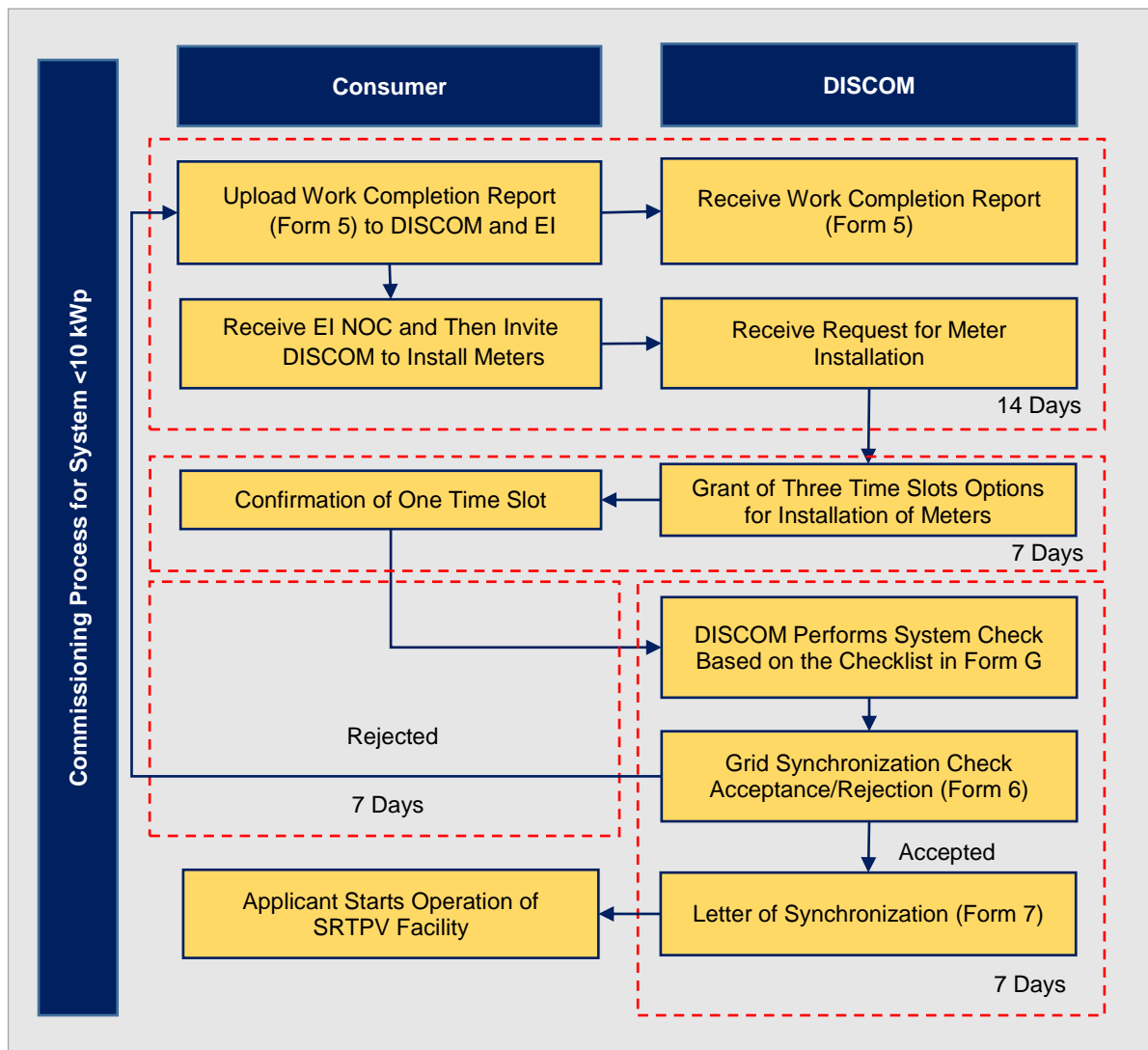


Figure 9: Commissioning Process

Business Rules:

- This section depicts the interaction between DISCOM and Applicant after the completion of installation.
- Once the solar rooftop system is installed, the Applicant should submit the Work Completion Report (Form 5) along with the technical specification of the installed project to the DISCOM (for all system sizes) and to the Office of the EI (for system sizes as specified by the State Government). Form 5 is attached as Annexure XIV.
- The DISCOM Approver for LT/HT should receive the Work Completion Report indicating completion of installation by Applicant and upload Manufacturer’s test certificates.
- Systems not requiring EI approval: The Applicant shall request DISCOM to grant timeslot for inspection, installation of meters, and synchronization of system.
- Systems requiring EI approval: The Applicant shall request DISCOM to grant timeslot for inspection, installation of meters, and synchronization of system. The Applicant shall upload the NOC received from EI.

- DISCOM should grant three time slots in the next seven days and the same should be communicated within three days from the receipt of request to install meters. On receipt of time slots from DISCOM, the Applicant should confirm one time slot.
- DISCOM should perform necessary system check (as per the checklist provided in Form G attached as Annexure XV).
- Acceptance/Rejection of the Synchronization can be intimated to the consumer via Form 6 attached as Annexure XVI:
 - **If Accepted:**
 - On completing installation of meters, the DISCOM shall issue Letter of Synchronization to the Applicant.
 - The DISCOM will issue Letter of Synchronization (Form 7) to the Applicant. Form 7 is attached as Annexure XVII.
 - **If Rejected:**
 - Applicant should address the deficiencies and resubmit a request for installation of meters within seven days of receipt of Form 6 and the online process of timeslot allotment by DISCOM and approval by Applicant shall be repeated.
 - DISCOM shall then reissue Form 6 and if synchronization is accepted the process shall proceed as stated above.
- The Applicant shall then start the operation of their solar rooftop system facility.

HLU Case Number: HLU6

Description: Escalation Process for DISCOMs

Actors:

- Consumers
- DISCOM Official – Approver for LT
- DISCOM Official – Approver for HT

Flow Chart



Figure 10: Escalation Process for DISCOMs

Business Rule:

In case of non-adherence to timelines by DISCOM officials to grant approvals/intimation to the consumers through the portal, the escalation process as illustrated in Figure 10 should be adopted. Each DISCOM should customize the escalation process for LT and HT approvals as per their requirements. Every incidence of non-adherence to timelines by DISCOM Approvers should trigger an email to the higher officials defined in the escalation process hierarchy.

2.3.3 Use Cases for SNA Functionalities

HLU Case Number: HLU7

Description: Application for Subsidy Process

Actors:

- Eligible Consumers
- District Manager (DM) at DO, SNA
- Project Director/ General Manager (GM) (Solar) at Head Office (HO), SNA
- Finance Team at HO, SNA
- Vice Chairman (VC) and Managing Director (MD) at HO, SNA

Flow Chart

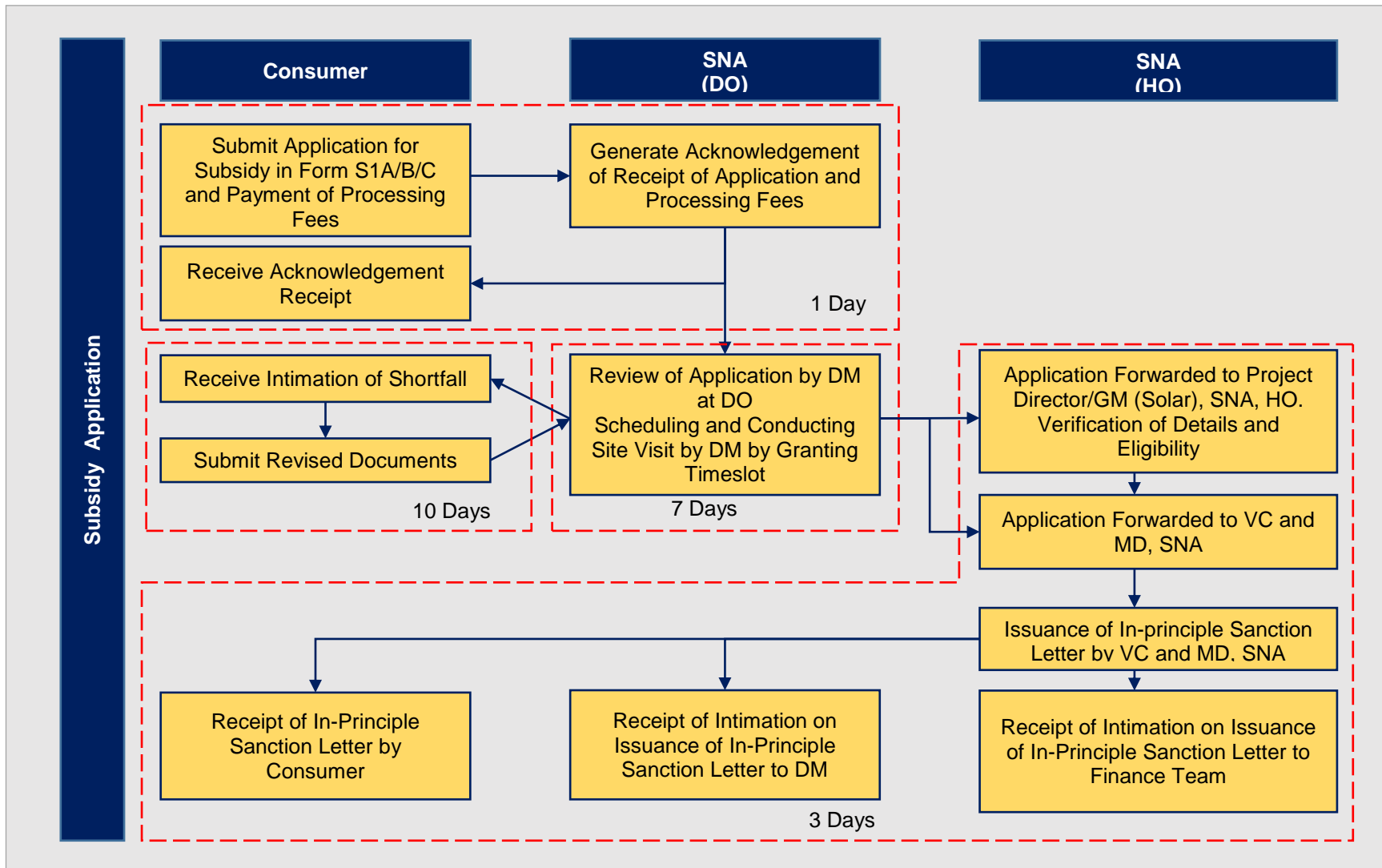


Figure 11: Process Flow Chart for Subsidy Application

Business Rules:

- Eligible consumer's subsidy application should be collected in web-based format.
- Application fee payment if any must be facilitated online.
- Acknowledgement receipt of application submission and fee receipt should be provided to the consumer.
- Application reviewing by SNA officials should be enabled online.
- Online scheduling of site visit by DM through time slot allotment should be enabled.
- Intimation of deficiencies in application by DM and revision of the shortcomings in application form by the consumer should be allowed.
- The In-Principle Sanction Letter on verification of completed application should be provided to the consumer through the portal.

LLU Case Number: LLU7.1

Description: Filling Subsidy Application Form

Actors: Consumers

Flow Chart

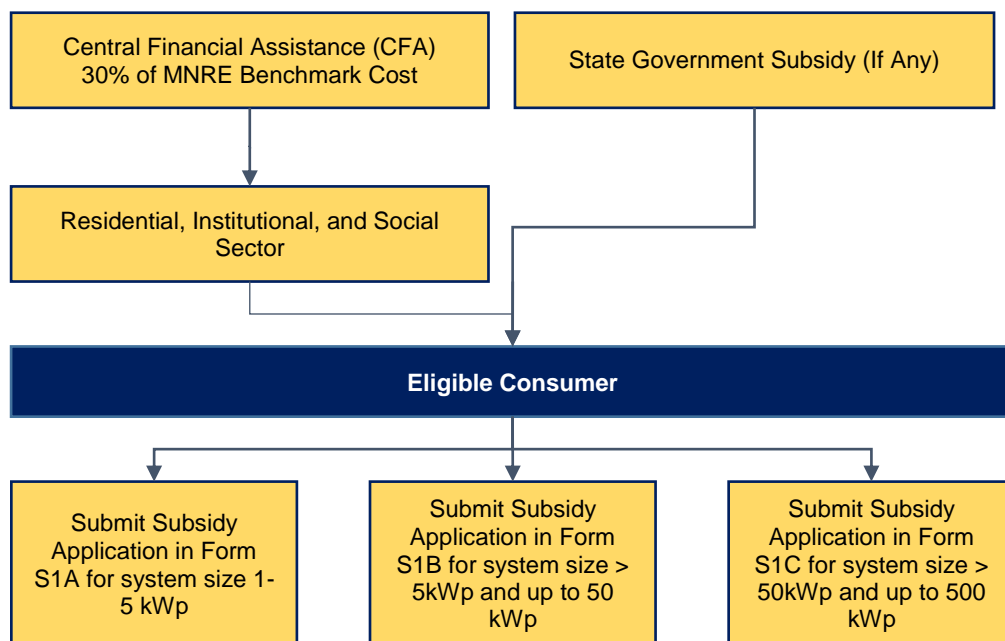


Figure 12: Flow Chart to Fill Subsidy Application Form

Business Rules:

- The consumers eligible to avail subsidy are as follows:
 - Central Financial Assistance (CFA) (30 percent of benchmark cost for general category states/70 percent of benchmark cost for special category states): Residential, Institutional, and Social Sector
 - State Government Subsidy (if any) as specified by the State Government

- The eligible consumer/implementing agency willing to avail subsidy should be able to fill the subsidy application form online. The subsidy application formats as specified by MNRE, Format S1A, S1B, S1C are attached as Annexure XVIII, XIX and XX respectively. The format to be filled is based on the capacity of system to be installed:
 - Format S1A: 1-5 kilowatt peak (kWp) capacity.
 - Format S1B: Above 5 kWp and up to 50 kWp capacity.
 - Format S1C: Above 50 kWp and up to 500 kWp capacity.
- Documents to be uploaded while applying for subsidy are provided in Table 6. Provision should be made for Consumers to upload these documents while submitting application online and for SNA Officials to download the documents for visualization and verification.

Table 6: List of Documents to Be Uploaded During Subsidy Application

Form	Capacity	Documents to Be Uploaded
S1A	1-5 kWp Capacity	<ul style="list-style-type: none"> • Passport size photo of beneficiary with signature • ID Proof: Aadhar Card with beneficiary's mobile number • Latest electricity bill • DISCOM's consent • Photograph of the front view of the proposed site with date • Agreement/Consent Certificate from user/beneficiary on INR 25/- Stamp Paper (format present along with Form S1A)
S1B	Above 5 kWp and Up to 50 kWp Capacity	<ul style="list-style-type: none"> • Passport size photo of beneficiary with signature • ID Proof: Aadhar Card with beneficiary's mobile number • Latest electricity bill • DISCOM's consent • Executive summary of the proposal • Calculations and justification of proposed capacity • Sketch/Line diagram of complete solar photovoltaic (SPV) system with details • Schematic diagram of the system including protecting interlocking devices, monitoring and data logging points to be provided • Completion schedule with milestones (Program Evaluation Review Technique (PERT) chart preferably). • Single line diagram elaborating interconnection of the SPV plant to the grid • Letter of Consent for synchronization of SPV plant with the Network of Distribution Licensee/NOC (not mandatory) • Single line diagram elaborating type and location of meter(s) • Copy of agreement made with distribution licensee and/or third party (not mandatory) • Undertaking from the consumer/beneficiary regarding the acceptability and cost sharing of the project (Agreement/Consent Certificate from user/beneficiary)

Form	Capacity	Documents to Be Uploaded
		<ul style="list-style-type: none"> on INR 25/- Stamp Paper [format present along with Form S1B]) • Photograph of the front view of the proposed site with date
S1C	Above 50 kWp and Up to 500 kWp	<ul style="list-style-type: none"> • Passport size photo of beneficiary with signature • ID Proof: Aadhar Card with beneficiary's mobile number • Latest electricity bill • DISCOM's consent • All attachments as indicated in Form S1B • Calculation for unit cost of power generation • Cost benefit analysis and payback period • Respective drawings for layout, connection, components etc. • Connectivity details with grid and metering arrangement (with sketch diagram) • Agreement with distribution licensee/DISCOMs • Photograph of the front view of the proposed site with date • Agreement/Consent Certificate from user/beneficiary on INR 25/- Stamp Paper (format present along with Form S1C)

LLU Case Number: LLU7.2

Description: Subsidy Application Fee Payment

Actors: Consumers

Flow Chart

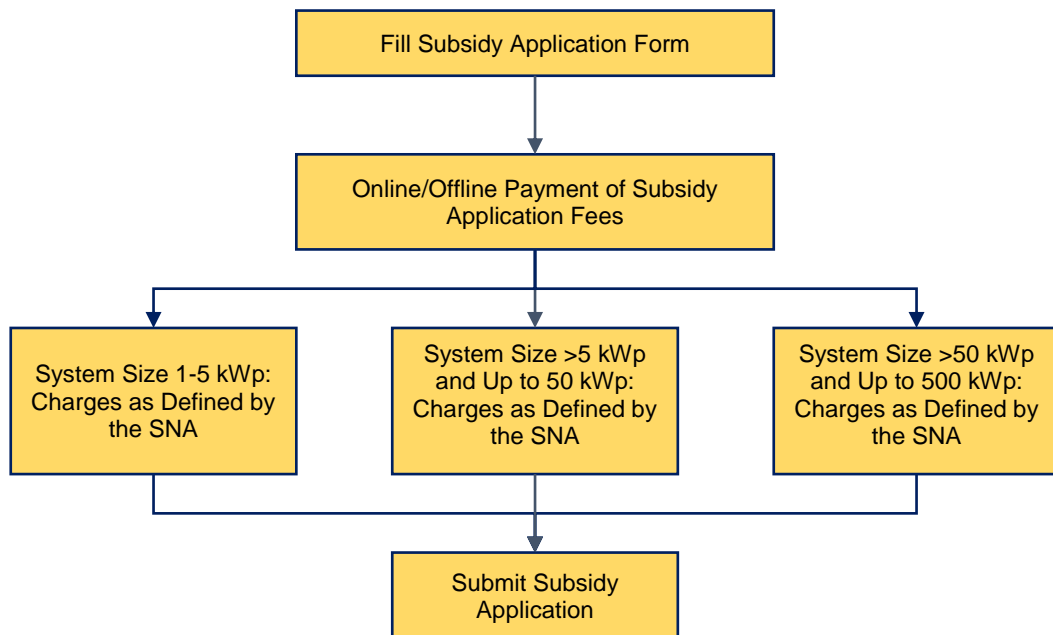


Figure 13: Flow Chart for Subsidy Application Fee Payment

Business Rules:

- The consumer should have a provision to pay the subsidy application fees online to SNA through the portal. In addition, a provision must exist to make fee payment offline and to upload the fee receipt.
- Depending on the system size, the consumer shall pay the fees as specified by the SNA.
- Portal should allow submission of application only after the completion of fee payment online/offline.

Note: This stage must not be implemented in case the SNA does not levy application/processing fees.

LLU Case Number: LLU7.3

Description: Generating Acknowledgement Receipt on Subsidy Application

Actors:

- Consumers
- DM at DO, SNA

Flow Chart

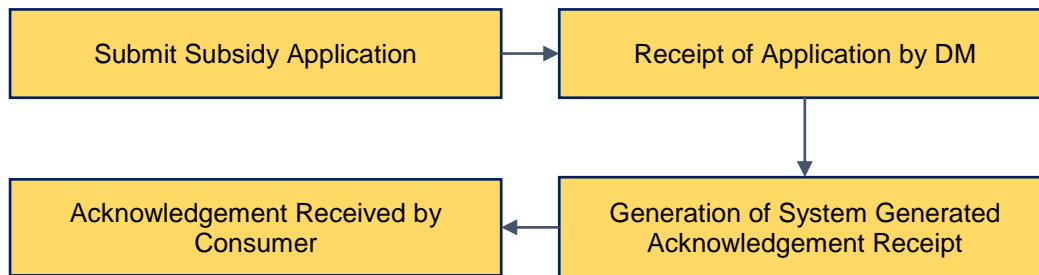


Figure 14: Flow Chart of Acknowledgement Receipt on Subsidy Application

Business Rules:

- The subsidy application on submission by the consumer should be received by the DM at the appropriate DO of SNA.
- On delivery of the application to the DM, a system generated acknowledgement should be given to the consumer indicating receipt of application form and the assigned application number. The Format of the subsidy acknowledgement receipt (Form S2) is attached as Annexure XXI.

LLU Case Number: LLU7.4

Description: Reviewing Subsidy Application and Addressing Deficiencies

Actors:

- Consumers
- DM at DO, SNA

Flow Chart

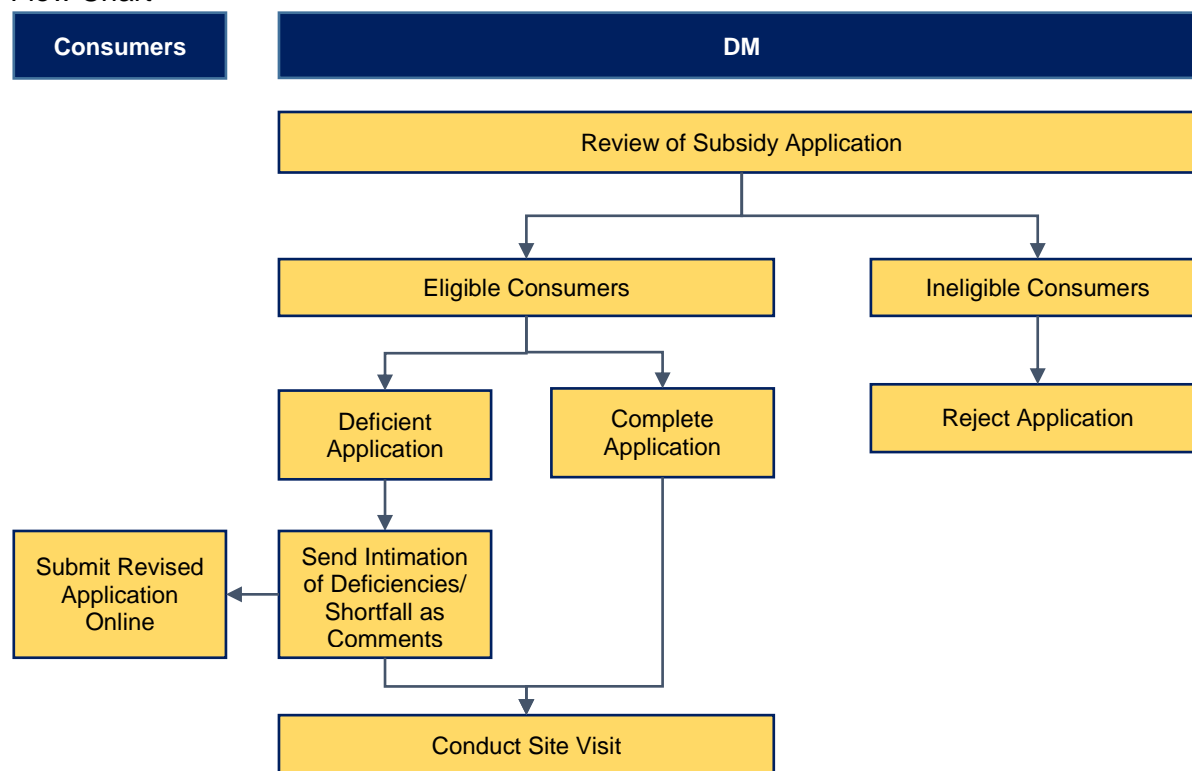


Figure 15: Review of Subsidy Application

Business Rules:

- The DMs through their login should be able to review the subsidy applications received from consumers.
- On reviewing the application, the DM must select one of the three options:
 - **Reject Application:** The application should be rejected if the Applicant is ineligible to receive subsidy and the reason for rejection should be provided through a comment box.
 - **Communicate Shortfall:** In case of any shortfall/deficiencies in application, the DM must communicate the same to the consumer within a span of seven days from the receipt of subsidy application.
 - **Approve Application:** The DM must approve the completed application if deficiencies have been addressed by the consumer and forward it to the HO after performing site visit.
- If any shortfalls are noted and communicated to the consumer, the consumer should address the deficiencies/shortfalls within 10 days of receipt of intimation of deficiencies/shortfalls and submit the revised documents online.
- The consumer must receive DM's response on the portal, registered email ID and SMS.

LLU Case Number: LLU7.5

Description: Scheduling Site Visit by SNA

Actors:

- Consumers
- DM at DO, SNA

Flow Chart

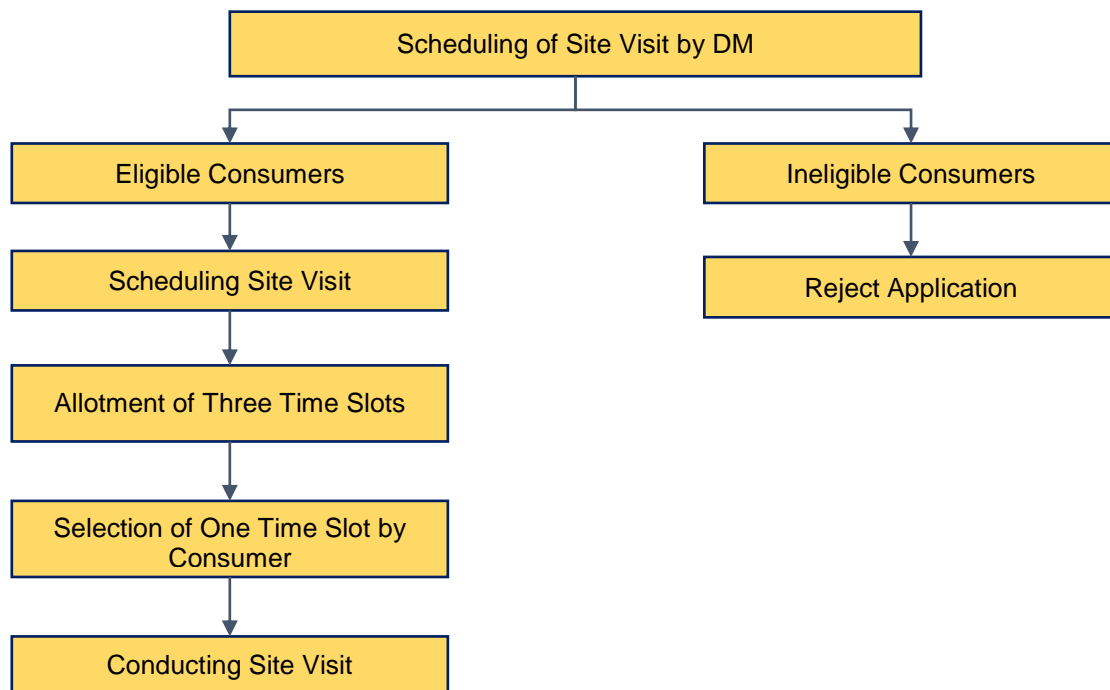


Figure 16: Scheduling Site Visit

Business Rules:

- The DMs through their login should be able to review the subsidy applications received.
- If the consumer is ineligible to receive subsidy, the DM will reject the application through the portal and should have a provision to provide a reason for rejection of the application.
- If the consumer is eligible to receive subsidy, the DM should schedule a visit to the site location by allotting time slots to the eligible consumers.
- The DM should provide three time slots to the consumer preferably on different dates through the portal.
- The consumer should have a provision to select one slot from the suggested slots.

LLU Case Number: LLU7.6

Description: Reviewing Completed Subsidy Application at DO, SNA

Actors:

- Consumers
- DM at DO, SNA
- VC and MD at HO, SNA
- Project Director/GM (Solar) at HO, SNA

Flow Chart

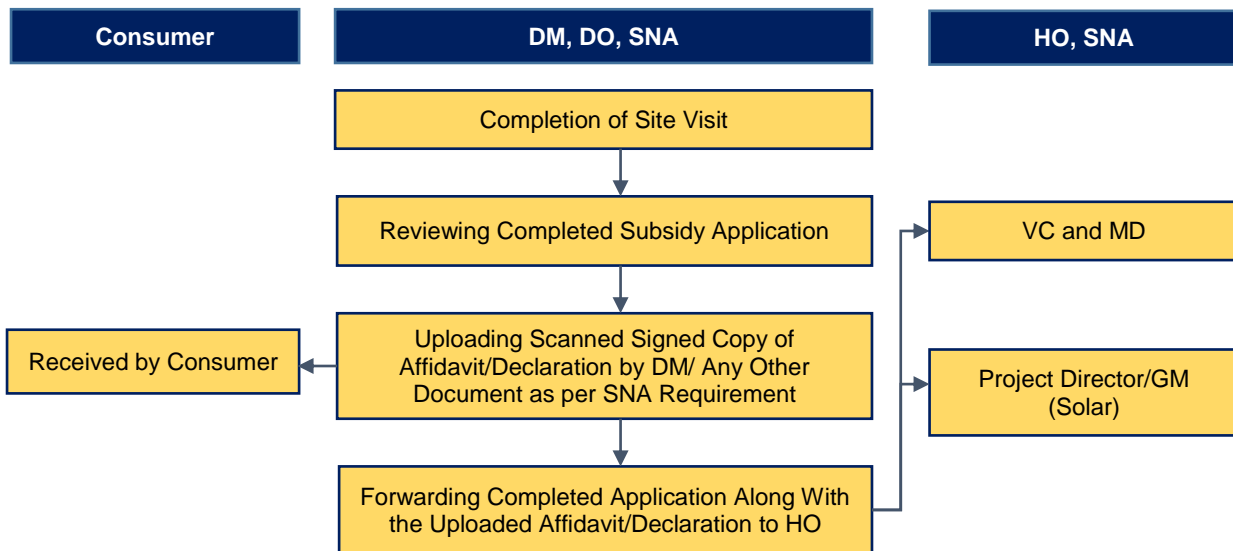


Figure 17: Review of Completed Subsidy Application

Business Rules:

- In case any deficiencies/shortfalls in the application are communicated to the consumer, the DM is required to verify whether the consumer has addressed all deficiencies/shortfalls.
- After conducting site visit and after verifying the completeness of the application, if the site is appropriate for installation of solar rooftop system, the DM should be able to upload a signed copy of Affidavit/Declaration/any other document as required by the SNA.
- If the application is complete in all respects, the DM should be able to forward the application to the HO along with a signed Affidavit/Declaration by selecting 'Approved'.
- If the consumer is ineligible to receive subsidy the DM should be able to 'Reject' the application.
- Application must be forwarded to HO within seven working days of receipt of completed application.
- At the HO, the completed application should be received simultaneously by the following:
 - VC and MD at HO, SNA
 - Project Director/GM (Solar) at HO, SNA

LLU Case Number: LLU7.7

Description: Reviewing Subsidy Application at HO, SNA

Actors:

- VC and MD at HO, SNA
- Project Director/GM (Solar) at HO, SNA

Flow Chart

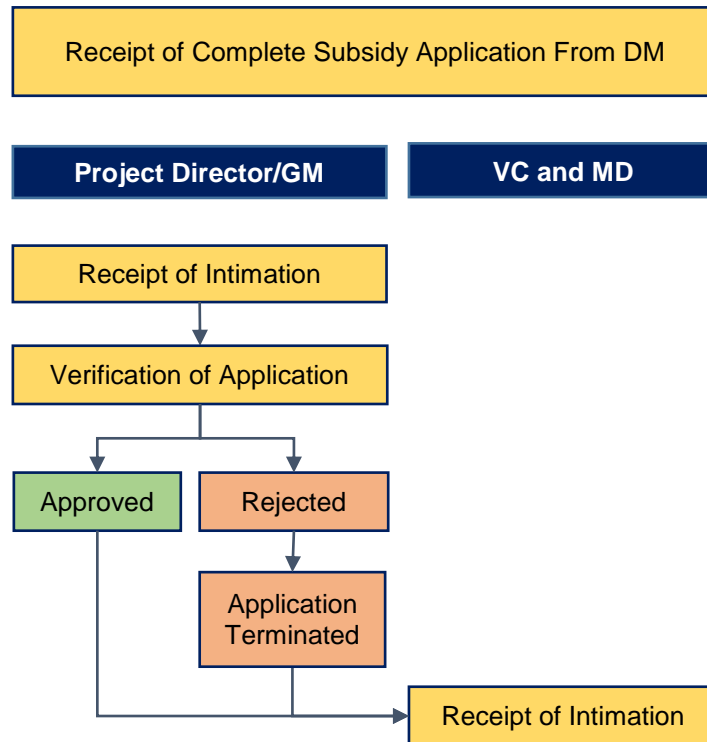


Figure 18: Review of Subsidy Application at HO

Business Rules:

- The Project Director/GM (Solar) should first verify the details of the application and eligibility of the consumer for sanction of subsidy:
 - The Project Director/GM (Solar) on reviewing the application should have the option to select 'Approved' and 'Rejected'.
 - The Project Director on reviewing the application should have the option to select 'Approved' and 'Rejected'. If the Project Director/GM (Solar) selects 'Rejected', the subsidy application will be terminated. If 'Approved' is selected the application should be forwarded to VC and MD.
- On approval/rejection of the subsidy application by the Project Director/GM (Solar), the VC and MD should be intimated regarding the eligibility of the Applicant.

LLU Case Number: LLU7.8

Description: Issuing In-Principle Subsidy Sanction Letter

Actors:

- Consumers

- VC and MD at HO, SNA
- Project Director/GM (Solar) at HO, SNA

Flow Chart

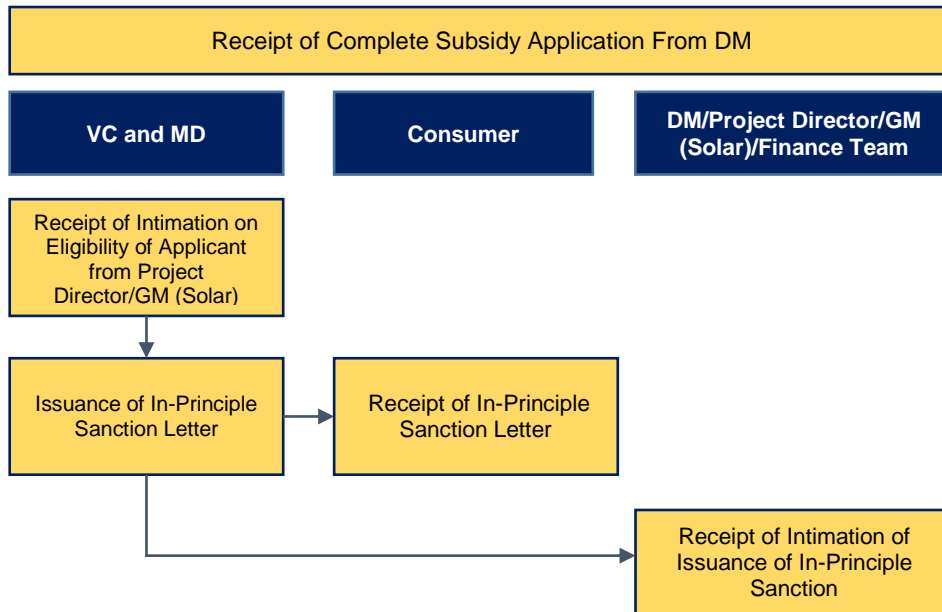


Figure 19: Issuance of In-Principle Sanction Letter

Business Rules:

- The review of subsidy application at HO and issuance of In-Principle Subsidy Sanction Letter should be completed within three working days of receipt of the completed application from the DM.
- The VC and MD on receipt of confirmation of eligibility from Project Director/GM (Solar) should be able to issue In-Principle Sanction Letter to the consumer.
- Format of the In-Principle Sanction Letter (Form S3) is attached as Annexure XXII.
- On issuance of In-Principle Sanction letter, the consumer should be able to receive the letter through the portal.
- The DM, Project Director/GM (Solar) and Finance Team should be able to receive the intimation of issuance of the In-Principle Sanction letter.

HLU Case Number: HLU8

Description: Subsidy Disbursement

Actors:

- Consumers
- DM at DO, SNA
- VC and MD at HO, SNA
- Project Director/GM (Solar) at HO, SNA

- Finance Team at HO, SNA

Flow Chart

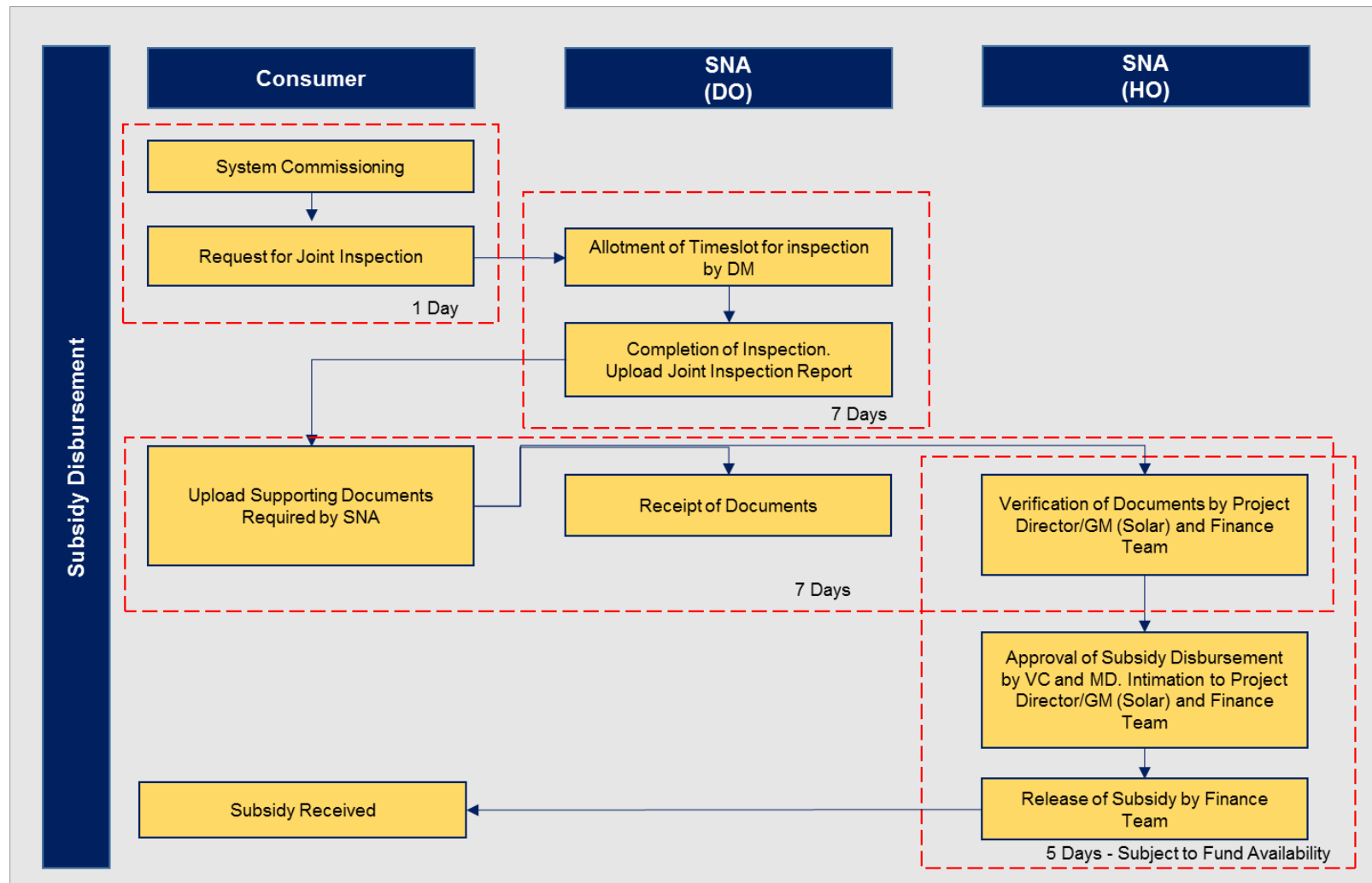


Figure 20: Process Flow for Subsidy Disbursement

Business Rules:

- The consumers should send a request online for initiating a joint inspection of the system.
- The DM should allot the time slot through the portal for conducting joint inspection.
- The consumers should upload documents required by SNA for disbursement of subsidy.
- The SNA officials should receive the uploaded documents through the portal.
- The SNA officials should verify the documents online and approve subsidy disbursement.
- The Finance Team shall then release subsidy to the beneficiary through online payment mode.

LLU Case Number: LLU8.1

Description: Scheduling and Conducting Joint Inspection by SNA

Actors:

- Consumers
- DM at DO, SNA

Flow Chart

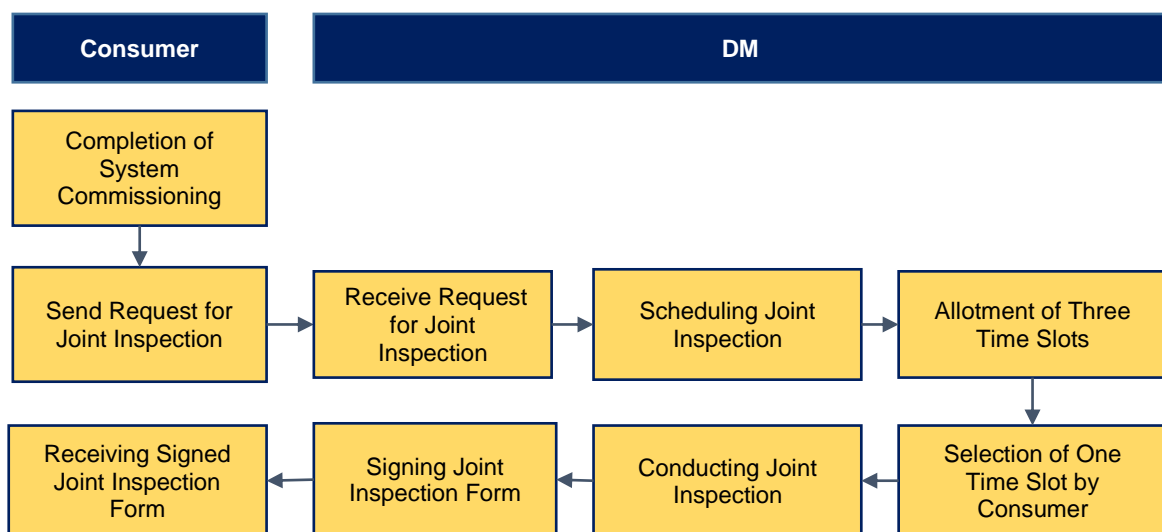


Figure 21: Flow Chart for Scheduling and Conducting Joint Inspection

Business Rules:

- On completion of installation and commissioning of the solar rooftop system, the consumer should send a request online to the DM for allotment of time slot for Joint Inspection.
- On receipt of request, the DM should provide three time slots to the consumer on preferably three different days for conducting the Joint Inspection.
- The consumer should confirm one time slot.

- The DM shall then conduct site visit and sign the Joint Inspection Certificate (Form S4) attached as Annexure XXIII.
- The Joint Inspection shall be completed within seven days of receiving request for Joint Inspection.
- The DM is required to inspect the system in the presence of consumer and system installer.

LLU Case Number: LLU8.2

Description: Submitting Documents for Subsidy Disbursal

Actors:

- Consumers
- DM at DO, SNA
- VC and MD at HO, SNA
- Project Director /GM (Solar) at HO, SNA

Flow Chart

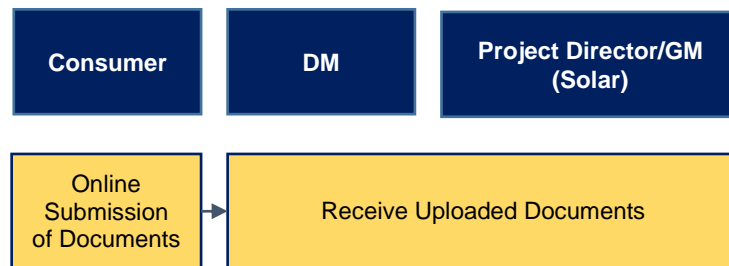


Figure 22: Submission of Documents for Subsidy Disbursal

Business Rules:

On completion of inspection, the consumer should upload the list of documents specified by the SNA to be received by the DM at DO and Project Director/GM (Solar) at HO.

Each SNA should provide a list of documents required to be uploaded at this stage. Formats for Project Completion Report (Form S5), Format for Statement of Expenditure (Form S6) are attached as Annexure XXIV and XXV respectively.

Authorization letter (Form S7) along with the counter signature of DM should be uploaded in case subsidy disbursement is to the System Integrator and not to the beneficiary. Form S7 is attached as Annexure XXVI.

LLU Case Number: LLU8.3

Description: Verifying Submitted Documents for Subsidy Disbursal at HO

Actors:

- DM at DO, SNA

- VC and MD at HO, SNA
- Project Director/GM (Solar) at HO, SNA

Flow Chart

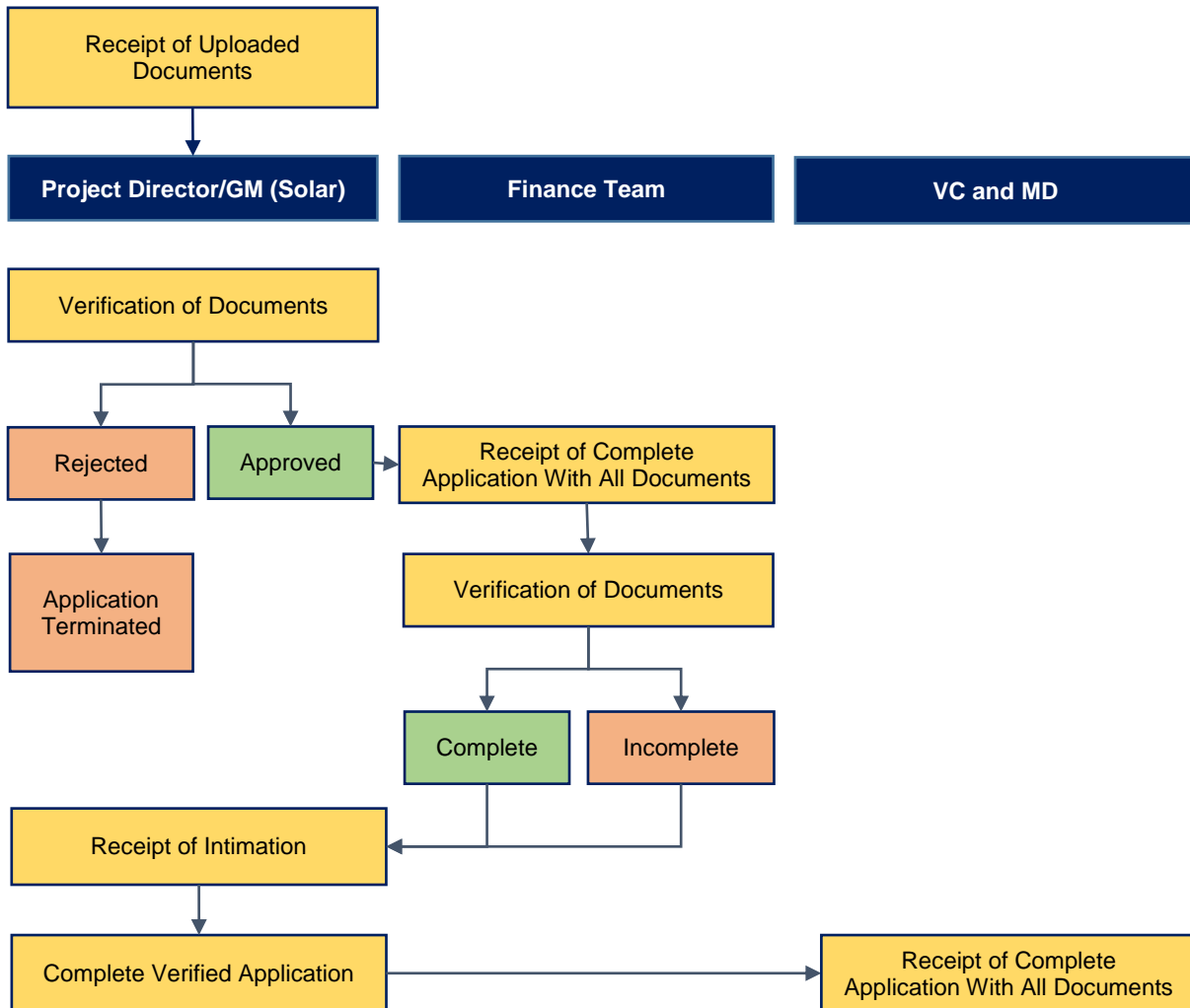


Figure 23: Verification of Submitted Documents for Subsidy Disbursement at HO

Business Rules:

- The Project Director/GM (Solar), at HO should be able to receive and verify the completeness of the uploaded documents within seven days of the completion of inspection.
- If funds are available, the Project Director/GM (Solar) on receipt of outcome of verification should be able to 'Approve' or 'Reject' the application. Selecting 'Approve' should forward the documents to Finance team. Selecting 'Reject' should terminate the application and there should be a provision for conveying reason for termination to the consumer.
- If the Project Director/GM (Solar) approves the application, the finance team should be able to check the documents and verify their completeness.

- The finance team should intimate the Project Director/GM (Solar) about the completeness of the application by selecting 'Complete' or 'Incomplete' option.
- If the application is complete and verified by the finance team, the Project Director/GM (Solar) should provide inputs regarding the amount of disbursement as CFA and State Subsidy for the Applicant and select 'Approved' to forward Application to VC and MD for final approval. If the application is incomplete the Consumer should be asked to resubmit the required documents.

LLU Case Number: LLU8.4

Description: Subsidy Disbursement

Actors:

- Consumers
- VC and MD at HO, SNA
- Project Director/GM (Solar) at HO, SNA
- Finance Team at HO, SNA

Flow Chart

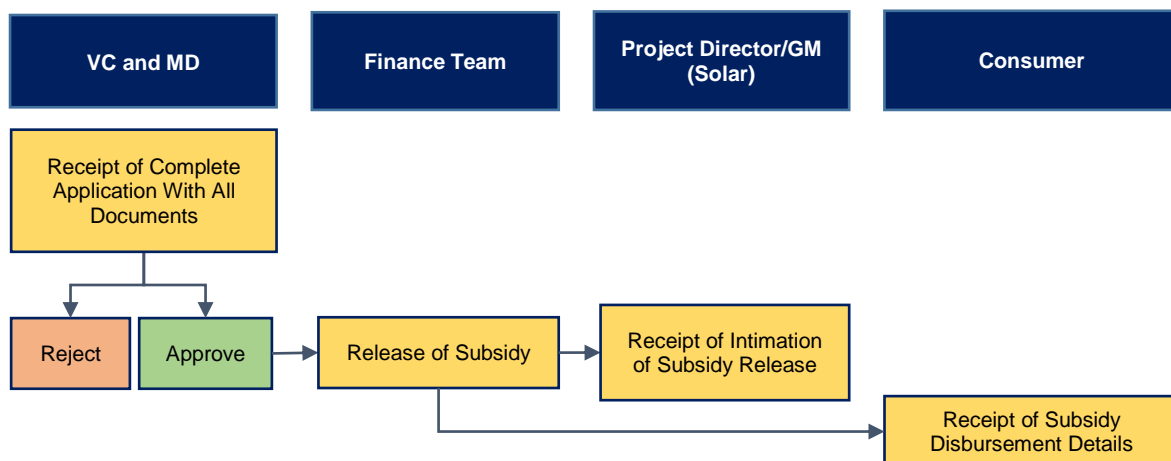


Figure 24: Disbursement of Subsidy

Business Rules:

- On completion of verification procedure at the HO, the Project Director/GM (Solar) should forward the completed application and documents to the VC and MD for disbursement of subsidy.
- The VC and MD should either 'Accept' or 'Reject' the application.
- If the VC and MD 'Approves' the application, the Finance Team should be intimated.
- The Finance Team shall then release the subsidy via online payment to the Consumer/System Integrator and provide the subsidy payment details to the Applicant through the portal.

- The Consumer/System Integrator should receive the subsidy and simultaneously, the Project Director/GM (Solar), SNA should be intimated of the subsidy release.
- If funds are available, the subsidy release should be completed within five days after the verification of documents at HO.

LLU Case Number: LLU8.5

Description: Procedure for Registration and Addressing Complaints

Actors:

- Consumers
- DM at DO, SNA
- Project Director/GM (Solar) at HO, SNA

Flow Chart

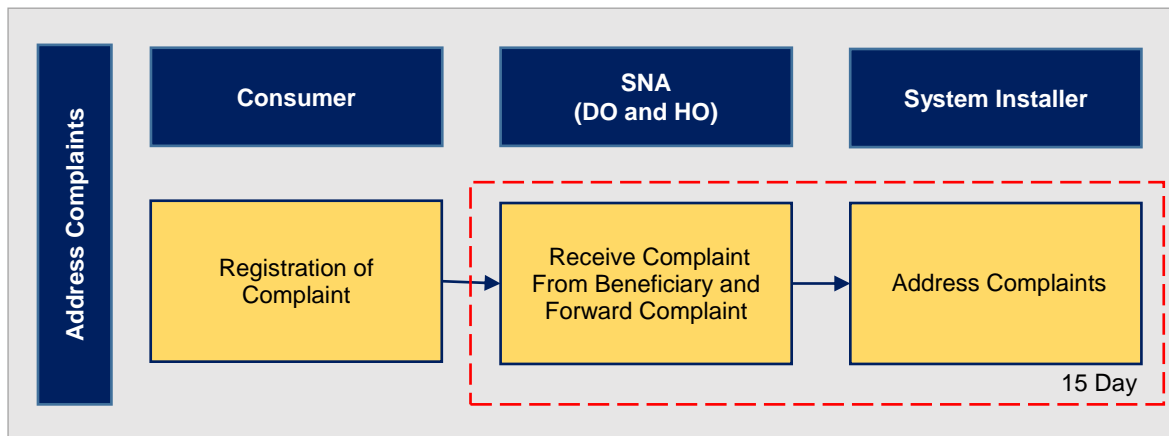


Figure 25: Process for Registration and Addressing of Complaints

Business Rules:

- The consumer should have the facility to lodge a complaint against the System Installer pertaining to technical specification, performance, operation and maintenance, and guarantee/warranty.
- The DM at DO and Project Director/GM (Solar) at HO should receive the complaint.
- The DM shall then forward the complaint received to the empaneled System Installer. A time duration of 15 days should be granted to address the complaint and perform rectification.
- In case of failure to address the complaint, the SNA shall initiate appropriate action against the System Installer.

2.3.4 Use Cases for EI Functionalities

HLU Case Number: HLU9

Description: Application for Drawing Approval to EI

Actors:

- Consumers
- EI Approver

Flow Chart

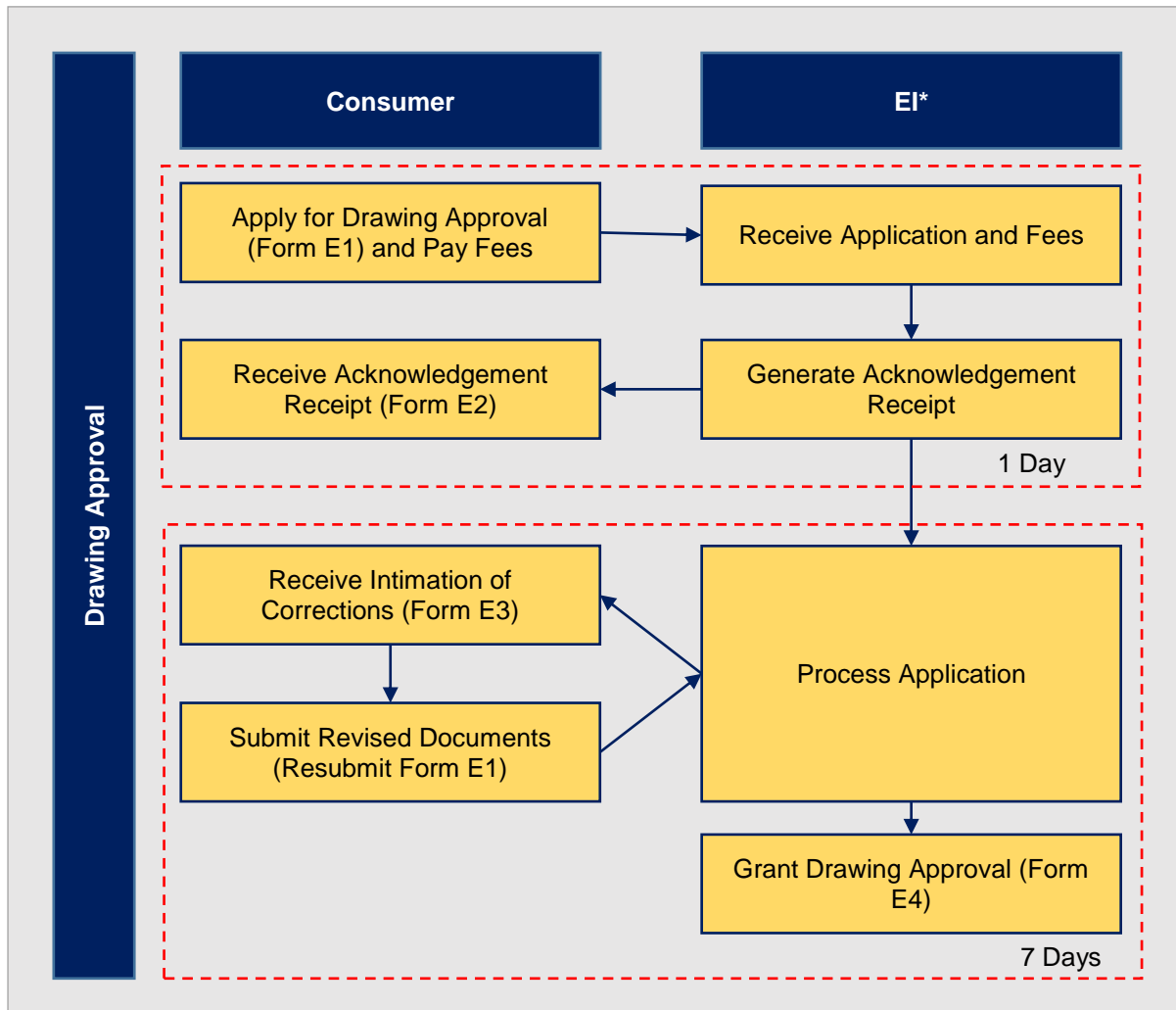


Figure 26: Drawing Approval Process for EI

Business Rules:

The EI approvers shall vary based on the system size.

Filling Application Form:

- The Applicant shall fill the drawing approval Application Form E1 online. Form E1 is attached as Annexure XXVII.
- The Applicant should upload documents as specified in Table 7 along with the Application Form E1.

Table 7: List of Documents to Be Uploaded With Form E1

Sr. No.	Documents
---------	-----------

Sr. No.	Documents
1	Copy of Contract Agreement/EPC Agreement.
2	Bill of materials along with technical specification.
3	Single line diagram of the installation indicating rating, size and details of protection, details of loading, and metering system.
4	Plan and elevation of the solar unit, inverter unit and control panel showing all round clearances etc.
5	Details of earthing provided for the proposed installation.
6	Copy of Licensed Electrical Contractor and Supervisor permit.
7	Scanned copy of offline fee payment receipt (in case of offline payment).

Fee Payment:

- The Applicant should complete the process of online/offline fee payment for drawing approval prior to the submission of Application Form.
- In case of offline fee payment, the Applicant shall upload the offline fee payment receipt.

Acknowledgement Receipt:

- On completion of fee payment through online/offline mode and completion of application submission, an acknowledgement shall be issued in Format E2 confirming receipt of application for drawing approval. Format E2 is attached as Annexure XXVIII.

Inspection of Drawings and Intimation:

- The inspecting/approving authority should examine the drawing approval application form and check if the Applicant has provided all the supporting documents through the portal.
- In case of shortcomings in the drawings and/or in the documents provided during application, the same should be intimated to the Applicant through Form E3. Form E3 is attached as Annexure XXIX.
- The Applicant shall address the identified shortcomings in the application within the period specified in Form E3. The Applicant should subsequently submit revised application form/drawings and/or missing/erroneous documents by resubmitting Form E1.

Grant of Drawing Approval:

- A drawing approval should be granted as given in Format E4 if the drawings and other supporting documents are in order. Format E4 is attached as Annexure XXX.
- The process of drawing inspection, revision, and grant of approval shall be completed within seven days from the receipt of the application for drawing approval.

HLU Case Number: HLU10

Description: Application for Safety Approval

Actors:

- Consumers

- EI Approver

Flow Chart

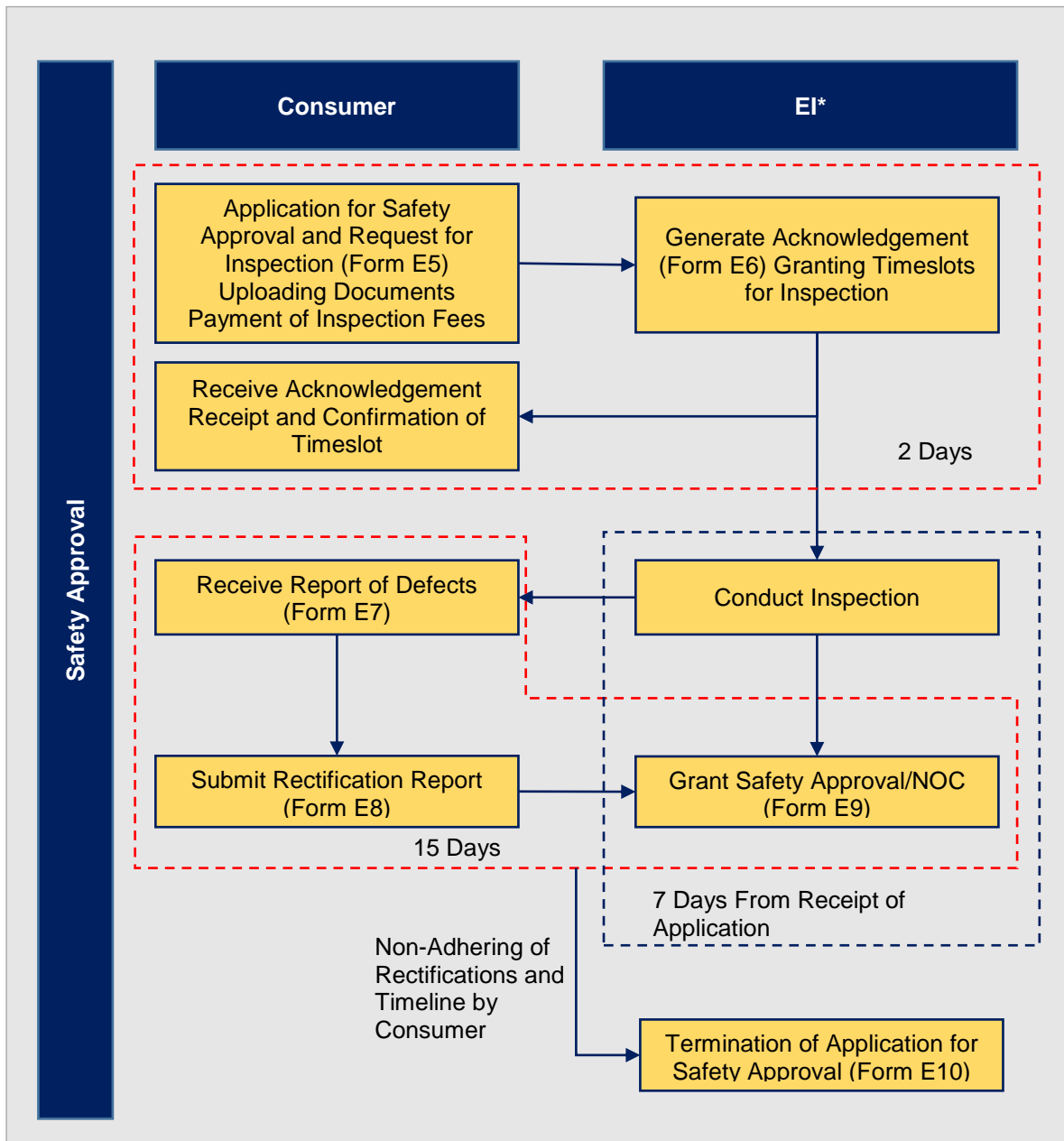


Figure 27: Process for Safety Approval by EI

Business Rules:

Request for Inspection:

- On completion of installation, the Applicant through the portal, will formally submit a request for inspection of the solar rooftop system in Form E5. The Applicant should upload all requisite documents including the Work Completion Report, as listed in Form E5. Form E5 is attached as Annexure XXXI. Prior to the submission of Form E5, the Applicant must pay safety inspection fees online/offline. In case of offline payment, the Applicant shall upload a copy of the offline payment receipt as an attachment while submitting the request for inspection.

Acknowledgement:

- On submission of request for inspection, an acknowledgement receipt confirming receipt of request for inspection in Format E6 should be automatically generated through the portal. The Format E6 is attached as Annexure XXXII.

Grant of Inspection Timeslot:

- The EI within two days from the issuance of acknowledgement to the application should grant time slot(s) (time and date) to the consumers for conducting the inspection.

Inspection and Grant of Safety Approval (in No Defects Case):

- The appropriate approving authority shall visit the site of solar rooftop plant for inspection. On completion of inspection if no defects are found then the approving authority should grant the Safety Approval in Form E9. Safety approval shall be granted within a period of 7 days from the date of receiving the application for safety approval. Form E9 is attached as Annexure XXXV.

Intimation of Defects, Submission of Rectification Report, and Grant of Safety Approval:

- During the stage of inspection, if any defects are noted, then the EI should intimate the Applicant via Form E7 attached as Annexure XXXIII. The Applicant must address the defects within 15 days of receiving the intimation.
- The Applicant should submit the rectification report as per Format E8 attached as Annexure XXXIV.
- On receipt of the rectification report, the approving authority will review the rectification report and in case, the rectification is found complete, safety approval shall be granted in Format E9 attached as Annexure XXXV.
- In case rectifications are not performed or rectifications performed are incorrect, safety approval should not be granted. The application for safety approval should be terminated through Format 10 as attached in Annexure XXXVI and the consumer should be advised to re-apply.

2.3.5 Use Case for Bank/FI Functionalities**HLU Case Number: HLU11**

Description: Functionalities Related to Banks

Actors:

- Consumers
- Nodal Officer, Bank
- Designated Officer, Customer Support Center (CSC), Bank

Flow Chart

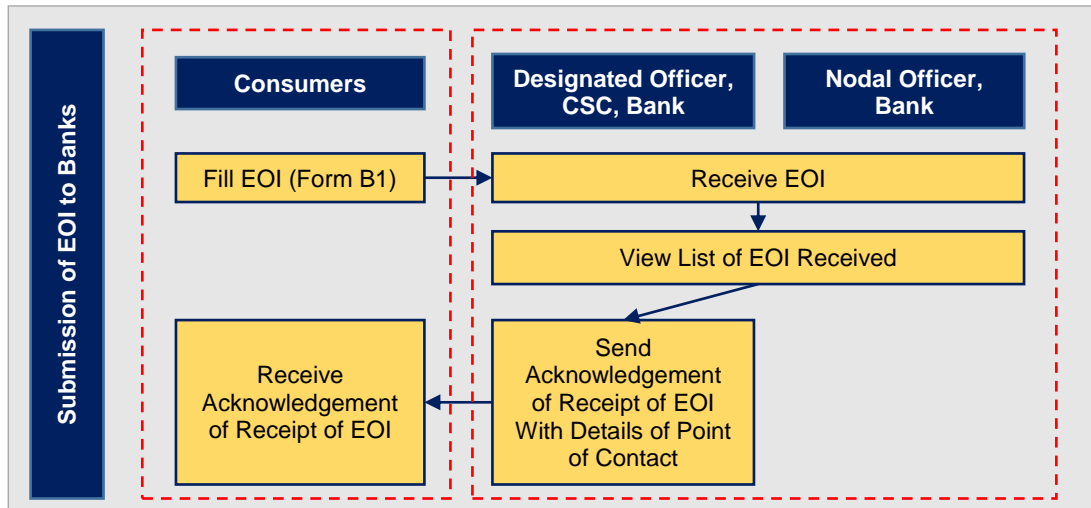


Figure 28: Interaction Between Consumers and Banks

Business Rules:

- Consumers through their login on USRTP should fill and submit EOI to the bank of their interest from amongst partner banks to avail loan. Format of the EOI (Form B1) is attached as Annexure XXXVII.
- The Nodal Officer and Designated Officer at the CSC of the bank should have a login access on the portal.
- The Nodal Officer and a Designated Officer at the CSC should receive the EOI submitted on the portal. The EOI submitted should also be received at the CSC as an email.
- The Nodal Officer and Designated Officer should be able to view a consumer wise list of EOI received on portal.
- The Designated Officer at the CSC after logging on to the portal should be able to send an acknowledgement of receipt of EOI received mentioning name and contact details of the point of contact for further communication. The Format of the Acknowledgement (Form B2) is attached as Annexure XXXVIII.
- The EOI submission module must be activated only on submission of installation application form to DISCOM.

The interactions enabled through the portal between Banks/FIs and Consumers are illustrated in Figure 28.

2.3.6 Use Cases for Information Functionalities

HLU Case Number: HLU12

Description: Informational Functionalities on Consumer/DISCOM/SNA/EI/Bank/FI Dashboard

Actors:

- Consumer

- DISCOM Approvers
- SNA Approvers
- EI Approvers
- Bank/FI Approvers

Business Rules:

- The Consumer Dashboard should enable stepwise tracking of the DISCOM, Subsidy and EI application process:
 - Enable application progress tracking.
 - Enable visualization of status and target dates.
 - Provide a link to load enhancement application to DISCOM.
 - Enable visualization of immediate action points.
 - Enable access to all applications submitted and approvals received.
 - Calendar Module to display time and location of scheduled inspection visit.
- The DISCOM Dashboard should provide access to statistical data related to the application process mediated through the portal:
 - Number of installation applications received and total capacity.
 - Number and capacity of installation for which LOAs are issued.
 - Number of systems with consumer end work completed.
 - Number of systems synchronized.
 - Calendar module to display time and location of scheduled site visits.
- The SNA Dashboard should provide access to statistical data related to subsidy application process mediated through the portal which include:
 - Number of installation for which subsidy applications are received and total capacity.
 - Number and capacity of installation for which In-Principle Sanction is granted.
 - Number of systems and capacity with joint inspection completed by SNA.
 - Number of systems and capacity for which subsidy is disbursed.
 - Amount of subsidy disbursed.
 - Number of systems and capacity installed (DISCOM wise and in the entire state).
 - Calendar module to display time and location of scheduled site visits.
- The EI Dashboard should provide access to statistical data related to drawing and safety approval applications received:
 - Number of applications for drawing approval received and system size.
 - Number of drawing approvals granted and their system size.
 - Number of application for safety approval received.
 - Number and capacity of systems for which NOCs are granted.
 - Number of systems and capacity installed.
 - Calendar module to display time and location of scheduled site visits.
- Banks/FIs should provide access to statistical data related to EOI received:

- Number of EOI received by the banks.
- Number of systems and capacity installed.
- Number of applications received in the state (DISCOM wise).
- The DISCOM/SNA/EI and Bank/FI Dashboard should provide access to geographical location of the system installed.

Geotagging Feature Indicating Projects in Progress and Completed

Selection of geotag should provide the following details:

- Customer Code
- Capacity in kilowatt (kW)
- State
- District
- Latitude
- Longitude
- Total Cost (INR)
- CFA (INR)
- Commissioning Date (installation date)
- Approval Number
- Installed by Agency
- Countdown to project completion/date of commissioning (expected/actual)

This geotagging information should be linked to the MNRE SPIN portal through Application Programming Interface (API) to provide information for the national data repository. This information should be gathered during DISCOM application and subsidy application process. Information of only those projects should be provided whose systems have been synchronized (if not availing subsidy) or subsidy is disbursed (if availing subsidy). Work on this functionality should be undertaken in consultation with the National Informatics Center (NIC) to define their exact requirements.

HLU Case Number: HLU13

Description: Publicly Accessible Informational Functionalities

Actors:

- Consumers
- DISCOM Officials
- SNA Officials
- EI Officials
- Bank Officials

Flow Chart

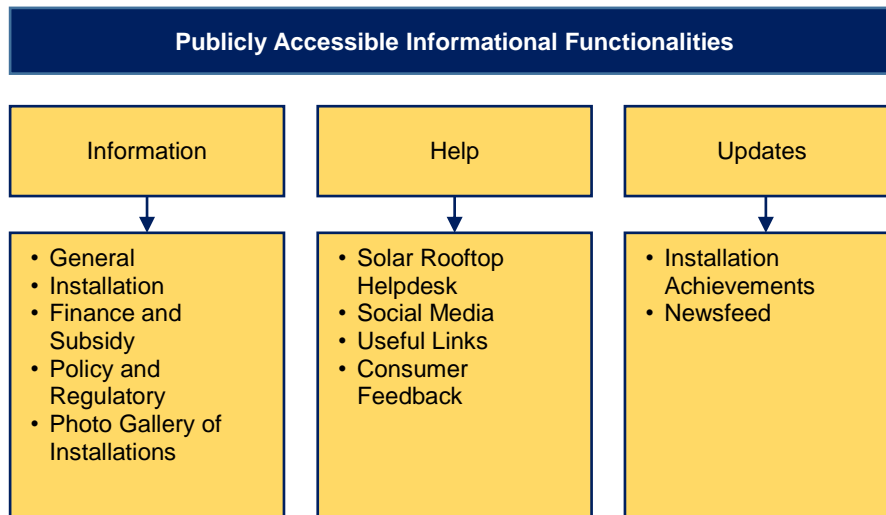


Figure 29: Publicly Accessible Informational Functionalities

Business Rules:

- The portal should provide an access to information enabling deployment of solar rooftop projects.
- The portal should contain general information. This should include information about the portal, the owners of the portal and the participant stakeholders on the portal. The portal should provide information on net and gross metering, FAQs and benefits of solar rooftop installation.
- The portal should contain information on how to apply for installation of solar rooftop plant, how to apply for subsidy, how to apply for EI approval, avenues of finance and subsidy, policies, regulations and circulars.
- The portal should provide information regarding any solar helpdesk created. It should also provide links to the social media pages of the stakeholders and should provide useful links to related websites.
- The portal should contain a photo gallery of installations to showcase installed projects.
- The portal should provide statistics of achievements through a dashboard feature.
- A newsfeed to provide recent updates should be present on the portal.

LLU Case Number: LLU13.1

Description: Information Functionalities

Actors: Consumers

Flow Chart

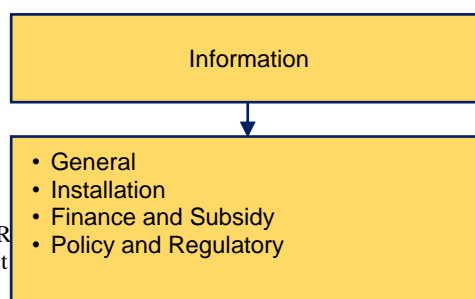


Figure 30: Informational Functionality

Business Rules:

The portal should provide the following information:

- **General:**
 - Benefits of installation of solar rooftop systems.
 - Information regarding net metering and gross metering with animation to provide information concerning the flow of electricity in both set ups.
 - Solar rooftop potential calculator.
 - Detailed User Manual for each stakeholder.
 - One-page simplified guidelines document defining consumer process steps.
 - Provide link to login page.
- **Installation:**
 - Procedures and timelines for setting up the solar rooftop system.
 - Procedure for empanelment of suppliers/implementing agencies.
 - List of SNA empaneled suppliers and installers for solar rooftop system installation.
 - Technical specifications of the solar rooftop systems to be installed.
 - Technical specifications of meter and modem.
- **Finance and Subsidy:**
 - Information related to central and state government subsidy.
 - Information on interest rates of banks, loan tenures, and schemes introduced by banks for financing solar rooftop projects.
- **Policy and Regulatory:**
 - Information related to policy (solar policy, guidelines, etc.).
 - Regulations (net metering and gross metering).
 - Tariff Order (net metering and gross metering).

Guidelines and circulars issued regarding implementation of solar rooftop projects.

LLU Case Number: LLU13.2

Description: Help Related Functionalities

Actors: Consumers

Flow Chart

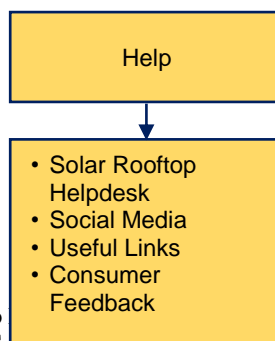


Figure 31: Help Related Functionalities

Business Rules:

- **Solar Rooftop Helpdesk:**
 - Login ID for customer service executives to access information on the portal.
 - Addressing consumer and stakeholder queries through email and telephone.
- **Social Media:**
 - Links to social media pages of the stakeholders so that Consumers can receive quick updates and post queries on social media pages.
 - Publicize information related to solar rooftop system installation.
- **Useful Link Tabs for Quick Access to Websites:**
 - MNRE
 - SERC
 - DISCOM
 - SNA
 - EI
 - MNRE SPIN website
 - MNRE E-marketplace
- **Consumer Feedback:**
 - Consumers should be able to provide feedback regarding the implementing agency and the portal.

LLU Case Number: LLU13.3

Description: Updates

Actors:

- Consumers
- DISCOM Officials
- SNA Officials

Flow Chart

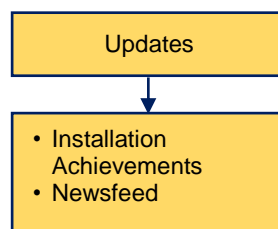


Figure 32: Updates on the Portal

Business Rules:

- A news feed providing information on the recent developments in the solar rooftop sector should be available on the portal.

- Achievements in the state relating to the installation of solar rooftop systems should be available on the portal.
- Statistics of year/quarter wise installed capacity should be available on the portal.

2.3.7 Login Requirements

HLU Case Number: HLU14

Description: Logins for SNA Officials

Actors:

- DM at DO, SNA
- VC and MD at HO, SNA
- Project Director/GM (Solar) at HO, SNA
- Finance Team at HO, SNA

Business Rule:

The SNA should provide login requirements to process the application and release subsidy depending upon the number of approvers at the DO and HO.

HLU Case Number: HLU15

Description: Logins for DISCOM Officials

Actors: DISCOM Officials

Business Rule:

DISCOMs should provide the requirements related to the number of logins depending upon the approvers and supervisors at various DISCOM offices.

HLU Case Number: HLU16

Description: Logins for EI Officials

Actors: EI Officials

Business Rules:

- EI should provide the requirements related to the number of logins required depending upon the approvers and supervisors for different system sizes and at various EI offices.

HLU Case Number: HLU17

Description: Logins for Bank/FI Officials

Actors: Bank/FI Officials

Business Rule:

Banks/FIs should provide the requirements related to the number of logins for Nodal Officers and Designated Officers at CSC.

2.3.8 Reporting Requirements

HLU Case Number: HLU18

Description: Report Generation for DISCOM, SNA, EI, and Bank/FI

Actors:

- DISCOM Officials
- SNA Officials

Business Rules:

- **DISCOM Reports:** The portal should enable the DISCOM Officials to generate reports for information at Circle Level, Division Level, Sub-Division Level, and Section Level Offices. The template for the report is attached as Annexure XXXIX.
- **SNA Reports:** The portal should enable the SNA Officials to generate reports for subsidy information at District and State Level. The template for the report is attached as Annexure XL. SNA should be able to generate DISCOM wise reports to determine installed capacity.
- **EI Reports:** The portal should enable the EI Officials to generate reports for applications received and approvals provided. The template for the report is attached as Annexure XLI.
- **Bank/FI Reports:** The portal should enable Bank/FI Officials to generate reports on number of EOI received. The template for the report is attached as Annexure XLII.

3 SYSTEM ARCHITECTURE

3.1 HOSTING REQUIREMENT — HARDWARE/SOFTWARE

All publicly accessible content should be made available on a website (existing or new). The website should provide a link to the Unified Solar Rooftop Web Portal.

The hardware and software requirements for implementation are detailed below:

1. Unified Solar Rooftop Website:

- Frontend: Hypertext Markup Language (HTML), Cascading Style Sheet (CSS), Java Script (JS).
- Database: MySQL.
- Required Host Environment: Linux.

2. Unified Solar Rooftop Web Portal

- Framework: ASP.NET Model View Controller (MVC) framework 4.5 or higher.
- Web Server: Internet Information Services (IIS) 7.5 or higher.
- Database: Structured Query Language (SQL) Server 2012 or higher.
- Required Deployment Environment: Windows Server 2012 or higher.

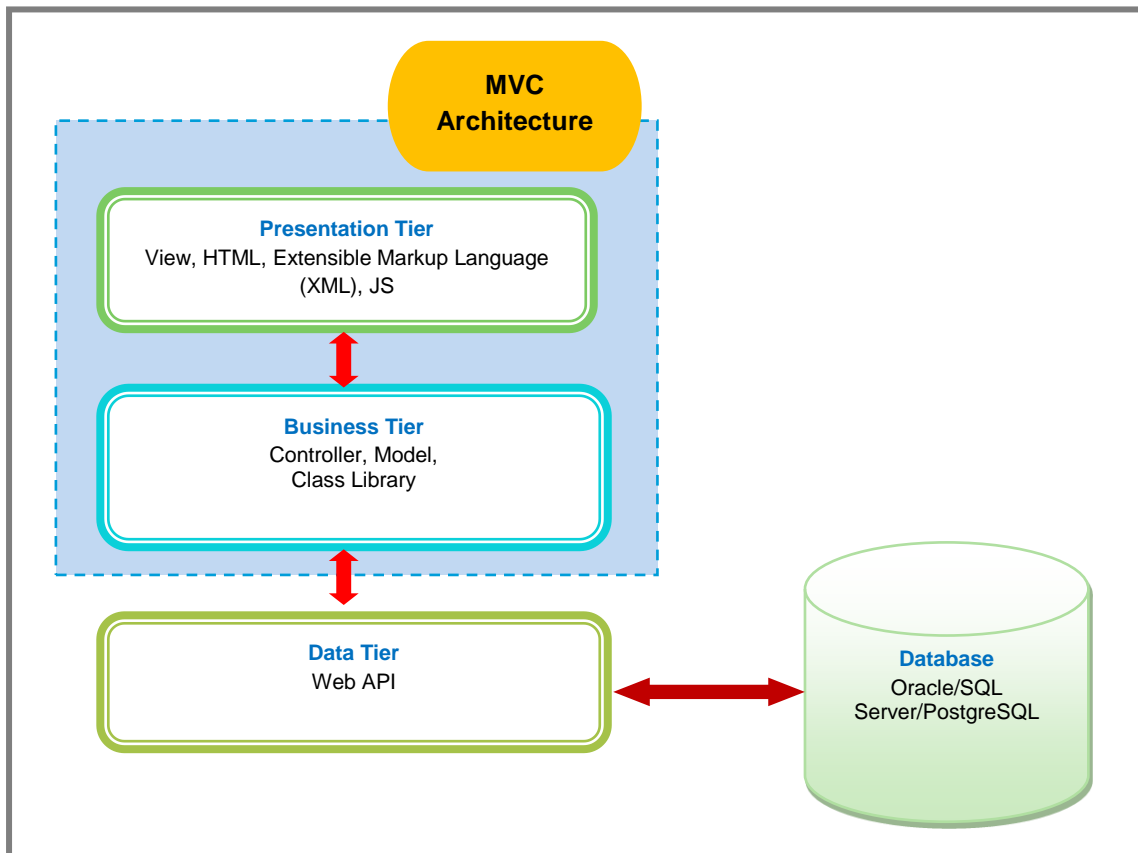


Figure 33: System Architecture for Portal

4 VERSIONS AND APPROVALS

4.1 VERSION HISTORY

Table 8: Version History of the Document

Date	Version	Description of Revision	Revised by

4.2 APPROVALS

Table 9: Approvals for the Document

Approver Name	Role	Signature	Date

ANNEXURES

ANNEXURE I: FORM 1A

Application Form for Connectivity of Rooftop Solar Photovoltaic (RTSPV) System (To Be Submitted by Applicant)

To
The Executive Engineer
_____ (Distribution Licensee Name)
_____ (Name of the Division)

For Office Use:

Application No.:

Date:

Application Fee Details:

Transaction No:

Transaction Amount:

Date of Payment:

I/we herewith apply for a renewable energy Net/Gross metering connection at the existing service connection for RTSPV system. The details are provided below.

1.	DISCOM Name*:	
2.	Service Connection Number/Consumer Number*	
Site Details		
3.	Consumer Details (Details linked to DISCOM database)	Name:
		Father/Husband's Name:
		Connected Load
		Contracted Load:
		Phase Type:
4.	Address of the Site for Installation* (Details linked to DISCOM database)	Category:
		Door No./House No.:
		Street Name:
		Landmark:
		Village Name:
		Mandal Name:
5.	Plant Location* (Use Google Map Feature)	District Name:
		Pin code:
6.	Proposed SPV Plant Capacity* (kWp)	Latitude: Longitude:
7.	Approved Plant Capacity (kWp) (Input from DISCOM after technical feasibility study)	-----
8.	Connectivity Level*	Single Phase LT/Three Phase LT/Three Phase HT
9.	Option for Net Metering/Gross Metering*	
Communication Details		
10.	Name of the Registered Applicant/ Organization	
11.	Primary Contact Name* (non-residential)	

	consumers)	
12.	Mobile No.*	
	Phone No.	
13.	Registered Email ID*	
14.	Correspondence Address	H. No.:
		Street Name:
		Landmark:
		Village Name:
		Mandal Name:
		Pin Code:
15.	Aadhar Card No. *	
16.	Applicant Type*	Individual or Group/Society
17.	In case of Group/Societies	Attach Form 1B
18.	Consumer Bank Details (If required)	Account No.:
		Bank Name
		Branch Name:
		IFSC Code:

Note: All field marked with * are mandatory to provide

Certification

I hereby state that the information provided above is best and true to my knowledge.

Signature of Eligible Consumer/Authorized Signatory:

Date:

Place:

Documents to be submitted along with the application form:

1. Certificate of Authorized Signatory, if other than domestic Applicant. (Form 1B).
2. Papers establishing ownership of premises where RTSPV system is being installed.
3. Copy of latest electricity bill.
4. Mode of payment - Online (NEFT/RTGS/Credit Card/Debit Card) – to be adjusted in bill.
5. Copy of Aadhaar Card.
6. Scanned copy of Cancelled Cheque (if required).

Note:

Only the person having Service Agreement with the appropriate DISCOM can avail the RTSPV metering connection. If the Agreement is not in the name of the Applicant, then the Applicant must undertake Change of Tenancy with the appropriate DISCOM before applying for metering connection.

ANNEXURE II: FORM 1 (B)

Authorization Certificate

(To Be Submitted by Applicant, in Case Applicable)

(For the application registered for installation of renewable energy system under net/gross metering program on behalf of a Trust/Committee/Housing Society etc.)

Date: _____

We, _____ (Name of Trust/ Company/Committee/Housing Society, etc.), residing at _____

_____ Pin: _____ wish to participate in the on-going net/gross metering plan for installation of RTSPV system initiated by DISCOM and we accept all the terms and conditions mentioned in the application form and any other formats laid down by DISCOM for this purpose.

Mr./Ms. _____ (Name of Official/Person), residing at _____ is hereby mutually authorized to accept on our behalf, all the terms and conditions of the RTSPV net/gross metering program regarding installation and commissioning of RTSPV system mentioned under the Application form or any other format prepared in this behalf by DISCOM and to execute such documents, agreements and other writings as may be necessary or required for this purpose.

Further, the above authorized person namely Mr./Ms. _____ (Name with Contact Number) is also nominated as the contact person on our behalf for any matter relating to the installation, operation, and inspection of RTSPV system.

Signature/Name of Authorized Person/Organization:
(With Stamp)

Designation of authorized person:

Name of the signing officer:

Designation of the signing officer:

ANNEXURE III: FORM 1 (C)

Acknowledgement Slip (Automated Response by the DISCOM)

Your application for setting up of RTSPV system is submitted.

Sr. No.	Particulars	Remarks
1.	Application Number	
2.	Name of the Applicant	
3.	Consumer Number	
4.	Rooftop solar PV plant capacity (kW)	
5.	Application fees details – Receipt Number and Date	
6.	Application is complete in all respects and all details provided (Yes/No)	

(Acknowledgement Form will be a system generated mail and SMS. This will be issued immediately once the Applicant has filled his/her application online. The acknowledgement email/SMS will contain the information listed out above).

ANNEXURE IV: FORMAT A

Technical Feasibility Report
(To Be Filled by Sub Divisional Engineer, DISCOM)

Sr. No.	Particulars	Details
A.	Details of the Applicant	
1.	Application Number	
2.	Name of the Applicant	
3.	Address of Applicant	
4.	Phone/Mobile Number	
5.	Email	
6.	Category (Please tick ✓)	Domestic Non-Domestic Industrial Non-Industrial Others (please specify)
7.	Type of Connection (Please tick ✓)	1 Phase LT 3 Phase LT 3 Phase HT
8.	Sanctioned Load (kW/ kVA/ HP) Contract Demand (kVA)	
B.	Details of the Distribution Transformer (DT)	
9.	Location and Transformer No./Asset Code	
10.	Capacity of DT (kVA)	
11.	RTSPV system capacity proposed under this application (kW)	
12.	Whether the transformer capacity is adequate as per SERC's applicable Regulations and whether the consumer can go ahead for installation of system for the proposed capacity (Please tick ✓)	Yes No Yes, but with reduced capacity of -----

I hereby certify that the above said RTSPV system is technically feasible/not feasible/feasible with ----- capacity.

Signature:

Name of Authorized Person and Designation:

Name of the DISCOM:

Date:

ANNEXURE V: FORM 2

Letter of Approval for Consumer With Respect to the Application for Net/Gross Metering and Grid Connectivity of Grid Connected Rooftop Solar PV System

(To Be Filled by the DISCOM)

Date:

To

(Applicant's Name) _____

(Consumer No.) _____

Sub: Letter of Approval for Installation of Solar Rooftop System

Ref: Your Application No. _____ dated _____

With reference to the above-mentioned Application No., after the technical feasibility (Format A attached), approval is provided for installing RTSPV system of _____ kW in your premises.

Following are the terms and conditions for installing the system:

1. It is recommended that you select an empaneled system installer of your choice to install the RTSPV system. A list of empaneled installers of grid-connect PV systems by MNRE (Ministry of New and Renewable Energy, Government of India)/SNA is available.
2. All components of RTSPV system must comply with the applicable Bureau of Indian Standards (BIS)/International Electrotechnical Commission (IEC) standards. Please find attached a list of standards to be complied attached with this approval letter.
3. You must submit the copy of Manufacturers Test Certificates for all components for having complied with relevant BIS/IEC standards of the selected model along with work completion report.
4. In case of any changes required at your premises due to this proposed installation, these shall be performed by you at your own cost.
5. The grid connectivity of the system shall be in accordance with the SERC's applicable Regulations any amendments thereof from time to time and shall confirm to requirements of State Government's Solar Policy.
6. In case the Applicant desires to purchase the Net/Gross meter on its own (with prior permission from DISCOM), the same shall be purchased from DISCOM approved vendors (as per DISCOMs approved technical specifications). These meters shall be successfully tested from DISCOM or their authorized laboratory. The DISCOM shall fix this meter on receiving system test and safety certificate from EI (only applicable to RTSPV systems of more than ___ kW/kVA in size) during synchronization. For system size less than ___ kWp/kVA, the consumer need to submit safety certificate issued by a chartered engineer, or any other certificate, applicable as per the State's Regulations.
7. All the safety measures and standards of the installed system must comply with the requirements as stated in CEA/SERC Regulations and all standards referred to in

those Regulations.

8. Please submit the following documents after installation of RTSPV system:
 - a. Inspection Report by Chief Electrical Inspector/EI, State Government, Safety Certificate issued by Chartered Engineer, as applicable.
 - b. Work Completion Report in provided format.
 - c. Test Certificate of Net/Gross meter from DISCOM approved laboratory, if applicable.
 - d. Copy of signed Net/Gross Metering Interconnection Agreement.

This approval is valid for 180 days from the date of issuance of letter and the RTSPV system is to be commissioned within this period, failing which the approval will stand cancelled.

You may download all technical specifications, standards, and other requirements of the solar rooftop system from _____ (link to website of documents).

Signature of Officer:

Name and Designation of the Authorized Officer:

Date:

Stamp

ANNEXURE VI: FORM 2 (A)

Intimation of Deficiency Scrutinized in the Application
(To Be Filled by DISCOM)

To

Name of the Applicant _____

Date _____

Subject: Intimation for Removal of Deficiency

Ref: Your Application no. _____ dated _____

This is to inform you that we have received your above-mentioned Application.

- Deficiencies in Application: On scrutinizing the application, the DISCOM has found that deficiencies exist in the application, because of the under-mentioned reason:

-
- Technical Constraints: After undertaking the technical feasibility inspection, it is found that it is not feasible for DISCOM to provide connectivity up to the applied capacity. Technical constraints exist due to the under-mentioned reason:

However, the connectivity is feasible for a reduced capacity of ____ kW.

Based on this communication, the Applicant can:

1. Accept the connectivity at reduced capacity or
2. Withdraw the Application.

Please complete the above query within seven days of receipt of this intimation and submit the response as per 'Response of Applicant for Removal of Deficiencies' as intimated after the Technical Feasibility. In case you have not completed the formality within the given period, your application shall stand cancelled and paid fees, if any, shall not be refunded.

Signature of Officer:

Name and Designation of the Authorized Officer:

Date:

Stamp

ANNEXURE VII: FORM 2(B)

Response of Applicant for Removal of Deficiencies as Intimated After the Technical Feasibility

(To Be Filled by Applicant)

To

The Executive Engineer

_____ (Name of the Division)

_____ (Distribution Licensee Name)

Reference: Application Number _____ dated _____.

Subject: Response of deficiencies found after technical feasibility (Form 2[A])

With reference to the DISCOM's letter (Form 2[A]), dated _____, regarding the intimation on deficiencies found in the Application/operational constraints to provide connectivity at the applied capacity.

The Applicant will exercise the following option (tick the appropriate choice):

1. I have incorporated the mentioned deficiencies in the Application Form.
2. I accept the connectivity at reduced capacity as intimated by the DISCOM vide letter dated _____ and request the DISCOM to process the case.
3. I withdraw my Application.

Name and Signature of Applicant:

ANNEXURE VIII: FORM 2 (C)

Intimation for Non-Feasibility and Termination of Application

(To Be Filled by DISCOM)

Date: _____

To

(Name of the Applicant) _____

Sub: Intimation of termination of the Application due to non-feasibility/ operational constraints

Ref: Application No. _____; dated _____.

This is to inform you that we have received your above-mentioned Application and after the technical feasibility of the RTSPV system (Format A attached), DISCOM has found that the Application is not feasible at this stage due to the following reasons:

- _____
- _____

The Application hereby stands terminated and the Application Fee shall be refunded within seven days from the date of issuance of this letter.

Signature of Officer:

Name and Designation of the Authorized Officer:

Date:

Stamp

ANNEXURE IX: FORM 3

**Interconnection Agreement (Net/Gross Metering Arrangement)
Between DISCOM and Applicant**

This Agreement is made and entered into at (location) _____ on this (date)

The Eligible Consumer (Name) _____ residing at
(address) _____ as first party

AND

Distribution Licensee _____ (herein after called as Licensee) and having
its registered office at (address) _____ as second party of the
agreement.

Whereas, the eligible consumer has taken the responsibility to set up or facilitate the
requisite Photovoltaic system and injection system into the Licensee's grid.

And whereas, the Licensee has verified the application and agrees to benefit the eligible
consumer for the electricity generated and as per conditions of this agreement and net-
metering Regulations.

Both the parties hereby agree as follows:

1. Eligibility

- 1.1 Eligible consumer agrees that the standards and conditions of his photovoltaic
system meet the norms for being integrated into grid/distribution system and that he
shall maintain the system accordingly for the duration of this agreement.
- 1.2 Eligible consumer agrees that for connection of his photovoltaic system to Licensee's
distribution system, he shall be bound by requirements of state Distribution Code
and/or Licensee's conditions of service and such connection shall not affect the
performance of the grid with specified reliability, security, and quality as per the
Central Electricity Authority (Grid Standard) Regulations, 2010 as amended from time
to time.

2. Technical and Interconnection Requirements

- 2.1 Eligible consumer agrees that the interconnection of the rooftop solar system with
the network of the licensee shall be made as per the technical standards for
connectivity of distributed generation resources specified under the Central Electricity
Authority (Technical Standards for Connectivity of the Distributed Generation
Resources) Regulations, 2013 and subsequent amendments thereof.
- 2.2 Eligible consumer agrees that he has installed or will install, prior to connection of
photovoltaic system to Licensee's distribution system, an isolation device (both

automatic and inbuilt within inverter and external manual relays) and agrees for the Licensee to have access to and operation of this, if required, for repair and maintenance of the distribution system.

- 2.3 Eligible consumer agrees that in case of a power outage on Licensee's system, photovoltaic system will shut down, unless special transfer and isolating capabilities have been installed on photovoltaic system.
- 2.4 Eligible consumer agrees that Licensee will specify the interface/interconnection point and metering point.
- 2.5 Eligible consumer agrees to furnish all the data such as voltage, frequency, breaker, isolator position in his system, as and when required by the Licensee. He may also try to provide facilities for online transfer of the real time operational data.

3. Safety

- 3.1 Eligible consumer shall comply with the Central Electricity Authority (Measures Relating to Safety and Electricity Supply) Regulations, 2010.
- 3.2 Eligible consumer agrees that the design, installation, maintenance and operation of the photovoltaic system are performed in a manner conducive to the safety of the photovoltaic system as well as the Licensee's distribution system.
- 3.3 Due to Licensee's obligation to maintain a safe and reliable distribution system, eligible consumer agrees that if it is determined by Licensee that eligible consumer's photovoltaic system either causes damage to and/or produces adverse effects affecting other distribution systems' consumers or Licensee's assets, eligible consumer will have to disconnect photovoltaic system immediately from the distribution system upon direction from the Licensee and correct the problem at his own expense prior to a re-connection.

4. Clearances and Approvals

- 4.1 The eligible consumer agrees to obtain all the necessary approvals and clearances (environmental and grid connected related) before connecting the photovoltaic system to the distribution system.

5. Access and Disconnection

- 5.1 Licensee shall have access to metering equipment and disconnecting devices of photovoltaic system, both automatic and manual, at all times.
- 5.2 In emergency or outage situation, where there is no access to the disconnecting devices, both automatic and manual, such as a switch or breaker, Licensee may disconnect service to the premises.

6. Liabilities

- 6.1 Eligible consumer and Licensee will indemnify each other for damages or adverse effects from either party's negligence or intentional misconduct in the connection and

operation of photovoltaic system or Licensee's distribution system.

- 6.2 Licensee and eligible consumer will not be liable to each other for any loss of profits or revenues, business interruption losses, loss of contract or loss of goodwill, or for indirect, consequential, incidental or special damages, including, but not limited to, punitive or exemplary damages, whether any of the said liability, loss or damages arise in contract, or otherwise.
- 6.3 Licensee shall not be liable for delivery or realization by eligible consumer for any fiscal or other incentive provided by the central government.

7. Commercial Settlement

- 7.1 All the commercial settlement under this agreement shall follow the SERC applicable Net/Gross Metering Regulations.

8. Connection Costs

- 8.1 The eligible consumer shall bear all costs related to setting up of photovoltaic system including metering and interconnection costs. The eligible consumer agrees to pay the actual cost of modifications and upgrades to the distribution facilities required to connect photovoltaic system in case it is required.
- 8.2 Costs of all interconnection equipment including the isolators, and meters. are also to be borne by the eligible consumer.

9. Termination

- 9.1 The eligible consumer can terminate the agreement at any time by giving 30 days prior written notice to the Licensee.
- 9.2 Licensee may terminate the agreement with 30 days prior written notice, if eligible consumer breaches any term of this agreement and does not remedy the breach within 30 days of receiving written notice from the Licensee of the breach.
- 9.3 Eligible consumer, upon termination of this agreement, shall disconnect forthwith the photovoltaic system from Licensee's distribution system.

In witness, whereof, Mr. for and on behalf of (Eligible consumer) and Mr. for and on behalf of (Licensee) sign this agreement in two originals.

Eligible Consumer/Third Party

Name:

Address:

Service Connection No.:

Date:

Distribution Licensee

Name:

Designation:

Office Address:

Date:

ANNEXURE X: FORM 4(A)

Intimation of Meter Procurement
(To Be Filled by Applicant)

Date: _____

To,

_____ (Concerned Authority)

_____ (Name of the DISCOM)

Sub: Intimation of Meter Procurement

Ref: Application No. _____ dated _____

Dear Sir,

With reference to the above- mentioned Application No. and receiving the Letter of Approval after the technical feasibility, I/we intend to install _____ kWp of RTSPV system vide letter No. _____ dated _____. In this regards, I/we request DISCOM to provide a meter of class _____ for RTSPV installation. The meter shall be as per the Net/Gross metering clause in Solar Rooftop Policy/Guidelines.

I/We agree to pay fee of INR _____ as mentioned in DISCOM website via online mode/ DD _____/Cheque _____.

(Signature of Applicant)

Name of Applicant:

ANNEXURE XI: FORM 4(B)

Assigning Meter
(To Be Filled by DISCOM)

Date: _____

To,
_____ (Name of the Applicant)

Sub: Assigning Meter

Ref: Application No. _____ dated _____

Net meter of class _____ is available/not available (tick (✓) appropriate) with DISCOM.

If Meter Is Available:

1. You are hereby directed to make an online/offline payment of INR _____ towards meter procurement and testing charges.
2. Appropriate meter will be sent by DISCOM test lab and shall be dispatched on the day of final check and synchronization of RTSPV system with the DISCOM's grid.
3. The DISCOM will issue test certificate to consumer prior to final checks and synchronization of the system. The Consumer must submit test certificate along with Work Completion Report.

If Meter Is Unavailable:

1. As meter is unavailable with DISCOM, it can be procured from external agency.
2. If meter is procured from outside agency, a letter intimating Meter No., Class, and other specifications described as per CEA regulations, shall be submitted to the DISCOM through Form 4(C) 'Request for Meter Testing'.
3. You are hereby directed to make an online/offline payment of INR _____ towards meter testing charges while submission of Form 4(C) 'Request for Meter Testing'.

Signature of Officer:

Name and Designation of the Authorized Officer:

Date:

Stamp

ANNEXURE XII: FORM 4(C)

Request for Meter Testing
(To Be Filled by Applicant)

Date: _____

To,

_____ (DISCOM Official)

(Name of Sub-Division/Division/Circle)

(DISCOM Name)

Sub: Intimation of Meter Procurement

Ref: Application No. _____ dated _____.

Dear Sir/Madam,

With reference to the above-mentioned Application number and receiving the Letter of Approval after the technical feasibility, I/we intend to install _____ kWp of RTSPV system vide letter No. _____ dated _____. In this regards, I/we have procured the meter from _____.

As per the of Solar Rooftop Policy/Guidelines, I request DISCOM to kindly test meter of following specification (specifying Meter No., Class, and other specifications described as per CEA regulations).

Make	
Model Number	
Meter Type	
Accuracy Class	

I/We hereby agree to pay fees of INR _____ as mentioned by the DISCOM for testing of meter through online mode/DD _____/Cheque _____.

(Signature of Applicant)

Name of Applicant:

ANNEXURE XIII: FORM 4(D)

Intimation Regarding Completion of Testing of Meter for Installation With RTSPV System

(To Be Filled by DISCOM)

Date: _____

To

_____ (Name of the Applicant)

_____ (Consumer No.)

Sub: Intimation of Completion of Testing of Meter

Ref: Application No. _____ dated _____

Dear Sir/Madam,

With reference to the above-mentioned Application number and your letter dated _____, regarding testing of meter, I/We hereby inform you that your meter with specification _____ is tested. The same will be installed after the synchronization check of the system.

Signature of Officer:

Name and Designation of the Authorized Officer:

Date:

Stamp

ANNEXURE XIV: FORM 5

Work Completion Report
(To Be Submitted by the Applicant for System Inspection)

To,

The Chief Electrical Inspector/Electrical Inspector (Control Area)
(if RTSPV to be inspected by CEI/EI)

ADE/SE-Operation Officer *(if RTSPV size is exempted from inspection by CEI/EI)*

CC: Office of DISCOM (in case submitted to CEI/EI)

CC: To SNA in case of subsidised consumers (if applicable)

Sub: Submission of work completion report (to be submitted by the Applicant) for system documentation requirements.

Ref: Our Application No.: _____ dated _____

Dear Sir/Madam,

With reference to the above, I hereby confirm to you that we have completed the work of installation of the renewable energy system and submit the following basic information for your perusal and request you to arrange to inspect and Commission the system at the earliest.

A. Details of the Solar PV Module

1.	Model No.	
2.	Name and address of manufacturer	
3.	Capacity of each module (Wp)	
4.	No. of modules	
5.	Total capacity (kWp)	
6.	Date of installation	
7.	Applicable Standard (BIS/IEC)	

B. Details of the Inverter

1.	Name and address of the inverter manufacturer	
----	---	--

2.	Brand name of the inverter	
3.	Model No.	
4.	AC capacity of individual inverter (kW)	
5.	No. of inverters installed	
6.	Total AC capacity of inverter (kW)	
7.	Serial Nos.	
8.	Date of Installation	
9.	Applicable Standard (BIS/IEC)	
10.	Is anti-islanding protection provided?	Yes/No

C. Module Mounting Structure

1.	Does the module mounting structure withstand wind capacity up to 150 kmph?	Yes/No
2.	Is total load of the structure + panel less than 60 kg/m ² ?	Yes/No
3.	Applicable Standard (BIS/IEC)	

D. Details of the Cables: DC

1.	Make/Name of manufacturer	
2.	Size and type	
3.	Applicable Standard (IEC)	

E. Details of the AC Wiring

1.	Make/Name of manufacturer	
2.	Size and type	
3.	Applicable Standard (IEC)	

F. Details of the DC Distribution Box

1.	Make/Name of manufacturer	
2.	Sl. No.	
3.	High quality suitable capacity Metal Oxide Varistors (MOVs)/Surge Protection Devices (SPDs) along with suitable reverse blocking diodes	

4.	Miniature Circuit Breaker (MCB)/Isolator quantity and capacity	
5.	Size and type	
6.	Applicable Standard (IEC)	

G. Details of the AC Distribution Box

1.	Make/Name of manufacturer	
2.	Sl. No.	
3.	AC surge protection device	
4.	MCB/ Molded Case Circuit Breaker (MCCB) quantity and capacity	
5.	Size and type	
6.	Applicable Standard (IEC)	

H. Details of the Earthing

1.	Earth resistance (shall be less than 5 ohms)	
2.	Size of the earth wire/flat*	
3.	Three separate earthing points	Yes/No
	Modules, mounting structure, and DC surge protection device	Yes/No
	Inverter, AC surge protection device	
	Lightening arrester	Yes/No
4.	Size and type	
5.	Applicable Standard (BIS/IEC)	

Note: *Earthing shall be done in accordance with IS 3043-1986, provided that earthing conductors shall have a minimum size of 4 mm² copper wire or 10 mm² aluminium wire or 3 mm² X 70 mm² hot dip galvanized iron flat strip.

I. Details of the Net Meter, If Purchased by Consumer (Please Enclose the Test Report of the Net Meter Tested at the Laboratory of the DISCOM/Designated Agency)

1.	Make	
----	------	--

2.	Serial No.	
3.	Procured from DISCOM/outside agency	
4.	Manufacturer's name	
5.	Capacity	
6.	Type/Model	
7.	Single ph./three ph.	
8.	Rated current and CT ratio	
9.	Reference voltage and PT ratio	
10.	Date of test by MT, DISCOM	
11.	Applicable Standard (BIS/IEC)	
12.	Month and year of manufacture	
13.	Class of meter	

J. Details of the Caution Signage

K. Provision of Manual and Automatic Switches: Yes/No

L. G.P.S. Coordinates of the RTSPV System Installation

(i) Latitude:

(ii) Longitude:

M. Whether Operation and Maintenance Manual Provided to the Consumer: Yes/No

N. Capacity of Automatic Relay/Isolation Switch at Interconnection Point With Grid

Certified that the above said RTSPV system was installed and the equipment used comply with the Technical and Safety Standards as specified by the MNRE/CEA/MERC/DISCOM under net metering program.

Signature of the Applicant:

Name and Signature of the System Installer:

Name and Address With Seal

Name: _____

Name of the Firm and Address: _____

Date: _____

Date: _____

Enclosure:

1. Actual single line wiring diagram (SLD) of the SPV system and estimated energy generation report (PVsyst/PVSol etc.).
2. Test report of net meter tested at the laboratory of the DISCOM.
3. Copy of the IEC/IS Test certificates of PV modules, inverter, cable etc.
4. Data sheets/drawing for the array mounting system.
5. Actual Single line wiring diagram (SLD) of the SPV system.
6. Copy of maintenance and operation information manual provided by the System Installer.
7. Copy of Interconnection Agreement.

ANNEXURE XV: FORM 6

Acceptance/Rejection of Work Completion Report and Grid Synchronization Check
(To Be Filled by DISCOM)

Date: _____

To

_____ (Name of the Applicant)

_____ (Consumer No.)

Sub: Intimation of Acceptance/Rejection of Work Completion Report and Grid Synchronization Check

Ref: Your Application No. _____ dated _____

Dear Sir/Madam,

This is in reference to your Application No. _____, we hereby inform you that we have received your work completion report for the installed RTSPV system. Subsequently, Grid Synchronization Check of the RTSPV system (Format G attached) installed on the roof of your premises _____, was done.

In response, the DISCOM confirms (Please tick ✓) -

- a. Acceptance of work completion report and grid synchronization check.
- b. Rejection of work completion report and grid synchronization check.

The report is rejected due to the following issues:

- _____

After incorporating the above-mentioned queries, please inform within 15 days from the receipt of this letter. In case the revised report will not be submitted in the given period, your application shall be cancelled and paid fees, if any, shall not be refunded.

Signature of Officer:

Name and Designation of the Authorized Officer:

Date:

Stamp:

Enclosure: Format G

ANNEXURE XVI: FORMAT G

Guidelines for Pre-Commissioning Check Before and After Connecting the RTSPV System With DISCOM Network and Steps for Maintenance of Network Where Such Connectivity Exists

(For DISCOM Internal Purpose Only)

1. Mandatory Safety Precautions/Features

The following are mandatory safety precautions which will be taken care before and after the commissioning of grid connected solar PV system.

- (a) An inbuilt inverter relay which trips on DISCOM supply failure and prevents any solar power injection to the DISCOM Network when there is no power from DISCOM. The anti-islanding protection shall be tested during the release of connection.
- (b) The solar PV system should be separately grounded/earthed. A minimum of two separate dedicated and interconnected earth electrodes must be used for the earthing of the PV system support structure, with a total earth resistance not exceeding 5 ohms.
- (c) Lightning arrestor also must be provided for SPV.
- (d) Manual isolator switch at an easily accessible location with locking facility shall be provided.
- (e) Caution stickers shall be used with the green back ground and the text "Solar PV Systems" written in white letters. The size of these stickers shall be 10 CM (width) x 7 CM (height) with the text clearly printed in the center of the sticker. (applicable to only 50 kW and above).
- (f) All SPV consumers should have a mandatory sign board fitted near the existing meter reading terminal stating that 'This service is fitted with a LT grid connected SPV plant'. The solar PV system caution stickers shall be fixed at the following locations (applicable to only 50 kW and above).
 - i. On or near to meter of service with grid connected solar PV system.
 - ii. On the consumer's main switch of a service connected with a grid connected solar PV system.
 - iii. On LT poles with grid connected solar PV systems at height of about 1.50 meter from the ground.
 - iv. On LT feeder pillars with grid connected solar PV system on the street-facing door of the feeder pillar.
 - v. On each of the LT take off poles of a distribution transformer to which solar PV systems are connected.
 - vi. On substation end of HT feeder having solar PV system.
 - vii. A list of serviced connections of grid connected solar PV systems shall be available at the Division Office and 33/11 kV SS.
 - viii. A record may be maintained at the Division Office of each SPV plant's commissioning date and other details.
 - ix. The SPV connected details of pole/pillar box/DT/SS feeder end wise may be maintained at Division Office.

- (g) During planned/forced maintenance work on DISCOMs network, before taking up the work in hand, besides ensuring all other provisions such as line earthing, de-energization of the line section where the work is to be carried out as per prevailing norms further it should be ensured that supply from such small solar rooftop PV power plants are not back feed and supply should also be disconnected by manual isolating switch with locking facility installed in the premises of such consumers and ensuring proper earthing.

2. The check list before release of connection.

A. Component Inspection Checklist

Sr. No.	Item Type	Yes	No
1.	Installation Layout — Is it as per drawing? (Applicable only for 50 kW above)		
2.	Inverter IS/IEC standards qualified		
3.	PV panel IS/IES standards qualified		
4.	PV isolators/PV cables IS/IES standards qualified		
5.	AC disconnect manual switch provided with locking arrangement		

B. Grid Connected Functional Safety Checklist

Sr. No.	Item type	Yes	No
1.	Check whether solar generation stops automatically when DISCOM supply made off (inverter/PCU cut off)		
2.	Bi-directional flow recorded on net meter		
3.	Solar generation meter ok?		
4.	Check all earthing points as per standard		
5.	Solar and bi-directional meter tested and sealed by DISCOM meter testing lab		
6.	Check Whether Manual isolating switch is installed at accessible location		
7.	Check whether manual isolating switch stops feeding supply in DISCOM network when in OFF position		

ANNEXURE XVII: FORM 7

Letter of Synchronization
(To Be Filled by the DISCOM)

Date: _____

To,

(Name of the Applicant)

Sub: Synchronization With DISCOM Grid, Installation of Meter and Commercial Date of Operation.

Ref: Application No. _____ dated _____.

Dear Sir/Madam,

This is with reference to your above-mentioned Application No., synchronization test of RTSPV system of kWp, installed on the roof of your premises (address), has been conducted and your RTSPV system found satisfactory and successfully synchronized with the DISCOMs grid on date

Signature of Officer:

Name and Designation of the Authorized Officer:

Date:

Stamp

ANNEXURE XVIII: FORM S1A

Ministry of New and Renewable Energy
(Jawaharlal Nehru National Solar Mission)

Project Proposals for Grid Connected Rooftop and Small SPV Power Plants (1-5 kWp Capacity) (List Mode)

Sl. No.	Name, Complete Address, Email, Phone, Fax, Mobile No. of the Beneficiary and Plant Location	Name and Complete Address of the Agency/ Company Installed/Will Install the Plant	Plant Size (kWp)	Brief Specifications of PV Module, Inverter, Meter, Structure, Electric Wires, Battery Bank (If any), etc.	Grid Connectivity Level 230/400/440/ 11 kV/33 kV Single/Three Phase	Costs of PV Module, and Total Cost (in INR)	Admissible Subsidy From MNRE Claimed (in INR)	Subsidy From States, If any (in INR)	Power Purchase Arrangement and Price Net Metering/ FIT (INR/kWh)	Photo and ID Proof of Beneficiary to Be Given/ Attached	Remarks/ Any Other Information
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
						PV Module..... Inverter..... Meter..... BOS..... Any Other... Total (in INR)					
2.											
3											

Signature _____

Name and Designation of Authorized Signatory*
of Implementing Agency

Affidavit/Declaration Certificate
(To Be furnished by Implementing Agency in INR 25/- Stamp Paper)

1. It is certified that I/We have read the guidelines issued by the Ministry vide No.----- dated --- -- and the related provisions/terms and conditions for availing Central Financial Assistance (CFA) from the Ministry of New and Renewable Energy and I/ We agree to abide by these guidelines and related terms and conditions. Failure to comply with these guidelines will result in denial of CFA by the Ministry.
2. This is to certify that Shri (Name and Designation) of (Organization) visited the proposed site on (Date) and found that there is..... sq. m of south facing shadow free area is available at the site for installation of the power plant. The latest photograph of the front view of the proposed site with date is enclosed with the certificate. After installation photograph will be taken in same view and will be submitted with completion report.
3. We confirm that the present proposal in full or part has not been submitted/ has been submitted to any other agency for seeking support (In case proposal has been submitted to any other agency or under consideration all details and a copy of the proposal must be submitted along with the present proposal). The present proposal has neither been submitted to MNRE nor has the CFA been availed from MNRE for the same proposal.
4. This is to certify that the various components of the PV module/inverter/meter/battery (if any), electric wires, BOS etc. will conform to the Relevant Standards, as mentioned in the 'Guidelines for Off-Grid and Decentralized Solar Applications for SPV Modules and Components/Grid Connected Rooftop and Small Solar Power Plants under JNNSM'. Copies of the relevant IEC/BIS certificates has been maintained in the office.
5. We confirm that the individual applications, beneficiary's identification, photograph of the systems and the beneficiary of each along with detailed specifications of various components have been received in the prescribed format. It has been kept and maintained in our office. For any audit and inspection, it will be shown to the concerned officer/authority.
6. We agree to place the details and photographs of the system and beneficiary on our website for all systems.
7. We will provide/feed the data in the online monitoring system regularly as per the instructions of MNRE.
8. The plant site has been/will be inspected/verified by us and the final claim will be made after the plant/system has been found satisfactory in all respect and fit/eligible for receiving subsidy/CFA from MNRE.
9. The failure to comply with these guidelines will result in denial of CFA by MNRE.

I also hereby declare that all information submitted in the proposal are true to the best of knowledge and belief. This is to confirm that in case of any dispute, the decision of

Secretary, Ministry of New and Renewable Energy, Government of India will be final and binding on all.

Signature.....
Name and Designation of Authorized Signatory*
of Implementing Agency

Place:

Date:

*Authorized signatory should be at least in the rank of District Manager of SNA.

Agreement/Consent/Certificate From User/Beneficiary

(To Be Furnished by User/Beneficiary on INR 25/- Stamp Paper)

1. This is to certify that I S/o Shri Resident of herewith agree to install the Grid Connected Rooftop Project/ Small Power Plant of kWp capacity as per the details submitted in the proposal.
2. I confirm that the CFA received will be utilized for this project only and not for any other purpose. I herewith also confirm that the balance cost in addition to the CFA will be met by me from my own/other resources.
3. I agree that the roof space will be made available in the proposed project site and is owned by me/leased to me by the owner.
4. This is also confirmed that I will extend full cooperation including access to the project site premise to the implementing/executing agency during installation and O&M, of the plant.

Signature

Name and Designation, Organization, Address
of the User/Beneficiary
(With Seal If Available)

ANNEXURE XIX: FORM S1B

**Ministry of New and Renewable Energy
(Jawaharlal Nehru National Solar Mission)**

**Form B for Project Proposals for
Grid Connected Rooftop and Small SPV Power Plants
(For the Project Above 5 kWp and Up to 50 kWp)**

Photo of the beneficiary with signature

Photo of the . . .

PART- I: Project Details

[A] General Details

Sr. No.	Description	Remark
1.	Title of the Project	
2.	Capacity of the Plant (kWp)	
3.	Category of the Applicant/Project Proponent	
	Government Organization/Public Sector Undertaking(PSU) /State Nodal Agency/Solar Energy Corporation of India (SECI)/ Channel Partner/RESCO/System Integrator/Finance Integrator/ Manufacture/Supplier of Solar Equipment's/Developer/ NGO/Financial Institutions/Financial Integrator/any other (Please specify)	
4.	Details of the Applicant/Representative/Project Proponent Name: Designation: Mailing Address: Telephone, Fax, and Email (Website, if any):	
5.	Executive Summary of the Proposal (Please attach a separate sheet)	
6.	Objective for Implementing the Plant (a) Sale of electricity to the distribution licensee at feed-in tariff or competitively discovered rate (b) Sale of electricity to the distribution licensee at average pooled price cost (APPC) and participation in REC mechanism (c) Sale of electricity to third party (d) Self-consumption total or partial generation (e) Diesel saving (f) Combination of above (please mention) (g) Any other, please specify	
7.	Any Other Detail Relevant for Consideration of Support Under the Scheme by the Evaluation Committee	

[B] Details of the Plant Site/Location

Sr. No.	Description	Remark
1.	<p>Is the Plant Located at the Address Mentioned in [A] 4 Above; If No, Address of the Location of the Plant(s)</p> <p>Name: H. No.: Street/Locality/Road: District: State: Pin Code:</p>	
2.	<p>Is the Beneficiary Same as [B] 1. If No, Details of Project Beneficiary/Organization</p> <p>Head of the Organization: Name of the Contact Person: Full Address, Phone, Mobile, and Email ID:</p>	
3.	<p>Details of Proposed Power Plant</p> <p>(a) Proposed capacity of the SPV power plant (kWp)</p> <p>(b) Plant proposed at single site/multiple sites</p> <p>(c) Interconnection with the electricity network at single point or multiple point</p> <p>(d) Availability of shadow free south facing rooftop/land area for the power plant with photograph</p> <p>(e) Total loads to be energized by SPV power plant (kW)</p> <p>(f) Calculations and justification for the proposed capacity (please elaborate)</p> <p>(g) Expected annual energy generation</p> <p>(h) Space for housing the plant control systems and battery bank (if any)</p>	
4.	<p>Details of Electrical Load Where the Plant Is to Be Installed</p> <p>i. Total connected electrical load in kW (as per electricity bill)</p> <p>ii. Applicable consumer category (domestic/commercial/individual/others, please specify)</p> <p>iii. Total electrical load to be met by the SPV power plant (kW)</p>	
5.	<p>Technology Description and System Design/ Specification</p>	

Sr. No.	Description	Remark
	<ul style="list-style-type: none"> i. Sketch/Line diagram of the complete SPV system with details (please attach drawing) ii. Capacity/Power of each PV module (kWp) iii. Number of modules and total array capacity (Nos. and kWp) iv. Solar cell technology and module efficiency proposed to be used (mono-crystalline/poly-crystalline/thin film/any other) v. Details of tracking of PV array, if proposed (single axis/double axis tracking etc.) vi. PCU/Inverter capacity with detailed specifications (kVA) (details of quality of output power, standards) vii. Type of inverter (central/string/multi string/any other), inverter efficiency viii. Number of PCU/inverters proposed to be used ix. DC bus voltage x. Capacity of battery bank (current, voltage, and AH), if used, any xi. Type of battery proposed (lead acid tubular/lithium ion/NaS/any other) xii. Details of protections to be deployed on PV array and AC output side xiii. Details of metering, indication, data logging operation xiv. Schematic diagram of the system including protecting interlocking devices, monitoring, and data logging points to be provided. xv. Details of training of manpower to be provided for successful operation of the plant. (Compliance to BIS/IEC Standards is mandatory). xvi. Details of mounting system: <ul style="list-style-type: none"> - Roof mounted system - Ground mounted system 	
6.	<p>Details of Building to Install the Electronics Control Panel and Battery Bank (If any)</p> <ul style="list-style-type: none"> i. Whether any existing building is to be used as control 	

Sr. No.	Description	Remark
	room, if so, details to be provided ii. If a new building is to be constructed, area, estimated cost, and layout, etc. to be provided and time frame to construct the building	

Note:

- It is mandatory to provide technical performance specifications of each component of the power plant proposed to be installed under the project as applicable and for which the performance will be warranted.
- All technical parameters and warranty requirements must meet or exceed the requirements mentioned in the guidelines issued by the Ministry.

[C] Operations and Maintenance (O&M) Arrangements

Sr. No.	Description	Remark
	Details of O&M arrangements	
	Arrangements for generation data	
	Collection through remote monitoring (Applicable for SPV power plants having more than 5 kWp capacity)	
	Is dedicated staff being trained for O&M of the plant?	
	No. of personnel to be trained in O&M	

[D] Project Duration and Implementation Schedule

Completion schedule with milestones (Please attach PERT CHART preferably).

[E] Monitoring Mechanism

Details of data monitoring on daily, monthly, and annual energy generation (Data logging and compilation and sharing with MNRE).

Please Provide Details in the Following Format

Own mechanism (up to 5 kWp)	
Third party	
Remote monitoring (for SPV power plants of 10 kWp and above)	

[F] Costing of Project

Sr. No.	System	Unit Cost (INR in Lakh)	Quantity	Total Cost (INR in Lakh)
1.	Cost of systems hardware			
	- SPV modules			
	- Inverters			
	- Installation structure			
	- Electrical wires			
	- Battery bank (if any)			
	- Meter			
	- Any other			
2.	Cost of transportation and insurance			
3.	Cost of civil works and electrical works			
4.	Cost of installation and commissioning			
5.	Cost of annual maintenance for five years			
6.	Cost of battery replacement			
7.	Any other related costs			
	Total cost			

[G] Means of Finance

Sr. No.	Means of Finance	(INR in Lakh)
1.	Envisaged Central Financial Assistance from MNRE	
2.	Contribution of beneficiaries	
3.	Contribution of project proponent	
4.	Other source(s) of funding	
5.	Envisaged soft loan assistance, if any	
	Details of revenue to be collected with payback period	

[H] Any Other Information

Signature:

Seal

PART – II: Details of Grid Connectivity of the Project

(The developer shall submit “Single line diagram elaborating Interconnection of the Solar Photovoltaic Plant to the Grid”)

Sr. No.	Description	Remarks
A.	<p>Grid Connectivity Level:</p> <ul style="list-style-type: none"> • Low voltage single phase supply (up to 10 kW SPV system) • Three phases low voltage supply (up to 100 kW SPV system) • Connected at 11 kV level (100 kW to 1.5 MW SPV system) • Connected at 11 kV/33 kV/66 kV level (1.5 MW to 5.0 MW SPV system) • Any other level 	
1.	Distance of interfacing point of the SPV plant with the grid	
2.	Type of grid available	
3.	Letter of consent for synchronization of SPV plant with the Network of Distribution Licensee/NOC (enclose letter)	
4.	Applicable fee and charges made for the grant of connectivity, if any	
B.	<p>Details of Distribution Licensee Providing Grid Interconnection</p> <p>Name and complete address of distribution licensee:</p> <p>Details of contact person:</p> <p>Email ID:</p> <p>Phone number:</p> <p>Mobile:</p> <p>Fax:</p>	
C.	<p>Metering Arrangement for the Project <i>(Along with the application for the consideration of Central Financial Assistance, the developer shall submit “Single line diagram elaborating type and location of Meter(s))</i></p>	
	I. Export import meters	
	II. Two-way meters	
	III. Three-meter system	
	IV. Any other (pl. specify)	
	V. Price of meter	
	VI. Whether meter is approved by distribution licensee	
VII. Class of energy meter		
D.	<p>Power Purchase Agreement <i>(A copy of agreement made with distribution licensee and/or third party shall be enclosed)</i></p>	

Sr. No.	Description	Remarks
E.	<p>Business Model Proposed for the Project</p> <ul style="list-style-type: none"> • Solar installations owned by consumer: <ul style="list-style-type: none"> ▪ Solar rooftop facility owned, operated, and maintained by the consumer(s) ▪ Solar rooftop facility owned by consumer but operated and maintained by the third party • Solar installations owned, operated, and maintained by the third party: <ul style="list-style-type: none"> ▪ Arrangement as a captive generating plant for the roof owners ▪ Solar lease model, sale to grid • Solar installations owned by the utility: <ul style="list-style-type: none"> ▪ Solar installations owned, operated, and maintained by the DISCOM ▪ Distribution licensee provides appropriate viability gap funds • Any other model (Pl. specify) 	
F.	<p>Commercial Arrangement</p> <ul style="list-style-type: none"> • Sale to distribution licensee: <ul style="list-style-type: none"> ▪ Sale at feed-in-tariff determined by SERC ▪ Sale at rate discovered under competitive bidding and adopted by SERC ▪ Sale at average power purchase cost determined by SERC and participation in REC mechanism • Self or captive consumption: <ul style="list-style-type: none"> ▪ Participation in net metering mechanism ▪ Sale of surplus power to grid or third party • Sale to third party: <ul style="list-style-type: none"> ▪ Rate committed for sale of electricity <ul style="list-style-type: none"> ○ Sale of power on short term ▪ (Negotiation of rate at regular intervals) or ▪ Sale of power on long term basis ▪ Participation in REC mechanism • Any other system (Pl. specify) 	
G.	<p>Undertakings From Involved Parties</p> <ol style="list-style-type: none"> 1. Undertaking from the consumer/beneficiary regarding the acceptability of the project 2. Undertaking from the third party/project developer regarding quality assurance, installation, operation and maintenance of the system 	
H.	<p>Any Other Relevant Information</p> <ol style="list-style-type: none"> 1. Incentives availed from any other agency (National/International) 2. Likely capacity utilization factor 3. Any other 	

Affidavit/Declaration Certificate
(To Be Furnished by Implementing Agency in INR 25/- Stamp Paper)

1. It is certified that I/We have read the guidelines issued by the Ministry vide No.----- dated ----- and the related provisions/terms and conditions for availing Central Financial Assistance (CFA) from the Ministry of New and Renewable Energy and I/ We agree to abide by these guidelines and related terms and conditions. Failure to comply with these guidelines will result in denial of CFA by the Ministry.
2. This is to certify that Shri (Name and Designation) of (Organization) visited the proposed site on (Date) and found that there is..... sq. m of south facing shadow free area is available at the site for installation of the power plant. The latest photograph of the front view of the proposed site with date is enclosed with the certificate. After installation photograph will be taken in same view and will be submitted with completion report.
3. We confirm that the present proposal in full or part has not been submitted/has been submitted to any other agency for seeking support (In case proposal has been submitted to any other agency or under consideration all details and a copy of the proposal must be submitted along with the present proposal). The present proposal has neither been submitted to MNRE nor the CFA has been availed from MNRE for the same proposal.
4. This is to certify that the various components of the PV module/inverter/meter/battery (if any), electric wires, BOS etc. will conform to the relevant standards, as mentioned in the 'Guidelines for Off-Grid and Decentralized Solar Applications for SPV Modules and Components/Grid Connected Rooftop and Small Solar Power Plants Under JNNSM'. Copies of the relevant IEC/BIS Certificates has been maintained in the office.
5. We confirm that the individual applications, beneficiary's identification, photograph of the systems and the beneficiary of each along with detailed specifications of various components have been received in the prescribed format. It has been kept and maintained in our office. For any audit and inspection, it will be shown to the concerned officer/authority.
6. We agree to place the details and photographs of the system and beneficiary on our website for all systems.
7. We will provide/feed the data in the online monitoring system regularly as per the instructions of MNRE.
8. The plant site has been/will be inspected/verified by us and the final claim will be made after the plant/system has been found satisfactory in all respect and fit/eligible for receiving subsidy/CFA from MNRE.
9. The failure to comply with these guidelines will result in denial of CFA by MNRE

I also hereby declare that all information submitted in the proposal are true to the best of knowledge and belief. This is to confirm that in case of any dispute, the decision of

Secretary, Ministry of New and Renewable Energy, Government of India will be final and binding on all.

Signature.....
Name and Designation of Authorized Signatory*
of Implementing Agency

Place:

Date:

*Authorized signatory should be at least in the rank of District Manager of SNA.

**Agreement/Consent/Certificate From User/Beneficiary
(To Be Furnished by User/Beneficiary on INR 25/- Stamp Paper)**

1. This is to certify that I S/o Shriresident of herewith agree to install the Grid Connected Rooftop Project/Small Power Plant of kWp capacity as per details submitted in the Form B/DPR of the proposal.
2. I confirm that the CFA received will be utilized for this project only and not for any other purpose. I herewith also confirm that the balance cost in addition to the CFA will be met by me from my own/other resources.
3. I agree that the roof space will be made available in the proposed project site and is owned by me/leased to me by the owner.
4. This is also confirmed that I will extend full cooperation including access to the project site premise to the implementing/executing agency during installation and O&M, of the plant.

Signature.....
Name and Designation, Organization, Address
of the User/Beneficiary
(With Seal If Available)

ANNEXURE XX: FORM S1C

Ministry of New and Renewable Energy (Jawaharlal Nehru National Solar Mission)

Format for Detailed Project Report for Grid Connected Rooftop and Small SPV Power Plants (Capacity above 50 kWp to 500 kWp)

1. Introduction
2. All Information as per Form S1B
3. Rooftop solar power generation system description
4. System description and specifications of the components
 - (a) Solar PV module
 - (b) Grid Tie inverter
 - (c) Module mounting structure
 - (d) Array junction box
 - (e) AC distribution board
 - (f) Cable (all type)
 - (g) Earthing kit (maintenance free)
 - (h) Installation kit
 - (i) Meters
 - (j) Online monitoring system
 - (k) Any other component
5. Bill of material/system (No./quantities) (for above components)
6. Calculation for unit cost of power generation
7. Cost benefit analysis and payback period
8. Expected output
9. Respective drawings for layout, connection, components etc.
10. Connectivity details with grid and metering arrangement (with sketch diagram)
11. Agreement with distribution licensee/DISCOMs
12. Any other information

Photo of the
beneficiary

Photo of the
beneficiary

Signature:

Seal

Affidavit/Declaration Certificate
(To Be Furnished by Implementing Agency in INR 25/- Stamp Paper)

1. It is certified that I/We have read the guidelines issued by the Ministry vide No.----- dated ----- and the related provisions/terms and conditions for availing Central Financial Assistance (CFA) from the Ministry of New and Renewable Energy and I/We agree to abide by these guidelines and related terms and conditions. Failure to comply with these guidelines will result in denial of CFA by the Ministry.
2. This is to certify that Shri (Name and Designation) of (Organization) visited the proposed site on (Date) and found that there is..... sq. m of south facing shadow free area is available at the site for installation of the power plant. The latest photograph of the front view of the proposed site with date is enclosed with the certificate. After installation photograph will be taken in same view and will be submitted with completion report.
3. We confirm that the present proposal in full or part has not been submitted/has been submitted to any other agency for seeking support (In case proposal has been submitted to any other agency or under consideration all details and a copy of the proposal must be submitted along with the present proposal). The present proposal has neither been submitted to MNRE nor the CFA has been availed from MNRE for the same proposal.
4. This is to certify that the various components of the PV module/inverter/meter/ battery (if any), electric wires, BOS etc. will conform to the relevant Standards, as mentioned in the 'Guidelines for Off-Grid and Decentralized Solar Applications for SPV Modules and Components/Grid Connected Rooftop and Small Solar Power Plants Under JNNSM'. Copies of the relevant IEC/BIS certificates has been maintained in the office.
5. We confirm that the individual applications, beneficiary's identification, photograph of the systems and the beneficiary of each along with detailed specifications of various components have been received in the prescribed format. It has been kept and maintained in our office. For any audit and inspection, it will be shown to the concerned officer/authority.
6. We agree to place the details and photographs of the system and beneficiary on our website for all systems.
7. We will provide/feed the data in the online monitoring system regularly as per the instructions of MNRE.
8. The plant site has been/will be inspected/verified by us and the final claim will be made after the plant/system has been found satisfactory in all respect and fit/eligible for receiving subsidy/CFA from MNRE.
9. The failure to comply with these guidelines will result in denial of CFA by MNRE.

I also hereby declare that all information submitted in the proposal are true to the best of knowledge and belief. This is to confirm that in case of any dispute, the decision of

Secretary, Ministry of New and Renewable Energy, Government of India will be final and binding on all.

Signature.....
Name and Designation of Authorized Signatory*
of Implementing Agency

Place:

Date:

*Authorized signatory should be at least in the rank of District Manager of SNA.

**Agreement/Consent/Certificate From User/Beneficiary
(To Be Furnished by User/Beneficiary on INR 25/- Stamp Paper)**

1. This is to certify that I S/o Shri Resident of herewith agree to install the Grid Connected Rooftop Project/Small Power Plant of kWp capacity as per details submitted in the Form B/DPR of the proposal.
2. I confirm that the CFA received will be utilized for this project only and not for any other purpose. I herewith also confirm that the balance cost in addition to the CFA will be met by me from my own/other resources.
3. I agree that the roof space will be made available in the proposed project site and is owned by me/leased to me by the owner.
4. This is also confirmed that I will extend full cooperation including access to the project site premise to the implementing/executing agency during installation and O&M, of the plant.

Signature.....
Name and Designation, Organization, Address
of the User/Beneficiary
(With Seal If Available)

ANNEXURE XXI: FORM S2

Acknowledgement for Subsidy Application
(Automated Response by the SNA)

Your application for availing MNRE/State Subsidy for 'Grid Connected Rooftop and Small Solar Power Plants Programme' has been received.

Sr. No.	Particulars	Remarks
1.	Application Number	
2.	Name of the Applicant	
3.	Consumer Number	
4.	Rooftop Solar PV Plant Capacity (kW)	
5.	Application fees details – Receipt number and date	
6.	Application is complete in all respects and all details provided (Yes/No)	

ANNEXURE XXII: FORM S3

Format of In-Principle Sanction Letter

Date: _____

To,
The Beneficiary

Dear Sir,

Sub: Installation of ___ kWp grid connected SPV power plants at _____
_____ Reg.

Ref:

1. MNRE in principal sanction letter no. _____.
2. Your proposal dated: _____.

We invite your attention to your proposal submitted vide reference 2nd cited for installation of ___ kWp grid connected solar rooftop system at _____ . Taking into consideration the in-principle sanction communicated by MNRE vide reference 1st cited, in-principle sanction is hereby accorded for taking up installation of ___ kWp grid connected solar rooftop system as per the terms and conditions detailed below:

1. The system shall be installed as per minimum technical requirements/standards for SPV systems/plants given in sanction no.30/11/2012-13/NSM dt.26.6.2014 in vogue and amended time to time. (Refer to MNRE website: www.mnre.gov.in)
2. The installation shall be taken up through **SNA empaneled suppliers only as per the finalized contract rates.**
3. Only indigenously manufactured PV modules will be used in the project.
4. The consent letter from respective DISCOM indicating their willingness/consent for installation of grid connected solar rooftop system shall be submitted.
5. The maximum CFA will be limited to ___ percent of the project cost subject to maximum of INR ___ per watt. The eligibility of Central Financial Assistance (CFA) shall be as per the guidelines of Ministry of New and Renewable Energy (MNRE) in vogue and amended time to time.
6. Proper metering arrangement may be incorporated so that the generation data from the proposed SPV power plants will be available.
7. The installation of the system shall be completed and commissioned by _____ (date).
8. The release of CFA is subject to sanction and release of funds by MNRE and submission of all relevant documents.
9. After completion and commissioning of the project, the following documents shall be submitted in duplicate for considering release of CFA.

Note: (SNA should provide the list of documents required).

Thanking you,

Signature

VC and MD

Copy to the DM, SNA, _____ Dist. for information and necessary action.

Copy to Finance Team, SNA, for information.

ANNEXURE XXIII: FORM S4

Joint Inspection Report

Certificate

(To Be Furnished by SNA/PSU/Channel Partner)

This is to certify that Shri..... (Name and designation) of..... (organization) visited the Nos. of plant sites on (date)..... and found that the grid connected rooftop systems as per the details enclosed have been installed in the respective sites. The system has been completed and commissioned in all respect. It was found working properly to the satisfaction of the user/beneficiary. The latest photograph of the system installed in the site with date is enclosed with the certificate. The system was installed and commissioned on _____.

Signature	Signature	Signature
.....
Name and Designation of Authorized Signatory* of System Integrator With Official Seal	Name and Designation of Authorized Signatory of SNA With Official Seal	Name and Designation of Authorized Beneficiary/User With Official Seal If any

Place:

Date:

*Authorized signatory should be at least in the rank of District Manager of SNA.

ANNEXURE XXIV: FORM S5

Project Completion Report for Solar Power Plants Under Net Metering Scheme

Sr. No.	Component	Observation
1.	Name and address of the beneficiary with mobile No. and Email ID	
2.	Site location with complete address	
3.	Name of systems integrator/supplier	
4.	Capacity of system installed (kWp)	
5.	Specification of SPV modules	
	Types of modules (multi/mono)	
	Make of modules and year of manufacturing	
	Wattage and No. of modules	
	SI No. of modules	
	IEC Certificate date of issue, agency, validity, enclose IEC certificates	
	Whether imported or indigenous	
	RFID tag is pasted inside or out side	
	Type of RFID	
6.	PCU	
	Make and rating type of charge controller/MPPT	
	Capacity in inverter and year of manufacturing	
	Whether hybrid or stand alone	
	Whether indigenous or imported	
	Enclose test certificate as per MNRE requirement	
7.	Batteries (where ever applicable)	
	Make of modules and year of Manufacturing	
	Type: Tubular lead acid/VRLA/GEL	
	Rating and Nos.	
	No. of series and parallel combination	
	Enclosed test certificate as per MNRE requirement	
	Depth of discharge proposed	
8.	Structures (as per MNRE)	
9.	Whether system grouting	
10.	Cable make and size	
	Enclose certificates rating	
11.	Distribution box	
	Name	
	Make	
	Certificate	
12.	Earthing and protections	
	Lighting arrestor (type)	
13.	Power bill (after installation of net meter) for two months	
14.	Name and technical person trained to maintain system with mobile number	

Declaration

It is certified that all the components/subsystems and materials including junction boxes, cables, distribution boards, switches, circuit breakers used are as per MNRE requirement and as per DPR submitted.

Signature of Customer

Signature of Supplier

Signature of the SNA Official

Date:

Place:

ANNEXURE XXV: FORM S6

Format for Statement of Expenditure (SOE)
(On the Letterhead of Auditor)

Name of the State	
Implementing Agency	
Name of the Project	
Sanction No. and Date	
CFA Sanctioned	
CFA From MNRE	
State Subsidy, If any	
CFA Released	
CFA From MNRE	
State Subsidy, If any	

Details About Completed Project

Sr. No.	Name of the Customer	Type of the System	Capacity Installed (kWp/No.)	Location	Total Expenditure Incurred (in INR)	MNRE Share (in INR)	User Share (in INR)
	Total						

Breakup of the CFA

Sr. No.	Item	Cost (in INR)
1.	CFA @ 30 percent for the capacity ____ kWp SPV grid connected power project	
2.	Service charges	
3.	Total eligible CFA (MNRE/State)	
4.	CFA released (MNRE/State)	
5.	Interest earned on released CFA	
6.	Total funds available (in case of advance release)	
7.	Balance amount to be released by MNRE/unspent amount to be returned to MNRE	

(Chartered Accountant)
Reg. No.

ANNEXURE XXVI: FORM S7

Declaration

This is to certify that M/s _____ has installed _____ kWp grid connected solar rooftop PV system as per MNRE specifications on our building (name and address) and the system is working satisfactorily. Hence, I request you to release the eligible central and State Subsidy to M/s _____ (System Integrator) or _____ (beneficiary name)

Date:

Signature:

Name:

Address:

Witness:

1.

2.

Counter Signature by the Project Director/DM,
SNA With Seal

ANNEXURE XXVII: FORM E1

Application Form for Drawing Approval of RTSPV System
(To Be Submitted by Applicant)

Date: _____

To,
Concerned Authority (DEI/EI/CEIG)
(Name/Address of Office)

I/We herewith apply for a drawing approval for installation of grid connected RTSPV system.

Sr. No.	Particulars	Details of the Applicant
1.	Consumer Details (Details linked to Form 1[A])	Name:
		Father/Husband's Name:
2.	Address of the Site for Installation* (Details linked to Form 1[A])	Door No./House No.:
		Street Name:
		Landmark:
		Village Name:
		Mandal Name:
		District Name:
		Pin code:
3.	Rooftop Solar Application Number*	(As generated during DISCOM application submission)
4.	Consumer No. (CA. No.) * (Owner of the premises)	(As entered on Form 1[A])
5.	Name of the A – Class electrical contractor who is authorized to execute the work*	
6.	Address of the Contractor*	Door No./House No.:
		Street Name:
		Landmark:
		Village Name:
		Mandal Name:
		District Name:
		Pin code:
7.	Category (Domestic/Non-Domestic/Commercial etc. specify) (Owner of the premises)	
8.	Telephone number (Landline/Mobile)*	(As entered on Form 1[A])
9.	Email Address	(As provided during registration)
Details of the Existing Connection		
10.	Sanctioned Load/Contracted Demand (kW/ kVA/ HP)	(As entered on Form 1[A])
11.	Existing Connectivity Voltage (Single Phase LT/Three Phase LT/ Three Phase HT)	(As entered on Form 1[A])
12.	Capacity of proposed transformer with voltage ratio	

Sr. No.	Particulars	Details of the Applicant
Details of the Proposed System		
13.	Capacity of RTSPV system proposed to be connected (kWp)	(As entered on Form 1[A])

Note: All fields marked with asterisk are mandatory to fill

Certification

I hereby state that the information provided above is best and true to my knowledge.

Date:

Signature of the Consumer

Place:

Documents for Upload:

1. Copy of Contract Agreement/EPC Agreement.
2. Bill of materials along with technical specification.
3. Single line diagram of the installation indicating rating, size and details of protection, details of loading, and metering system.
4. Plan and elevation of the solar unit, inverter unit, and control panel showing all round clearances etc.
5. Details of earthing provided for the proposed installation.
6. Copy of Licensed Electrical Contractor and Supervisor permit.
7. Copy of payment receipt in case of offline payment.

ANNEXURE XXVIII: FORM E2

Acknowledgement Slip (Automated Response by the EI)

Your application for seeking drawing approval for RTSPV system is received.

Sr. No.	Particulars	Remarks
1.	Application Number	
2.	Name of the Applicant	
3.	Consumer Number	
4.	Rooftop Solar PV Plant Capacity (kW)	
5.	Application fees details –	Transaction ID/Receipt No.
		Transaction Amount
		Transaction Date
6.	Application is complete in all respects and all details provided (Yes/No)	

(Acknowledgement Form will be a system generated mail and SMS. This will be issued immediately once the Applicant has filled his/her application online. The acknowledgement email/SMS will contain the information listed out above).

ANNEXURE XXIX: FORM E3

Intimation of Correction in the Drawing Application

(To be filled by EI)

To,

Name of the Applicant _____

Date _____

Subject: Intimation of Correction in the Drawing Application

Ref: Your Application No. _____ dated _____

Dear Sir/Madam,

This is to inform you that we have received your above-mentioned Drawing Approval Application and after the scrutiny of the RTSPV system drawings, it is found that the following observations need to be corrected in the drawings:

1. _____
2. _____
3. _____

You are hereby requested to incorporate changes as per the observations and submit the revised drawings so as to reach this Office on or before _____(date). Failing which your Application shall stand cancelled.

Signature of Officer:

Name and Designation of the Authorized Officer:

Date:

Stamp

ANNEXURE XXX: FORM E4

Letter of Approval for Drawings
(To Be Filled by EI Office)

To,

Name of the Applicant _____

Date _____

Sub: Approval for RTSPV Drawings

Ref: Your Application No. _____, dated _____

Dear Sir/Madam,

The drawings submitted by you in your drawing application letter are provisionally approved.

The defects/omissions pointed out in the drawings will be specifically inspected by the Inspecting Officer/Director of Electrical Safety and Chief Electrical Inspector to Government at the time of Inspection.

The Inspection fee of your electrical installation is INR _____ only. The fees should be submitted offline to _____/online on the portal during submission of request for inspection of the installed system.

Signature of Officer:

Name and Designation of the Authorized Officer:

Date:

Stamp

ANNEXURE XXXI: FORM E5

Application for Safety Approval and Safety Inspection of RTSPV System
(To Be Filled by Applicant))

To,
Concerned Authority (DEI/EI/CEIG)
(Name/Address of Office)
Sub: Request for Safety Inspection of RTSPV system
Ref: Application No. _____, dated _____

Dear Sir/Madam,

With reference to the drawing approval letter issued to us, we have installed the system as per the relevant provisions of Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations, 2010 and Bureau of Indian Standards specifications.

We request your office to inspect the installation at your convenient date and grant the safety approval letter to proceed for commissioning of the RTSPV system.

Signature of the Applicant:

Name of the Applicant:

Documents for Attachment:

1. List of equipment offered for inspection, i.e., Transformer Test Certificates.
2. List of equipment offered for inspection, i.e., Inverters, MV, and LV Load List.
3. Site test results issued by an 'A' Grade License Electrical Contractor, along with work commencement and completion cum test reports who has executed the work.
4. Competency Certificate of Electrical Supervisor.
5. Grade "A" License Electrical Contractor along with test certificates and load list shall be present during the time of inspection.
6. Work Completion Report in Format 5 attached as Annexure XIV.
7. Fee payment receipt in case of offline payment.

ANNEXURE XXXII: FORM E6

Acknowledgement Receipt of Application for Safety Inspection

(Automated Response by the EI)

Your application for inspection of RTSPV system is received. Safety Inspection will be performed and Safety Approval will be granted subject to receipt of inspection fee payment as specified in the Letter of Approval for Drawings.

Sr. No.	Particulars	Remarks
1.	Application Number	
2.	Name of the Applicant	
3.	Consumer Number	
4.	Rooftop Solar PV Plant Capacity (kW)	
5.	Application fees details –	Transaction ID/Receipt No.:
		Transaction Amount:
		Transaction Date:
6.	Application is complete in all respects and all details provided (Yes/No)	

(Acknowledgement Form will be a system generated mail and SMS. This will be issued immediately once the Applicant has submitted his/her application online. The acknowledgement email/SMS will contain the information listed out above).

ANNEXURE XXXIII: FORM E7

Intimation of Defects in Installation of RTSPV System

(To Be Filled by EI)

To,

Name of the Applicant _____

Date _____

Sub: Intimation of Defects in RTSPV System Installation

Ref: Your Application No. _____, dated _____

Dear Sir/Madam,

Inspection of the installed RTSPV system of ___kW is performed on _____ (inspection date). After scrutiny of the installed RTSPV system, it is found that the following rectifications are required in the installed system:

1. _____
2. _____
3. _____

You are hereby requested to incorporate changes as per the observations and submit the compliance report on or before _____ (date). Failing which your Inspection Application shall stand cancelled.

Signature of Officer:

Name and Designation of the Authorized Officer:

Date:

Stamp

ANNEXURE XXXIV: FORM E8

Intimation of Rectifications Performed as per Safety Instruction

(To Be Filled by Applicant)

To,

Concerned Authority (DEI/EI/CEIG)

(Name/Address of Office)

Sub: Intimation of Rectifications as per Safety Instructions for RTSPV system

Ref: Application No. _____, dated _____

Dear Sir/Madam,

As per the defects pointed out during the electrical safety inspection for issuance of safety approval letter on _____ (inspection date), we have made the following rectifications to the installation.

Action taken:

1. _____.
2. _____.
3. _____.

I/We request you to grant safety approval to synchronize the RTSPV system to the grid.

Signature of the Applicant:

Name of the Applicant:

Documents for Attachment:

1. Photographs of rectification of installation.

ANNEXURE XXXV: FORM E9

Safety Approval Letter

(To Be Issued by EI)

To,

Name of the Applicant _____

Date _____

Sub: Safety Approval Letter (NOC)

Ref: Your Application No. _____, dated _____

Dear Sir/Madam,

The following equipment of your Electrical Installation are approved for energization.

- _____.

Any additions or alteration in your installation shall not be connected to supply until the same are approved in writing by this office.

You are at all times solely responsible for the maintenance of the above installation on such condition as to be free from danger.

The above approval accorded is without prejudice to the statutory/mandatory obligations to be fulfilled by you under various other acts and rules as the case may be.

The approval accorded for energizing the electrical equipment is the safety for men and machine from electrical hazards in your installation and ipso facto does not confer any right to be used for any other purpose other than for which the approval is accorded.

Signature of Officer:

Name and Designation of the Authorized Officer:

Date:

Stamp

ANNEXURE XXXVI: FORM E10

Intimation of Termination of Application for Safety Approval

(To Be Filled by EI)

Date: _____

To,

Name of the Applicant _____

Sub: Termination of Application for Safety Approval

Ref: Your Application No. _____, dated _____

Dear Sir/Madam,

Based on the safety inspection of the system performed on _____ (date) rectifications had been advised. Due to the following reason (tick appropriate choice):

- Non-intimation about rectifications performed as per safety inspection compliance report in the defined timeframe.
- Inappropriate implementation of rectification.
- Any other (please specify) _____.

Your application for safety approval hereby stands terminated.

To seek safety approval for your system you are hereby advised to re-apply for safety approval along with requisite fee payment.

Signature of Officer:

Name and Designation of the Authorized Officer:

Date:

Stamp

ANNEXURE XXXVII: FORM B1

EOI for Availing Loan for Installation of Solar Rooftop System
(To Be Filled by the Consumer)

Date of EOI: _____

Dear Sir/Madam,

We intend to install a solar rooftop system of capacity as mentioned hereunder and express our interest in seeking loan from your bank.

Sr. No.	Information Required	Details
1.	Name	
2.	Type of consumer	
3.	Name of organization (if consumer type other than residential)	
4.	Address	
5.	Email	
6.	Mobile No.	
7.	Phone No.	
8.	Capacity of solar plant (kW)	
Bank Details		
9.	Loan amount required (INR)	
10.	Required loan tenure (months)	
11.	Select banks	(Option to select multiple partner banks)
12.	Existing customer	Yes/No
13.	District	
	City	
	Branch	

ANNEXURE XXXVIII: FORM B2

Acknowledgement of Receipt of EOI
(To Be Filled by the Bank Nodal Officer)

Dear Sir/Madam,

Your EOI seeking loan for installation of solar rooftop system has been received.

Following are the details of your point of contact with the bank.

Particulars	Contact Details
Name	
Phone No.	
District	
City	
Bank Branch	

ANNEXURE XXXIX: DISCOM Report

DISCOM Name	Selection Criteria 1			Selection Criteria 2			
DISCOM	In Year	In Month	Up to Date	Name of Circle	Name of Division	Name of Sub-Division	Name of Section

Report on Grid-Connected Solar Rooftop Applications Received by (DISCOM Name) (Selection Criteria 1)																	
Sr. No.	Name of Circle/ Division/ Sub-Division/ Section (Based on Selection Criteria 2)	1		2		3		4		5		6		7		8	
		Applications Received		Applications Awaiting Technical Feasibility		Applications Rejected		Applications for Whom LOA Is Granted		Applications Received for Meter Procurement		Systems Installed by Consumers		Requests for Synchronization of System and Installation of Meters Received		Systems Synchronized	
		No.	Capacity (kW)	No.	Capacity (kW)	No.	Capacity (kW)	No.	Capacity (kW)	No.	Capacity (kW)	No.	Capacity (kW)	No.	Capacity (kW)	No.	Capacity (kW)
1																	
2																	
3																	
Total																	

ANNEXURE XL: SNA Report

Selection Criteria
In Year
In Month
Up to Date

Subsidy Applications Received by SNA (Selection Criteria)											
Sr. No.	Name of District	Subsidy Applications Received (Form S1A) (1-5 kWp Capacity)		Subsidy Applications Received (Form S1B) (> 5 kWp, ≤50 kWp Capacity)		Subsidy Applications Received (Form S1C) (>50 kWp, ≤500 kWp Capacity)		In Principle Sanctions Granted		Consumers to Whom Subsidy Is Disbursed	
		Number	Capacity (kW)	Number	Capacity (kW)	Number	Capacity (kW)	Number	Capacity (kW)	Number	Capacity (kW)
1											
2											
3											
Total											

ANNEXURE XLI: EI Report

Selection Criteria
In Year
In Month
Up to Date

Report on EI Approvals									
Sr. No.	Name of District	Application for Drawing Approvals		Drawing Approved		Inspection Requests Received		NOC Granted	
		Number	Capacity (kW)	Number	Capacity (kW)	Number	Capacity (kW)	Number	Capacity (kW)
1									
2									
3									
Total									

ANNEXURE XLII: Bank/FI Report

Report Type 1: Report for Details of EOI Received by Own Bank

Selection Criteria
In Year
In Month
Up to Date

Report on Bank EOIs					
Sr. No.	Name of District/Branch (Selection Criteria)	EOI Received		Acknowledgement Provided	
		Number	Capacity (kW)	Number	Capacity (kW)
1					
2					
3					
Total					

Report Type 2: Report for Details of EOI Received by Other Banks

Selection Criteria
In Year
In Month
Up to Date

Report on Bank EOIs					
Sr. No.	Name of Bank	EOI Received		Acknowledgement Provided	
		Number	Capacity (kW)	Number	Capacity (kW)
1					
2					
3					
Total					

ABOUT THE PACE-D TA PROGRAM

The USAID PACE-D TA Program is a part of the overall Partnership to Advance Clean Energy (PACE) initiative, the flagship program under the U.S.-India Energy Dialogue. The six year program is being implemented in collaboration with the Ministry of Power and Ministry of New and Renewable Energy. In the first five years, the Program focused on three key components: energy efficiency, renewable energy and cleaner fossil technologies, with the overall aim of accelerating the deployment of clean energy, expanding U.S.-India trade and investment linkages, and facilitating knowledge exchange. The Program's focus in the sixth year is largely on accelerating solar rooftop deployment across eight States: Andhra Pradesh, Assam, Haryana, Maharashtra, Punjab, Telangana, Uttar Pradesh and West Bengal, covering 15 utilities. The objectives of this scope of activities are to:

Help utilities in quickly administering best practices, developing new, innovative and customized business models and developing streamlined access for consumers for implementing grid-connected solar PV rooftop projects.

Train manpower at all the levels of utilities, and new entrepreneurs for scaling-up of solar rooftop PV power.

Support MNRE in designing and establishing national level initiatives to support solar rooftop PV scale-up.

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