Partnership to Advance Clean Energy - Deployment Technical Assistance Program

Renewable Purchase Obligation Compliance Web Tool Manual
Disclaimer

This Renewable Purchase Obligation (RPO) Compliance Web Tool was developed by Idam Infrastructure Advisory Pvt. Ltd. in consultation with Nexant under USAID’s Partnership to Advance Clean Energy – Deployment (PACE-D) Program to create a framework/institutional framework arrangement in order to streamline RPO compliance monitoring/enforcement framework in the State of Rajasthan.

The web tool is released to the obligated entities (OEs), state nodal agencies (SNAs) and open access (OA) and captive verifiers in Rajasthan to familiarize them with the key functionalities and other aspects of the web tool. The evaluation, calculation, and analysis of the data by such users are based strictly on the data submitted by the users and their own stipulated assumptions.

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March 2017

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PARTNERSHIP TO ADVANCE CLEAN ENERGY DEPLOYMENT (PACE-D)

Technical Assistance Program

Renewable Purchase Obligation Compliance Web Tool Manual

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# Table of Contents

List of Figures........................................................................................................... .......................... ..........................
List of Tables............................................................................................................... ..............................
List of Acronyms....................................................................................................... ...........................
About the Manual............................................................................................................. ..........................

## 1 General Information............................................................................................................. ..........................
  1.1 Background ...................................................................................................................... ..........................
  1.2 Scope of the Web Tool .................................................................................................... ..........................
  1.3 Overall Approach ............................................................................................................ ..........................
  1.4 Functionalities of the Web Tool ....................................................................................... ..........................

## 2 Role of Stakeholders........................................................................................................... ..........................
  2.1 RPO Compliance Structure ........................................................................................... ..........................
  2.2 Role of Entities ................................................................................................................ ..........................
  2.3 Obligation of Various Entities ......................................................................................... ..........................
  2.4 Functional Flow ............................................................................................................... ..........................

## 3 Getting Started...................................................................................................................... ..........................
  3.1 OE ..................................................................................................................................... ..........................
  3.1.1 Registration (Creating SSO ID and RPOCS Login) ........................................................... ..........................
  3.1.2 Add Energy Generator Contract ................................................................................ ..........................
  3.1.3 Energy Generation Requests ...................................................................................... ..........................
  3.1.4 Energy Consumption ................................................................................................... ..........................
  3.1.5 Compliance Report: Obligation Report ...................................................................... ..........................
  3.2 Verifiers ............................................................................................................................ ..........................
  3.3 SNA ................................................................................................................................... ..........................
  3.4 For All Users ..................................................................................................................... ..........................

## 4 Reporting................................................................................................................................. ..........................
  4.1 Dashboard Summary ........................................................................................................ ..........................
  4.2 Compliance Report .......................................................................................................... ..........................
  5 Other Important Information................................................................................................. ..........................
  5.1 Minimum Troubleshooting Guidelines .......................................................................... ..........................
  5.2 Do’s and Don’ts of the Web Tool .................................................................................... ..........................
  5.3 Web Hosting Requirements ............................................................................................ ..........................
  5.4 Sample Format ................................................................................................................ ..........................

## LIST OF FIGURES

Figure 1: Overall Approach Followed in the Process ................................................................. 2
Figure 2: Functionalities of the Web Tool .................................................................................. 2
Figure 3: RPO Structure ............................................................................................................. 4
Figure 4: Functional Flow of RPO Compliance ....................................................................... 7
Figure 5: SSO ID Login .............................................................................................................. 9
Figure 6: Selection of SSO ID Type ........................................................................................... 9
Figure 7: Allow Rights for SSO ID ......................................................................................... 10
Figure 8: Create Password ..................................................................................................... 10
Figure 9: SSO ID Update Page ............................................................................................... 10
Figure 10: Alert on Updation .................................................................................................. 10
Figure 11: Multiple Applications at Rajasthan Portal ............................................................... 11
Figure 12: Selection of RRECL RPOCS ................................................................................. 11
Figure 13: RPO Login for Pre-Registered Users ................................................................. 12
Figure 14: RPO Login for New Registered Users ................................................................. 12
Figure 15: RPO Tool Registration Page .................................................................................. 12
Figure 16: RPO Tool Registration Page Filled ...................................................................... 13
Figure 17: RPO Tool Login ..................................................................................................... 13
Figure 18: Dashboard for New OE .......................................................................................... 13
Figure 19: Add Energy Generator Contracts .......................................................................... 14
Figure 20: Add a Fresh Energy Generator Contract .............................................................. 15
Figure 21: Energy Generator Contract Details ....................................................................... 15
Figure 22: Energy Generator Contract Period ......................................................................... 15
Figure 23: Energy Generator Contract .................................................................................. 16
Figure 24: Upload Energy Generator Contracts ..................................................................... 16
Figure 25: Energy Generator Requests ................................................................................ 17
Figure 26: Add New Energy Generator ................................................................................ 17
Figure 27: Details of Energy Generator ................................................................................ 18
Figure 28: Selection of Energy Generator Contracts ............................................................ 18
Figure 29: Update Energy Consumption .............................................................................. 19
Figure 30: Add New Month ................................................................................................. 20
Figure 31: Update Energy Consumption for a Specific Month ............................................. 20
Figure 32: Update REC Purchased and REC Self-Retained ............................................... 21
Figure 33: Upload Energy Consumption Details .................................................................. 21
Figure 34: Upload Energy Consumption Document ............................................................ 22
Figure 35: Select Financial Year, Quarter, and Month ......................................................... 22
Figure 36: Compliance Report of OE .................................................................................... 23
Figure 37: Verifier Screen for Approval/Rejection of a Contract .............................................. 24
Figure 38: Automatic Email Event ......................................................................................... 25
Figure 39: Configuration of Automatic Email Event .............................................................. 25
Figure 40: Manual Email Event ............................................................................................. 26
Figure 41: Roles of State Agency ........................................................................................... 26
Figure 42: Consumption Range of OE ................................................................................... 27
Figure 43: Compliance Period ............................................................................................... 27
LIST OF TABLES

Table 1: Roles and Responsibilities of Various Stakeholders .................................................. 8
Table 2: RPO Compliance Report Format ............................................................................. 35
<table>
<thead>
<tr>
<th>Acronyms</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPP</td>
<td>Captive Power Plant</td>
</tr>
<tr>
<td>DISCOM</td>
<td>Distribution Companies</td>
</tr>
<tr>
<td>CEI</td>
<td>Chief Electrical Inspector</td>
</tr>
<tr>
<td>MU</td>
<td>Million Unit</td>
</tr>
<tr>
<td>OA</td>
<td>Open Access</td>
</tr>
<tr>
<td>OE</td>
<td>Obligated Entity</td>
</tr>
<tr>
<td>REC</td>
<td>Renewable Energy Certificate</td>
</tr>
<tr>
<td>RERC</td>
<td>Rajasthan Electricity Regulatory Commission</td>
</tr>
<tr>
<td>RPO</td>
<td>Renewable Purchase Obligation</td>
</tr>
<tr>
<td>RRECL</td>
<td>Rajasthan Renewable Energy Corporation Limited</td>
</tr>
<tr>
<td>SERC</td>
<td>State Electricity Regulatory Commission</td>
</tr>
<tr>
<td>SLDC</td>
<td>State Load Despatch Centre</td>
</tr>
<tr>
<td>SNA</td>
<td>State Nodal Agency</td>
</tr>
<tr>
<td>PPA</td>
<td>Power Purchase Agreement</td>
</tr>
</tbody>
</table>
ABOUT THE MANUAL

In accordance with the Electricity Act, 2003 and corresponding policies, the State Electricity Regulatory Commissions (SERCs) have specified obligations to purchase from renewable energy (RE) sources for the OEs, which is defined as Renewable Purchase Obligation (RPO). The SNAs are entrusted with the responsibility of monitoring and reporting the RPO compliance of all the OEs, i.e., distribution companies (DISCOMs) and captive and OA consumers. However, RPO enforcement has been weak due to inefficient framework for RPO compliance monitoring and reporting.

The RPO compliance monitoring is crucial to ensure that the RPO targets are met and non-compliance is brought to the regulators attention for necessary regulatory action. The Program has been engaged with Rajasthan Renewable Energy Corporation Limited (RRECL) to provide technical assistance in the area of development of a registry for all obligated entities, design forms/formats for reporting/compliance monitoring, develop a web enabled tool for ease of access to information and ensure transparency in the process. Another important objective is to create a framework/institutional arrangement to streamline RPO compliance monitoring/enforcement framework in the state.

The web portal will facilitate distribution licensees, Chief Electrical Inspector (CEI) and State Load Dispatch Centre (SLDC) in identifying and certifying the entities as OEs. The purpose of this manual is to provide an easy-to-follow, step-by-step, comprehensive guide to assist OEs (OA and captive consumers), OA verifiers, Electrical Inspectors (EI) and RRECL to use and access the web tool for the purpose of RPO compliance in the state. The RPO compliance web tool has been developed in Microsoft Office Excel spreadsheet format with different forms for data entry, backend calculations, and compliance reports. This will enable all the users to complete the RPO compliance in an effective way. A detailed working of all the relevant forms along with their screenshot is included for data entry.
1 GENERAL INFORMATION

1.1 BACKGROUND

The Program in consultation with RRECL provides technical assistance in developing implementation framework and web portal for RPO compliance for Rajasthan. In the same context, a web portal is developed which will facilitate the distribution licensees, CEIs, and SLDCs of Rajasthan in identifying and certifying the entities as OEs. This web tool will also help in streamlining the increase in number of entities on a day-to-day basis and thereby develop a systematic database of information on RPO OEs in the state.

1.2 SCOPE OF THE WEB TOOL

The Renewable Purchase Obligation Compliance System (RPOCS) is a web based application which will provide online RPO compliance, monitoring, and reporting services to RRECL, DISCOMs, OAs, and captive power plants (CPPs).

The RPOCS will give an indication if RPO targets of the OEs are met and simultaneously ensure that non-compliance is brought to the regulators attention in a timely manner for necessary regulatory action. DISCOM, OA, and CPP consumers will connect to the application through internet. Through this tool, the users can submit their consumption data; upload all relevant supporting documents, submit their quarterly/monthly/annual compliance, and generate compliance reports on self-generated plants and energy procured with a detailed breakup of conventional and RE sources. This consumption data will be send to the verifiers for further verification and validation.

However, this web tool does not take any responsibility of the data entered by the user. The data entered by an OE should be valid and should be verified by an appropriate verifier. It will be the responsibility of the user to adhere their respective RPO targets as per the Rajasthan Electricity Regulatory Commission (RERC) latest regulations. All the changes/modifications done in the application will be the responsibility of the RRECL and will be as per the latest regulations prevailing in the state.

1.3 OVERALL APPROACH

The web tool will be based on user authentication. Only limited users will be eligible for accessing the portal post verification from the respective verifier. The final report will be generated after submission of data in a specified format by the OE. The steps involved in the proposed system is shown in Figure 1.
1.4 FUNCTIONALITIES OF THE WEB TOOL

The functionalities of the RPO compliance web tool are shown in Figure 2 and explained subsequently.

1. **Registration process**: This application has a facility to create multi-level users with login credentials. Super user (admin) can set the roles and permissions for user and depending on this, users can access the system modules.
2. **Regular update of data**: Users can regularly update their consumption, generation, procurement, and other information in multiple predefined web formats.

3. **Data presentation**: This application will store structured data from the information given by different categories of users.

4. **Export data**: The tool will generate the processed data into user friendly format such as Portable Document Format (PDF).

5. **Classification of data**: Users will view/classify the data based on the OE/DISCOM/type/location.

6. **Alarm/Report generation**: Users will get an alert through the system after the verification and validation of their given information and can generate multiple type report as per their requirements.

7. **Monitoring/Verification/Validation**: The system will have multiple steps for monitoring, verification, and validation in different user/access level.

8. **Scalable system for future**: The tool will have the facility for future update, new process implementation, and other scalable options.

9. **Email/Report generation**: Email service will be implemented within the system based on the report submitted, validated, and verified.

10. **Admin. interface**: The proposed system will have an admin. interface for incorporating new systems, rules, and other necessary changes. This is currently accessible to RRECL only.
2 ROLE OF STAKEHOLDERS

2.1 RPO COMPLIANCE STRUCTURE

The RERC has designated RRECL as the state agency under RERC (Renewable Energy Obligation, RPO) Regulations, 2007 notified by RERC and as amended on March 18, 2015 (Third Amendment).

These regulations will be applied to “OEs” as mentioned in RERC (Renewable Energy Obligation) Regulations, 2007 as may be modified from time to time. The existing OEs as per the regulations are as follows:

a) Distribution licensees including deemed licensees.
b) OA consumers.
c) CPP consumers of installed capacity of 1 megawatt (MW) and above.

The RPO compliance structure is illustrated in Figure 3.

Figure 3: RPO Structure
2.2 ROLE OF ENTITIES

a) OE: DISCOM, OA, and CPP Consumers
The DISCOM, OA, and CPP consumers can login, manage their profile, add monthly/quarterly/annual data, and generate compliance report and share report with the SNA. Automatic emails will be send by the system on submission of new contracts, rejection of contracts, and submission of energy consumption in the form of compliance report to the verifier, OE, and the state agency for their respective approvals.

b) State Agency
The state agency can login, manage their profile, view OEs compliance reports and also (i.e., individual and consolidated), generate monthly/annually/quarterly reports. Automatic emails send by the system will be received by the state agency, OA consumer, and the verifier once compliance reports are approved by the respective verifiers.

c) Verifiers
The SLDCs and DISCOMs will verify and validate energy consumption for OA users and EI for captive users. The energy consumption of the users will be verified at least twice a year, i.e., December and April. In case of approval, they will accept the energy consumption entries of the OE and in case of rejection, they will return the contract submitted by the OE with an appropriate reason. In this case, an entity needs to re-submit their data and send back for verification.

2.3 OBLIGATION OF VARIOUS ENTITIES

a) Every “OE” will procure electricity generated from RE sources as per the purchase obligation under the existing regulations/order(s) as may be amended by the Commission from time to time.

b) As per the latest regulations, the existing obligation for CPP and OA consumers are given below.

(i) CPP and OA consumers with total capacity of 10 MW and above

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Year</th>
<th>Obligation Expressed as Percentage of Energy Consumption (Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Non-Solar</td>
</tr>
<tr>
<td>1</td>
<td>2014-15</td>
<td>7.50</td>
</tr>
<tr>
<td>2</td>
<td>2015-16</td>
<td>8.20</td>
</tr>
<tr>
<td>3</td>
<td>2016-17</td>
<td>8.90</td>
</tr>
</tbody>
</table>

(ii) CPP and OA consumers with capacity of 1 MW and above, but less than 10 MW

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Year</th>
<th>Obligation Expressed as Percentage of Energy Consumption (Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2014-15</td>
<td>9.00</td>
</tr>
<tr>
<td>2</td>
<td>2015-16</td>
<td>10.20</td>
</tr>
<tr>
<td>3</td>
<td>2016-17</td>
<td>11.40</td>
</tr>
</tbody>
</table>
2.4 FUNCTIONAL FLOW

The OE can register by signing up through the web tool after the state agency’s approval. The user can then fill up the necessary details and upload the supporting documents and submit for necessary verification and validation. Once all the data and documents related to energy generators and their respective contracts are submitted, the data will be verified by the respective verifiers with the support of relevant authorities such as DISCOM, EI, and SLDC on case-to-case basis. If the data is validated and verified successfully, the OE will be allowed to enter their periodic energy consumption from various sources. In case the data is not validated and rejected by the verifier, the contract will be send to an OE for correction with a valid reason and the consumption data will be re-submitted. The OE can enter their consumption details by uploading necessary supporting documents of each entry. All the data entered in the system will be subject to verification and validation by the state agency.

Generally, there are two sources of energy consumption — conventional energy and RE. The RE is further divided as wind energy, solar energy, and biomass. The user will enter their relevant consumption under these two categories at appropriate links in the web tool. Apart from entering the consumption details, the user will also have an option of viewing their compliance report for the previous year and the current financial year. The state agency will be responsible for entering RPO percentage for the OEs as per the latest RPO regulations prevailing in the state.

After completion of the compliance period, the user can view their compliance report for that particular period, and in case of shortfall, the state agency will take necessary actions as prescribed by the Commission from time to time. If the OE does not submit the consumption details on quarterly/annual basis, the state agency will send a notification as per the regulations of the state. After the compliance period, the OE should download each financial year report duly attested and submit it to the state agency for validation and verification. This entire process of RPO compliance can be performed through this web tool. The process flow diagram is explained in Figure 4.
Figure 4: Functional Flow of RPO Compliance
3 **GETTING STARTED**

The following are the user roles and set permission for multiple types of users as per their requirements and activities.

**Table 1: Roles and Responsibilities of Various Stakeholders**

<table>
<thead>
<tr>
<th>Entity</th>
<th>One Time (Accreditation Process)</th>
<th>Regular Update (Monthly/Quarterly/Annual Basis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Agency</td>
<td>Responsible for granting 'Accreditation' to CPPs and OAs.</td>
<td>• Develop online methodology for collection of information from OEs on quarterly basis.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Develop methodology for verifying and validating data from distribution licensees, SLDC, and EI on quarterly basis.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Arrange quarterly meetings of distribution licensees, SLDC, and EI.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Submit quarterly and annual status to the commission related to RPO compliance by the OEs.</td>
</tr>
<tr>
<td>DISCOM</td>
<td>Responsible for verifying and validating data of OEs.</td>
<td>• Submit online quarterly report to the state agency regarding the RPO compliance and comply with the RPO obligation on annual basis.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Share list of database of OEs twice a year with the state agency.</td>
</tr>
<tr>
<td>EI</td>
<td>Responsible for verifying and validating data of CPP consumer.</td>
<td>• Share list of database of CPP consumers twice a year with the state agency.</td>
</tr>
<tr>
<td>SLDC</td>
<td>Responsible for verifying and validating data of OA consumer.</td>
<td>• Share list of database of OA consumer twice a year with the state agency.</td>
</tr>
<tr>
<td>CPP Consumer</td>
<td>Submit an application of 'Accreditation' with the state agency.</td>
<td>• Submit quarterly data in the format specified — both online as well as hard copy, to the state agency regarding the consumption from various sources.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• To comply RPO obligation on annual basis.</td>
</tr>
<tr>
<td>OA Consumer</td>
<td>Submit an application of 'Accreditation' with the state agency.</td>
<td>• Submit quarterly data in the format specified — both online as well as hard copy, to the state agency regarding the consumption from various sources.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• To comply RPO obligation on annual basis.</td>
</tr>
</tbody>
</table>
3.1 OE

The three main OEs of this application are DISCOMs, OA consumers, and CPP consumers. The system can add more OEs, if required. These entities will have options of login, manage profile, add monthly/quarterly/annual consumption data from conventional and RE sources including purchase of Renewable Energy Certificates (RECs), generate monthly/quarterly/annual reports, upload the supporting documents, etc. in the application.

The OEs will submit their compliance report on monthly, quarterly, and annual basis to the state agency. Subsequently, an automatic email will be send to the state agency by the system for the purpose of verification of monthly/quarterly/annual reports submission. The RPO tool has five major parts:
Part I: Registration (Creating Single Sign On [SSO] ID and RPOCS Login)
Part II: Adding Energy Generator Contracts Details
Part III: Adding/Updating Energy Generator Details
Part IV: Updating Energy Consumption Details
Part V: Generating Compliance Report

A step by step approach for an OE is shown in the snapshots below.

3.1.1 Registration (Creating SSO ID and RPOCS Login)

**Step I:** The preliminary step is to login to the Rajasthan government web portal (sso.rajasthan.gov.in). If the user has a SSO ID, it can directly login by providing its credentials and entering the captcha. In case of new user, then OE should register for the SSO ID as shown in Figure 5.

**Step II:** Once “Register” tab is selected, multiple options for registration are provided. The options provide flexibility to the OE in choosing the source of identification as shown in Figure 6.
Step III: After selection of the ID type (here, we have selected Google Plus ID), the page is directed to the specific login page where OE will enter the details of ID and proceed with the registration process.

Step IV: Once logged in, the system will register the email ID and will request a password for SSO ID as shown in Figure 8.

Step V: Enter and confirm the password, and hit on Register tab. The page will be again redirected to an update profile page of the SSO ID registration. Here, the OE will be required to enter its date of birth and confirm the mobile number and click on Update tab as shown in Figure 9.
Step VI: Once the SSO ID is created, an alert will be displayed to the OE —

“Your SSO profile has been updated successfully and a notification has been sent through SMS and/or email.”

The OE will be further directed to multiple application page where the OE should select RRECL to enter the RPOCS tool as shown in Figure 11.

Step VII: The RRECL is currently having two applications running on their server including RPOCS Tool:

a) The OE will select “RRECL RPOCS” option and will be directed to the tool. If the application is being run for the first time on a system, it will direct the OE to step as shown in Figure 12, else will directly take OE to its dashboard.

b) The OE will confirm whether it is a new user or registered user on the tool. On selecting “Yes” OE will be directed to Login Page where OE can login with its login credential and will be directed to the dashboard of the tool as shown in Figure 13.

![Figure 13: RPO Login for Pre-Registered Users](image13.png)

![Figure 14: RPO Login for New Registered Users](image14.png)

c) On selecting “No” the OE will be directed to the Registration page of the tool as shown in Figure 14.

Step VIII: The OE will enter the requested details on the registration page and an RPOCS tool ID will be created.

![Figure 15: RPO Tool Registration Page](image15.png)
Step IX: After registration, the OE will be re-directed to the login page where it will login using its newly created login credentials and will proceed towards the dashboard.

The dashboard of a newly created OE will be as shown in Figure 18.
3.1.2 Add Energy Generator Contract

Energy generator contract denotes various sources of generation through which an OE can fulfil their energy consumption, i.e., conventional or renewable source. Under these sources, the user will have an option to add the various types of power sources under each category and complete details of the generator.

An OE should enter their energy consumption data for an entire month. Partial/Incomplete entries will not be accepted by the system. An OE will have an option to add different sources of RE consumption/consumption from conventional sources for different time period in a financial year. Accordingly, an obligation will be applicable on the entity.

Step I: Once the energy generators are selected, a document-shaped icon appear in the Contracts column. By clicking on the icon, OE can upload the contract details between the OE and energy generator.

![Figure 19: Add Energy Generator Contracts](image)

a) The list of previously added contracts will be visible in this window. If OE needs to enter the details of fresh contract, it should click on the add tab ([+] sign in the top right corner) as shown in Figure 20.
b) The OE will now enter specific details such as consumer number, meter number, substation feeder etc. and save the details.

c) To define the period of the contract, OE will select the date and then click on save.
d) Once the contract details are saved, a new folder icon will appear, by clicking on it, the OE will be redirected to upload the copy of relevant documents.

![Figure 23: Energy Generator Contract](image)

**Figure 23: Energy Generator Contract**

e) OE will choose the type of document and fill in the name of the document and upload the file. The file should not be more than 5 megabyte (MB).

![Figure 24: Upload Energy Generator Contracts](image)

**Figure 24: Upload Energy Generator Contracts**

Similarly, OE can upload several contracts depending on the number of generators.

3.1.3 Energy Generator Requests

In case the generator details are not available in the drop down list, the OE will have an option to add the details of that generator. A screenshot for requesting and adding a generator is shown in Figures 25 to 28.

**Step I:** If an OE is into power purchase agreement (PPA) with an energy generator who is not enlisted in the RPOCS tool, then the OE can raise request to add the respective energy generator.
a) The OE will go to “Obligated Entities” tab and select “Energy Generator Requests” option.

![Figure 25: Energy Generator Requests](image1)

b) Click on the Add tab to add a new energy generator.

![Figure 26: Add New Energy Generator](image2)

**Step II:** The OE will enter the details of the energy generating company along with the source of energy generation and save the details. Click on the “Obligated Entities” tab and select “Energy Generator Contracts”.

Step III: To select an energy generator, OE will tick the check boxes for the energy generators and click on the save button to save their options. The OE can choose from three different categories of Generators, i.e., DISCOMs, OA, and CPP.

Figure 27: Details of Energy Generator

Figure 28: Selection of Energy Generator Contracts

The OE will then add and provide all the required information to the verifier and upload the relevant documents in a timely manner. Failing to which, an automatic alert will be generated by the system for that particular user in the form of an email. A copy of the same will also be send to the state agency for their reference.
3.1.4 Energy Consumption

All OEs will submit their periodic consumption records on monthly, quarterly, and annual basis to the state agency and upload the relevant documents as per the predefined time period. Any extension in the submission will be modified by the state agency/administrator on regular intervals as per the Commission.

After the defined timelines, the user will not be able to feed any entries/modify their energy consumptions for that particular financial year and the entries will be treated as a final submission by the OEs to the state agency for their reference and records.

Once the energy generator and related contracts are uploaded, the OE will get a new option as “Energy Consumption” under the tab “Obligated Entities”. This tab enables the OE to update the energy consumed from different energy generated for conventional and RE sources.

Step I: The OE will select the financial year and quarter to proceed with energy consumption details.

![Energy Consumption](image)

**Figure 29: Update Energy Consumption**

If details for a new month/quarter is required, then click on add new tab, the page will direct to a new form where financial year, quarter, and month can be selected and energy consumption details can be added.
After saving the consumption details, OE can add the quantum of REC purchased and self-retained, and then save the details for that particular month.
Once the details are saved, a folder icon will appear to upload the document.

The OE will click on the folder icon and it will be directed to the file uploading page. Here, the OE can select the document type, document name, and upload the file. Click on “back” button to similarly upload REC related documents.
3.1.5 Compliance Report: Obligation Report

For compliance report, there is a standardized reporting format as shown in Figure 35 which will help an OE to calculate their current status of the RPO compliance. The same format will be used for verification process by the verifiers and further submission by the state agency.

Select “Reports” option provided in the menu bar and then click on “Compliance Report”. Here, the OE can select the financial year, quarter/month, RPO category, and click on “Generate Report” and the report will be generated.

In the compliance report, the system will calculate the compliance with the help of RPO rules set by the state agency for each financial year and the current compliance status will be provided to the user. The compliance report will not be static and will be updated immediately based on the
compliance entries made by the OE at regular intervals. Click on “Export to PDF” to export the compliance report in PDF form.

![Compliance Report](image)

**Figure 36: Compliance Report of OE**

### 3.2 VERIFIERS

**a) Generator and Contract Verification and Energy Consumption**

Every entry of the consumption done by the OE should be supported by a relevant document as a proof. The verifiers, i.e., DISCOMs/SLDCs/EIs will verify the data based on the documents shared by the OE. If the verifier accepts the consumption details provided by the OE, a confirmation email will be sent to the entity. But if the verification fails, an alert will be generated and that entry will be treated as an invalid entry. That entry must be modified by the OE to make a valid entry for further verification by the respective verifiers. The SNA can opt for auto verification or retain verification as a mandatory process.
3.3 SNA

The state agency can login, manage profile, view reports submitted by the OEs, verify monthly/quarterly/annual reports, and generate consolidated annual report for each entity. For verification purpose, an automated email will be send to DISCOM, SLDC, and EI by the system for confirming the monthly/quarterly/annual consumption of the OEs. The SNA will also have an option of sending automatic emails (for predefined activities) and manual emails (for customized emails to particular OE) as discussed in Section 3.4.

a) Automatic Emails

An automatic email service is implemented within the system based on the report submitted, validated, and verified by the respective verifiers. SNA will be accessing the automatic email service and will have an option to add/modify an event. SNA will also have an option of selecting the frequency of sending automatic emails.
b) Manual Emails

Like automatic email, manual email will also be a part of the system. Only SNAs will have access to these emails. Any customized email which SNA/higher management intend to send to a particular OE or a group of entities, can use this service. The email can be directly copied to the SNA, OE, and verifier.
c) Different Roles

As per the latest regulatory orders/regulations, SNA will modify the different categories and their respective percentages under RPO compliance from time to time in the sections as mentioned in Figure 41.

The details required to be edited in the system are as follows:

- Categories of obligation: Solar/Non-solar/any other category.
- Consumption range of the obligated entity: 1 MW and above and less than 10 MW, etc.
- Obligation applicable in a financial year: 2016-17, 2017-18 and so on.
- RPO percentage in a defined period.
Figure 42: Consumption Range of OE

Figure 43: Compliance Period

Figure 44: Latest RPO Regulation for Reference
d) Compliance Report
The SNA will have access to view the compliance report of all the registered OEs for a particular period. However, verification will be done by the respective verifiers. The SNA may access this option for compiling RPO compliance of the state.

![Compliance Report Image]

Figure 45: Compliance Report of All OEs

3.4 FOR ALL USERS

a) Reference Documents
This module will include all the relevant documents of REC mechanism and RERC RPO Regulations. It includes the latest RPO regulations, relevant orders, and REC mechanism as approved by the National Load Despatch Centre (NLDC) etc. The users can download these documents for future reference and records.
b) **Contact RRECL**

In case of any query, the users may contact RRECL help desk for any assistance. Details are mentioned in Figure 47.

![Figure 47: Contact RRECL](image)
4 REPORTING

4.1 DASHBOARD SUMMARY

The RPO compliance summary will be reflected on the dashboard as soon as a user logs in to this web tool, giving the below mentioned details of the user in a summarized form:

a) Total energy procurement by an entity in a specified month/year/quarter.
b) Category: Solar/Non-solar.
c) Total energy procurement from all sources by an entity in a specified month/year/quarter.
d) Number of RECs procured from power exchange in a specified month/year/quarter.
e) Total renewable procurement by an entity in a specified month/year/quarter.
f) RPO solar and non-solar targets (in percentage) as specified by RERC from time to time.
g) RPO solar and non-solar targets (in MUs): Converting the above percentage in MUs.
h) Achieved RPO in a specified month/year/quarter: Surplus capacity will be indicated in positive and will reflect in green, whereas, deficit will be negative and will reflect in red.

Screenshot of the dashboard is shown in Figure 48.

Figure 48: Dashboard Summary
4.2 COMPLIANCE REPORT

a) For OE

(i) Consumption/Purchase entry: All energy consumption/purchase entry from various sources will be mentioned under this module. The user should fill relevant data as defined in the system and also upload all the necessary documents as a proof for further verification.

- DISCOM: DISCOM will enter their gross energy consumption/purchase from conventional sources and RE purchase (solar/non-solar) including RECs. DISCOMs will also upload relevant documents for every individual entry through the system for further verification.

- OA consumers: The OA consumers should enter their gross conventional energy consumption/purchase, RE purchase (solar/non-solar) including RECs. The OA consumers should upload their relevant supporting documents for every individual entry made in the system. These entries will be submitted by the entity and verified by the SLDC, DISCOM, and the state agency.

- Captive consumers: Captive consumers will enter the details of their gross energy consumption/purchase, RE purchase (solar/non-solar) including RECs. Captive consumers will also upload the relevant supporting documents for every individual entry made in the system. These entries will be submitted by the entity and verified by the EI, DISCOM, and the state agency.

(ii) Compliance/Power purchase entry interim validations: Every entry should be supported by uploading a relevant document. The state agency will verify the data based on the document uploaded by the OE. If the verification fails, an alert will be generated and the entry will be treated as an invalid entry. Later, the entry must be modified by the obligated entity to make a valid entry for further verification by the state agency.

(iii) Compliance reporting: For compliance reporting, there is a standard reporting format which will help an OE to calculate their current status of the RPO compliance for a financial period. The same format will be used for verification process by the respective verifiers and the state agency.

In the compliance report, the system will calculate the compliance with the help of RPO rules set by the state agency for each financial year as specified by the Commission and the current status of their compliance is provided to the user. The compliance report will not be static and will be updated automatically based on the compliance entries made by the OE at regular intervals.

(iv) Compliance entry validation after period/financial year: The users will submit their consumption entries on monthly, quarterly, and annual basis to the state agency and upload the relevant supporting documents after a predefined time period. Any extension in the submissions will be modified by the state agency/administrator as per the Commission.

After the defined timeline, the user will not be able to change any entry/modify the existing data for that particular period and the entries will be treated as a final submission by the OEs. The data entry in compliance report is illustrated in Figure 49.
b) For SNA: RRECL

Through RRECL login, the SNA will have access to confirm the compliance report for all the OEs registered through this portal for a particular period. Though verification will be done by the respective verifiers, the SNA will have access for compiling the RPO compliance of the state.
5 Other Important Information

5.1 Minimum Troubleshooting Guidelines

The minimum troubleshooting guidelines are as follows.

a) This web tool application requires internet connectivity in personal computer (PC)/Laptop (preferably broadband).

b) In case of any operational problem in the application, kindly log out and log in again and check the internet connectivity.

c) From the server end, application should run in Internet Information Server (IIS), email services should always in started state and Window Task Scheduler in running state.

In case of any other issue(s), please contact RRECL Helpdesk for further assistance.

5.2 Do’s and Don’ts of the Web Tool

Below are the “Do’s” and “Don’ts” of web-based RPO compliance tool.

Do’s:

a) Select user name and password carefully while registering on the application for the first time and use the same credentials while logging the next time.

b) Use Browser (Internet Explorer [IE], Firefox, Google Chrome, Opera, and Safari) for the application.

c) There should be uninterrupted internet connectivity.

d) Upload relevant supporting documents against every entry in” Energy Consumption” and “REC Purchases”.

e) Enter the relevant energy consumption data in the desired units only.

Don’ts:

a) Do not share your user name and password with any other entity.

b) Do not leave any data entry blank.

c) There should not be any duplicate entry of a particular consumption in the application.

d) File size of the supporting documents should not be more than 5 MB/file.

e) Avoid using application on mobile devices for printing reports.

5.3 Web Hosting Requirements

Following are the prerequisites to host RPO compliance web tool application on the user’s PC/laptop:

a) Operating System should be at least Windows Server 2008.

b) IIS should be 6.1 or higher.

c) System developed on ASP.NET Framework 4.5.

d) Database PostgreSQL Version 9.5.

e) Should have external Internet Protocol.

f) Provision to increase space without formatting the server.
g) Application: Model-View-Controller (MVC) 4, Microsoft .NET Framework 4.5, Web application programming interface (API), Windows Service
h) Compatibility: PCs, Laptops, and Mobile Browser
i) Annual Expiry/Subscription: None

5.4 SAMPLE FORMAT

The format used in the compliance report is shown in Annexure (Table 2).
### Table 2: RPO Compliance Report Format

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Month</th>
<th>Total Conventional Energy Procurement (Million Units [MUs])</th>
<th>Category</th>
<th>RE Procurement (MUs)</th>
<th>No. of RECs Procured/ Redeemed Megawatt hour (MWh)</th>
<th>REC Self- Retained</th>
<th>Total Renewable Procurement (MUs)</th>
<th>Target (Percent)</th>
<th>Target (MUs)</th>
<th>Surplus/ Deficit (MUs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quarter</td>
<td></td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E = (B + [C + D]/ 1000)</td>
<td>F</td>
<td>G = F * A</td>
<td>H = E − G</td>
<td></td>
</tr>
<tr>
<td>Annual</td>
<td></td>
<td>Solar</td>
<td>Non-Solar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Solar</td>
<td>Non-Solar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>