

**WEB-BASED RENEWABLE PURCHASE OBLIGATION  
COMPLIANCE MONITORING & REPORTING SYSTEM  
FOR RAJASTHAN**



**USAID**  
FROM THE AMERICAN PEOPLE



GOVERNMENT OF INDIA  
**MINISTRY OF NEW  
AND RENEWABLE ENERGY**



## Introduction

Specifying the target for Renewable Purchase Obligation (RPO) is a statutory provision under Section 86(1) of the Electricity Act, 2003 and an important tool at the hands of the State Electricity Regulatory Commissions (SERCs) to promote renewable energy (RE).

In discharge of its duties stipulated under the above provision, the Rajasthan Electricity Regulatory Commission (RERC) has specified RPO targets for the obligated entities (OEs) to meet minimum quantum of their energy requirement from RE sources. Rajasthan Renewable Energy Corporation Limited (RRECL) is entrusted with the responsibility of monitoring and reporting of the RPO compliance of all OEs. There are over 300 OEs within Rajasthan comprising captive users and open access consumers apart from three distribution licensees. While RPO Regulations were in force since 2004, their compliance monitoring and enforcement exercise was not undertaken for many years. RPO compliance monitoring is crucial to ensure that RPO targets are met and at the same time ensure that the non-compliance is brought to the regulators attention in a timely manner for necessary regulatory action.

The U.S.-India bilateral Partnership to Advance Clean Energy - Deployment (PACE-D) Technical Assistance (TA) Program partnered with the Government of Rajasthan and provided technical assistance in creating an enabling environment at the state level for the development and effective implementation of policies, regulatory and implementation framework for clean energy deployment. Based on the analysis of RPO Regulatory and Implementation framework, the Program observed that RPO compliance monitoring for distribution licensees takes place through the annual performance review/ARR exercise before the regulatory commission, at the same time the compliance monitoring for other OEs like Captive Power Producers (CPP), and Open Access consumers is far from satisfactory. Even in the case of distribution licensees, quarterly/monthly compliance reporting and transparent information exchange would go a long way in ensuring timely RPO compliance and proactive steps/regulatory interventions for ensuring better performance.

In order to address these challenges, the Program assisted RERC and RRECL in developing a framework covering organization and process level interventions to streamline RPO compliance monitoring and reporting framework. Subsequently, the Program assisted RRECL in the development of a “Web-based RPO Compliance Monitoring and Reporting System (RPOCS)” for the state of Rajasthan. This Web-based portal will facilitate distribution licensee, Chief Electrical Inspector (CEI) and the State Load Dispatch Centre in certifying the entities as OEs. It will also help in streamlining the increasing number of entities on day to day basis; thereby developing a systematic database of information on RPO obligated entities in the state. The Program supported RRECL in successful deployment of RPO Web tool on the energy portal of the government of Rajasthan (i.e. [www.energy.rajasthan.gov.in](http://www.energy.rajasthan.gov.in)) through security audit process.

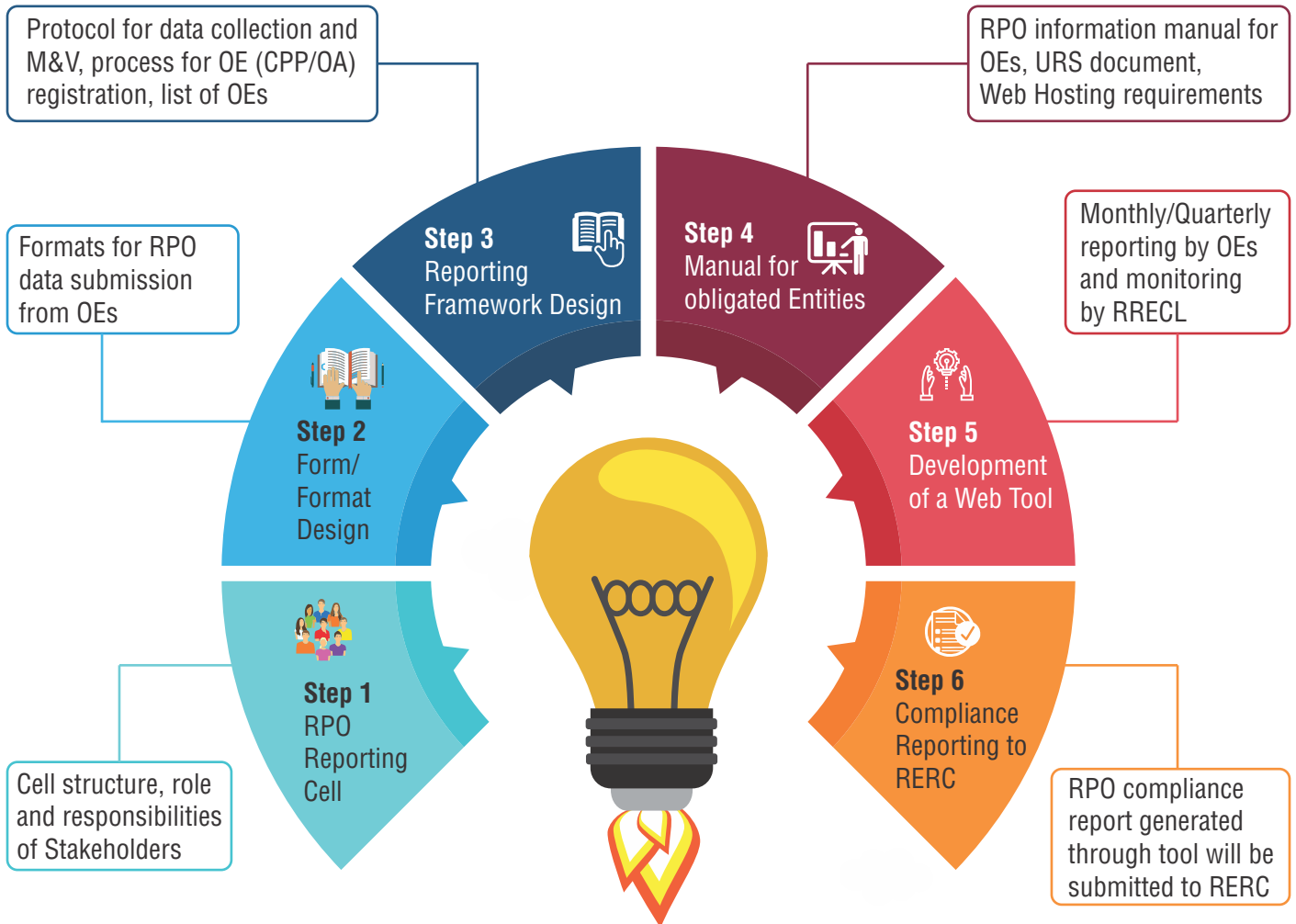
This tool is one of the unique initiatives by RERC and RRECL, which can set an example for other states/SERCs to follow, since no similar regulatory initiative has been initiated in the country.

A stylized map of the state of Rajasthan, India, rendered in a light gray color. The map is centered on the page and is partially overlaid by two thick, curved red bands that sweep across the bottom of the page. The word "RAJASTHAN" is printed in a bold, black, sans-serif font across the middle of the map.

RAJASTHAN

## PACE-D TA Program Support to set up RPO Web Tool in the State

- Development of registry for OEs
- Detailed outline for establishment of RPO CMR Cell
- Development of standard forms and formats for data recording
- Development of manuals and technical documents
- Development of RPO compliance monitoring and reporting Web tool
- Assistance for Web hosting and migration of Web tool on the server of Government of Rajasthan
- Training programs for officials of RRECL and OEs
- AMC support to RRECL and RISL
- Handholding support to OEs for data submission in RPO Web tool







## Need of RPO Compliance Monitoring and Reporting System (RPOCS)










RPOCS is an innovative, process-driven, and technology-based solutions developed to remove the regulatory ambiguity surrounding RPO compliance by various OEs. It aims to assist RERC and RRECL to ensure that:

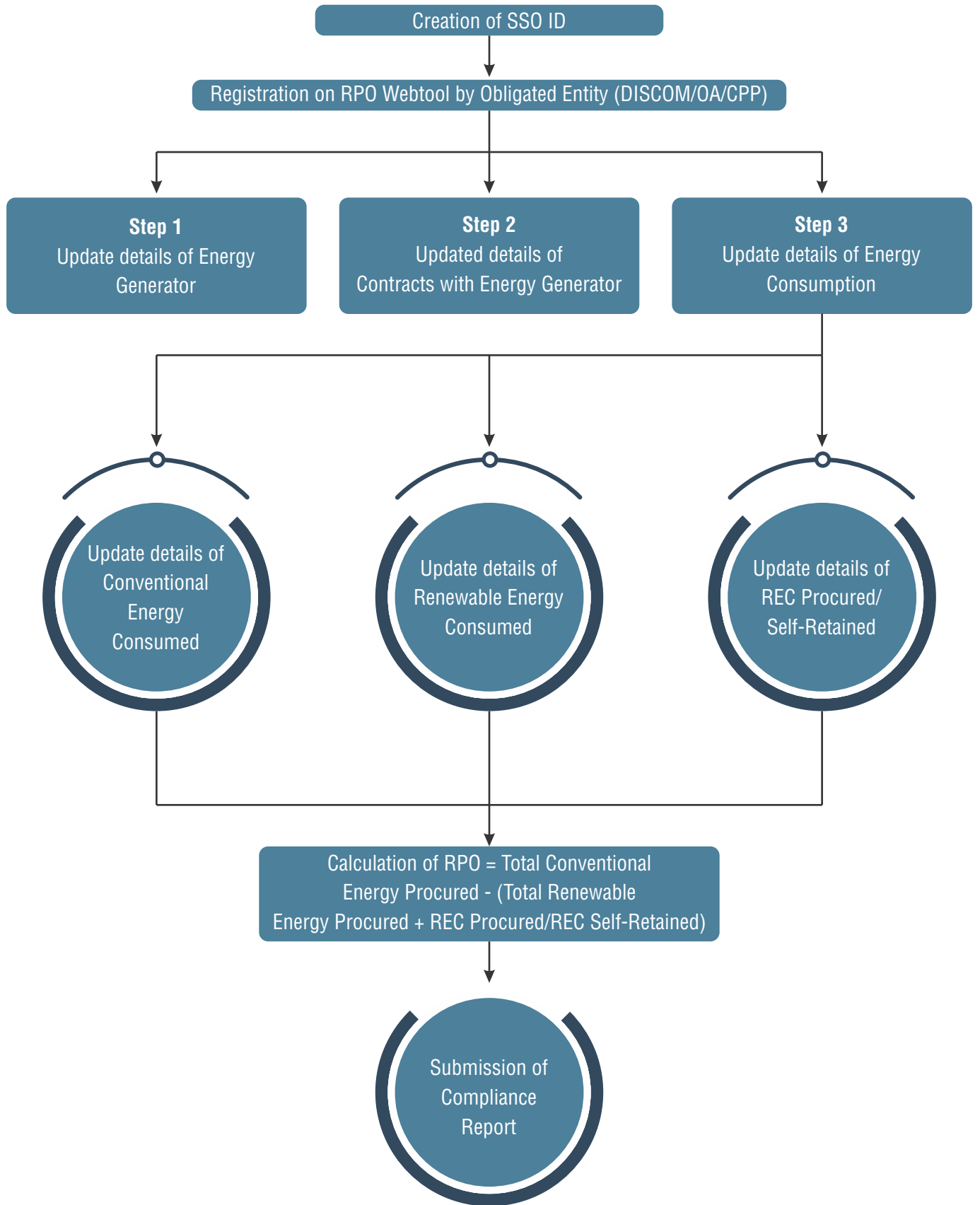
- Non-compliance is brought to the notice of regulators
- Systematic database of information on RPO for OEs
- Streamlining the increasing number of OEs on day to day basis
- Effective RPO compliance management

## Target Audience

 <b>Implementing Agency</b>	<b>RRECL</b> State Nodal Agency of Rajasthan, is the Master Administrator and Implementing Agency of the RPOCS	<b>Responsibilities</b> <ul style="list-style-type: none"><li>• Update RPO percentage for every financial year</li><li>• Monitor data updated by OEs</li><li>• Submit compliance report of OEs to RERC</li></ul>
 <b>Obligated Entities (OEs)</b>	<b>DISCOM/ OA/ CPP</b> OEs are entities that fall under the purview of state RPO regulations in pursuance to Electricity Act, 2003	<b>Responsibilities</b> <ul style="list-style-type: none"><li>• Update of monthly energy consumption data</li><li>• Submit documentary proof in support of calculation of RPO compliance</li></ul>
 <b>Verifiers</b>	<b>SLDC/CEI</b> Verifiers are agencies that verify the documents. SLDCs and CEI are the verifiers for OA and CPP consumers respectively	<b>Responsibilities</b> Check and verify the documents submitted by the OEs in support of RPO compliance
 <b>Reviewer</b>	<b>RERC</b> Electricity Regulatory Commission is the final reviewer of the RPO compliance reporting by OEs or State, as a whole	<b>Responsibilities</b> <ul style="list-style-type: none"><li>• Provide mandate of RPO regulations in the state</li><li>• Review RPO compliance report of OEs</li><li>• Take appropriate actions against non-compliance</li></ul>

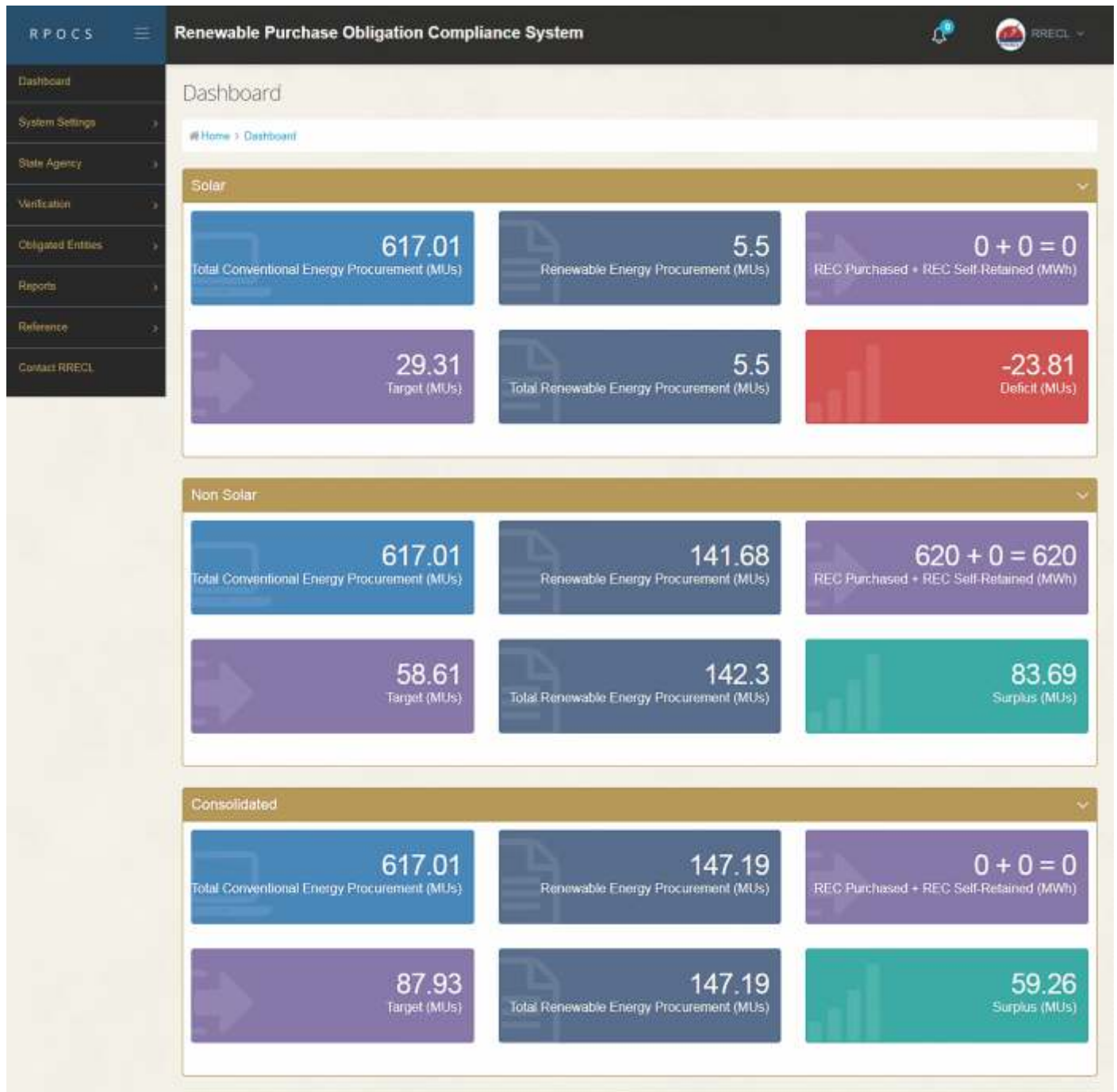
## RPOCS – Key Features

-  **Admin Interface:** The web tool provides an admin interface for incorporating new systems, rules, and other necessary changes. This feature is accessible to RRECL.
-  **Registration Process:** Users can register in the web tool and choose a username and password, which are completely secure.
-  **Registration Process::** Users can regularly update their energy consumption, generation, procurement, and other information in multiple predefined web formats.
-  **Email Services:** The web tool is featured with services such as mass mails, composing a mail, routine notifications, etc.
-  **Scalable System For Future:** The web tool has the facility for future update, new process implementation, and addition of new features.
-  **Classification of Data:** The web tool classifies the information as per the requirement of the user so that user can receive customized output.
-  **Report Generation:** The web tool has the facility to generate multi-type reports as per the requirement of the user.
-  **Export Data:** The information from the web tool can be exported through PDF format.
-  **Alerts:** Users will receive alert through the system after the verification, approval and rejection of their documents.



## User Experience

The dashboard in RPOCS provides an updated status of energy procured, RPO target and status of fulfillment.



Dashboard Page

## The stepwise approach of submission of information in the tool is provided here

SSO ID creation: OEs have to create a Single Sign On ID to access the RPOCS.



SSO ID Registration Page

### 1. Register

OEs will register and create login credentials for RPOCS.

Back to Login Clear Submit

Registration Page



## 2 . Details for Energy Generator

After registration, the users fill the details of the energy generator from whom energy will be procured.

The screenshot shows the 'Energy Generator Request' form. The header includes 'R.P.O.C.S.' and 'Renewable Purchase Obligation Compliance System'. The breadcrumb trail is '# Home > Obligated Entities > Energy Generator Requests'. The form title is 'Energy Generator Request'. A note states: 'Fields marked with asterisk (\*) are mandatory to fill in.' The form contains the following fields:

- Company Name\* (Dropdown menu with 'Hindustan Zinc Limited' selected)
- Generator Company Name\* (Text input)
- Energy Source\* (Dropdown menu with '-- Select --' selected)
- Address 1\* (Text input)
- Address 2 (Text input)
- State\* (Dropdown menu with '-- Select --' selected)
- District\* (Text input)
- City\* (Text input)
- Pin Code\* (Text input)
- Energy Source Generator Type\* (Dropdown menu with '-- Select --' selected)
- Captive Type\* (Dropdown menu with '-- Select --' selected)

Buttons: 'Back' and 'Save' (with a checkmark icon).

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Page for Submission of Details of Energy Contract

## 3. Details for contract with energy generator

In the next step, user will fill the details of the energy contract and upload documentary proof for contract period.

The screenshot shows the 'Generator Contract Details' form. The header includes 'R.P.O.C.S.' and 'Renewable Purchase Obligation Compliance System'. The breadcrumb trail is '# Home > Obligated Entities > Energy Generator Contracts'. The form title is 'Generator Contract Details'. A note states: 'Fields marked with asterisk (\*) are mandatory to fill in.' The form contains the following fields:

- Contract No.\* (Text input with value 'N2RJ0MPL0621')
- Consumer No. (Text input with value '9003/0015')
- Meter No. (Text input with value 'APM4197')
- Voltage Level (KV) (Text input with value '132')
- Sub Station (Text input with value '220 KV Debari GSS')
- Feeder (Text input with value 'H2L Debari')
- Installed Capacity (mW)\* (Text input with value '45.0')
- Contracted Load (mW)\* (Text input with value '45.0')

Below the form is a 'Contract Periods' section with a 'New' button and a search bar. It contains a table with the following data:

Start Date	End Date	Approved	Action
01/04/2017	31/03/2018	✓	[Edit] [Delete] [Refresh]

Showing 1 to 1 of 1 entries

Buttons: 'Back' and 'Save' (with a checkmark icon).

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Page for Submission of Details of Energy Contract

4. **Details of energy consumption** - OEs update the energy procured from conventional or renewable sources on monthly basis along with the supported document. They can also update the purchased and self-retained REC in the Web tool. RRECL will verify the data based on the document submitted/uploaded by the OEs.

5. **Compliance Reporting:** After submitting the step wise details, the compliance report can be generated by OEs on monthly/quarterly/annual format, and submitted for RPO Compliance monitoring purpose. The report can be downloadable in nature.

**Renewable Purchase Obligation Compliance System**

Home > Reports > Compliance Report

**Compliance Report**

Fields marked with asterisk (\*) are mandatory to fill in

Company Name: JK LAKSHMI CEMENT LIMITED      Financial Year: 2017-2018

RPO Category: -- All --      Quarter: -- All --      Month: -- All --

[Generate Report](#)

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**Compliance Report**

Obligated Entity	JK LAKSHMI CEMENT LIMITED	RPO Category	All RPO Category
User Type	Open Access & Captive Both	Period	All Quarters / All Months
Financial Year	2017-2018	Contracted Load (MW)	87

Quarter	Month	Total Conventional Energy Procurement (MUs)	Category	Renewable Energy Procurement (MUs)	REC Purchased (MWh)	REC Self-Retained (MWh)	Total Renewable Energy Procurement (MUs)	Target (%)	Target (MUs)	Surplus/Deficit (MUs)
		A		B	C	D	E = (B + (C/1000) + (D/1000))	F	G = A x F	H = (E - G)
Quarter 1	April	21.5100	Consolidated	8.4200	0	0	8.4200	14.25 %	3.0700	5.3500
			Non-Solar	8.4200	0	0	8.4200	9.50 %	2.0400	6.3800
			Solar	0.0000	0	0	0.0000	4.75 %	1.0200	-1.0200
	May	20.4900	Consolidated	5.1900	0	0	5.1900	14.25 %	2.9200	2.2700
			Non-Solar	5.1900	0	0	5.1900	9.50 %	1.9500	3.2400
			Solar	0.0000	0	0	0.0000	4.75 %	0.9700	-0.9700
June	20.2100	Consolidated	7.8300	0	0	7.8300	14.25 %	2.8800	4.9500	
		Non-Solar	7.8300	0	0	7.8300	9.50 %	1.9200	5.9100	
		Solar	0.0000	0	0	0.0000	4.75 %	0.9800	-0.9800	
Quarter 2	July	19.2200	Consolidated	6.1500	0	0	6.1500	14.25 %	2.7400	3.4100
			Non-Solar	6.1500	0	0	6.1500	9.50 %	1.8300	4.3200
			Solar	0.0000	0	0	0.0000	4.75 %	0.9100	-0.9100
	August	20.8200	Consolidated	7.8800	0	0	7.8800	14.25 %	2.9200	4.9600
			Non-Solar	7.8800	0	0	7.8800	9.50 %	1.9500	5.9300
			Solar	0.0000	0	0	0.0000	4.75 %	0.9700	-0.9700
September	21.5300	Consolidated	8.6500	0	0	8.6500	14.25 %	3.0700	5.5800	
		Non-Solar	8.6500	0	0	8.6500	9.50 %	2.0500	6.6000	
		Solar	0.0000	0	0	0.0000	4.75 %	1.0200	-1.0200	
All Quarters	All Months	123.4900	Consolidated	44.1200	0	0	44.1200	14.25 %	17.6000	26.5200
			Non-Solar	44.1200	0	0	44.1200	9.50 %	11.7300	32.3900
			Solar	0.0000	0	0	0.0000	4.75 %	5.8700	-5.8700

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

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