

**RPO Manual
for
DISCOM / CPP / OA Consumer
(Obligated Entities)
Based on
PUNJAB STATE ELECTRICITY REGULATORY COMMISSION's
(Renewable Purchase Obligation and its compliance) Regulations, 2011
AS AMENDED UP TO DATE**

GLOSSARY

Abbreviations	Details
CERC	Central Electricity Regulatory Commission
CGP	Captive Generating Plant (Captive plant not complying with Electricity Rules, 2005 as amended up to date)
CPP	Captive Power Plant (Captive plant complying with Electricity Rules, 2005 as amended up to date)
EA	Electricity Act 2003 as amended up to date
GEC	Gross Energy Consumption
KV	Kilo Volt
KWH	Kilo Watt Hour
MNRE	Ministry of New & Renewable Energy
MOP	Ministry of Power
MU	Million Units
MVA	Mega Volt Ampere
MW	Mega Watt
NLDC	National Load Despatch Centre
NRSE	New & Renewable Sources of Energy
OA	Open Access
PSERC	Punjab State Electricity Regulatory Commission
PSPCL	Punjab State Power Corporation Limited
RE	Renewable Energy
REC	Renewable Energy Certificate
RPO	Renewable Purchase Obligation
SPV	Solar Photovoltaic

RENEWABLE PURCHASE OBLIGATION (RPO)

1) What is RPO?

Renewable Purchase Obligation is the obligation mandated by the State Electricity Regulatory Commission (SERC) under the Electricity Act, 2003 to purchase minimum level of renewable energy out of the total consumption of electricity (energy input in the system of obligated entity at its boundary) by the Obligated Entity.

2) PSERC RPO Regulations

Punjab State Electricity Regulatory Commission vide notification dated 3rd June, 2011 has notified Regulations for the Renewable Purchase Obligation and its compliance in the State of Punjab.

3) Designation of State Agency

The Punjab State Electricity Regulatory Commission (Commission) vide notification dated 30th November, 2010 has designated the Punjab Energy Development Agency (PEDA) as the 'State Agency' for the purposes of the RPO Regulations.

4) Objective

The main objective of RPO Regulations is the promotion of generation of electricity from renewable sources and is to specify a percentage for procurement of energy generated from such sources on the basis of total consumption of electricity within the area of a distribution licensee.

5) Eligible Renewable Energy Sources

Energy generation from all types of renewable energy sources as recognized or approved by the Ministry of New and Renewable Energy Sources (MNRE), shall be considered as eligible renewable energy sources.

The Eligible renewable energy sources shall include without limitation the following:-

- (a) Non-fossil fuel (including Bagasse) based co-generation power
- (b) Wind Power (including on-shore and off-shore)
- (c) Biomass Power based on Rankine cycle technology
- (d) Biomass Gasifier based power
- (e) Biogas based power
- (f) Small Hydro, Mini Hydro, Micro Hydro Power
- (g) Municipal Solid Waste and / or Refuse Derived Fuel (RDF) based power
- (h) Solar PV and Solar Thermal power

- (i) Hybrid Solar Thermal Power
- (j) Geothermal Power
- (k) Other hybrid technologies including renewable–renewable or renewable-conventional sources, for which renewable technology is approved by MNRE
- (l) Any other source as may be recognized or approved by MNRE.

Provided that generation from grid connected renewable energy sources with installed capacity of 1 kW and above or such other minimum capacity as may be specified by Punjab State Electricity Regulatory Commission (PSERC) from time to time shall alone be considered as eligible renewable energy sources, provided suitable metering arrangement duly sealed by PSPCL is established by such renewable energy project

Provided that the RE projects registered under REC Mechanism notified by CERC will not be eligible to get their generation counted towards RPO.

Provided further that solar projects under net-metering will not be eligible to get their generation counted towards RPO of Project Developer.

6) Obligated Entities

The minimum percentage as specified under the RPO Regulations shall be applicable to all the Distribution Licensees in the State of Punjab as well as to open access consumers and captive users (including CGPs and CPPs both) within the State of Punjab, (hereinafter referred to as Obligated Entities) subject to following conditions:

(a) Any person who owns a utility grid connected Captive Power Plant (CPP)/ Captive Generating Plant (CGP) using conventional fuel including TG/DG set(s) with installed capacity of 1 MVA and above (or such other capacity as may be stipulated from time to time) and consumes electricity generated from such plant for his own use as a regular supply; shall be subjected to minimum percentage of RPO to the extent of his consumption met through such captive source.

(b) Any person who owns a Captive Power Plant (CPP)/ Captive Generating Plant (CGP) using conventional fuel including TG/DG set(s) with installed capacity of 5 MVA and above in case the plant has been sanctioned as a standby supply (or such other capacity as may be stipulated from time to time) and consumes electricity generated from such plant for his own use; shall be subjected to minimum percentage of RPO to the extent of his consumption met through such captive source.

Supply from CPP/CGPs installed for meeting their own requirement of electricity during breakdown / power cuts/ peak load restrictions shall be only treated as standby supply.

Note: PSPCL shall check the status of all CPPs/CGPs i.e. whether the same has been set-up for Regular Supply or Standby Supply and the list of only obligated entities complying with a) and/or b) above shall be put-up on the website as per para 12 below.

(c) Any person who consumes electricity procured from conventional fossil fuel based generation bilaterally or through Traders or from Power Exchange through Open Access as per Section 42 (2) of the Act shall be subjected to minimum percentage of RPO to the extent of his consumption met through such open access source.

Provided that own generation (excluding auxiliary consumption) from conventional sources shall be metered for which generator shall install Trivector Energy Meter(s) of make approved by PSPCL having accuracy class of 0.2s and get these sealed by PSPCL officers within 6 months of date of issue of RPO manual. NOC for the defaulting generators shall be cancelled by PSPCL. However, during the initial period of 6 months where the meters have not been installed so far, the generator shall give a self declaration of the generation duly certified by CA and notarised.

Provided further that the State Commission may, by order, revise the minimum capacity referred to under sub-clause (a) and sub-clause (b) above from time to time.

Provided further that the auxiliary consumption shall be either actual (wherever metered) or normative, whichever is lower. Normative auxiliary consumption shall be 8% for coal based plants and 12% for DG sets. Where ever the auxiliary consumption cannot be measured, the auxiliary consumption will be taken as per normative values for the purpose of CPP-Annexure-I.

7) Renewable Purchase Obligation (RPO)

Every "Obligated Entity" shall procure electricity generated from eligible renewable energy sources at the percentages specified by the State Commission from time to time. The presently applicable percentages notified by PSERC vide notification no. PSERC/Secy./Reg./134 dated 2nd Jan, 2019 are given below:

Year	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Non-Solar RPO (%)	2.37	2.83	3.37	3.81	3.9	4.1	4.2	4.3	5.5	6.5	8.0	9.5
Solar RPO (%)	0.03	0.07	0.13	0.19	1.0	1.3	1.8	2.2	4.0	5.0	6.50	8.0
Total	2.4	2.9	3.5	4.0	4.9	5.4	6.0	6.5	9.5	11.5	14.5	17.5

8) Mode of RPO Fulfillment

Every "Obligated Entity" may meet its RPO target by following ways:-

- a) Own RE generation or procurement of power from RE Generator or
- b) Purchase of RE power from a licensee other than Licensee of his area or
- c) Purchase of Renewable Energy Certificate (REC) or
- d) Combination of any of the above options.

Provided that own RE generation (excluding auxiliary consumption) to be counted for RPO shall be metered for which generator shall install Trivector Energy Meter(s) of make approved by PSPCL having accuracy class of 0.2s and get these sealed by PSPCL officers within 6 months of date of issue of RPO manual. However, during the initial period of 6 months where the meters have not been installed so far, the generator shall give a self declaration of the generation duly certified by CA and notarised.

Provided further that procurement of RE power generated within the State by Distribution Licensee at a rate other than generic/ project specific rate approved by the State Commission directly from generator or from trader shall not be considered as eligible quantum for fulfillment of renewable purchase obligation of such distribution licensee.

Provided further that the quantum of RE power on which REC benefit has been availed by the Obligated Entity shall not be eligible for RPO fulfillment.

Provided further that the auxiliary consumption shall be either actual (wherever metered) or normative, whichever is higher. Normative auxiliary consumption for various RE Technologies shall be as per CERC RE tariff Regulations 2017. Where ever the auxiliary consumption cannot be measured, the auxiliary consumption will be taken as per normative values.

Provided further that obligation of Solar RPO shall be met through electricity generation from solar power plants only and obligation of non-solar RPO shall be met through electricity generation based on non-solar RE sources.

RPO Fulfillment through Renewable Energy Certificates (REC)

One REC Certificate is equivalent to 1000 KWH. These RECs can be purchased by obligated entities through CERC approved power exchanges in order to fulfill their RPO obligation.

- i) Obligation to purchase electricity generation based on solar as RE source can be fulfilled by purchase of solar certificates only.

ii) Obligation to purchase electricity generation based on non-solar as RE source can be fulfilled by purchase of non-solar certificates only.

iii) Procurement of REC's issued for RE generation shall be considered as an eligible instrument for the purpose of RPO compliance.

iv) An RE generator including an CPP/CGP registered under REC mechanism as eligible entity shall be permitted to retain the RECs for offsetting its RPO as a consumer subject to certification and verification by the concerned State Agency as per CERC, REC Regulations 2010.

9) RPO Data Reporting by Obligated Entities

As per the directives given by the State Commission (PSERC) in Petition No. 60 of 2015, the Coordination Committee has devised protocol for collection of information from various sources such as renewable energy generating companies, obligated entities, SLDC, etc. For collection of RPO data, the formats of RPO data submission by obligated entities to the State Agency on regular basis have also been devised. These data formats are of two types:-

a) Quarterly RPO data reporting on provisional basis and

b) Yearly Final RPO data reporting on CA Certified basis.

These RPO data reporting formats are devised separately for distribution licensees as well as for CPP-OA consumers. The RPO data reporting formats for distribution licensees are annexed as **Annexure I-V**.

10) Compliance by Captive User(s) and Open Access Consumer(s)

a) Every Captive User and Open Access consumer shall submit necessary details regarding total consumption of electricity and own generation/power purchase from renewable energy sources or RECs towards fulfillment of its RPO on quarterly basis to the State Agency in the prescribed formats.

b) If the Captive User(s) and Open Access consumer(s) are unable to fulfill their obligation, they shall be liable to be proceeded against as per Regulation 6 of the PSERC RPO Regulations besides cancellation of NOC by PSPCL.

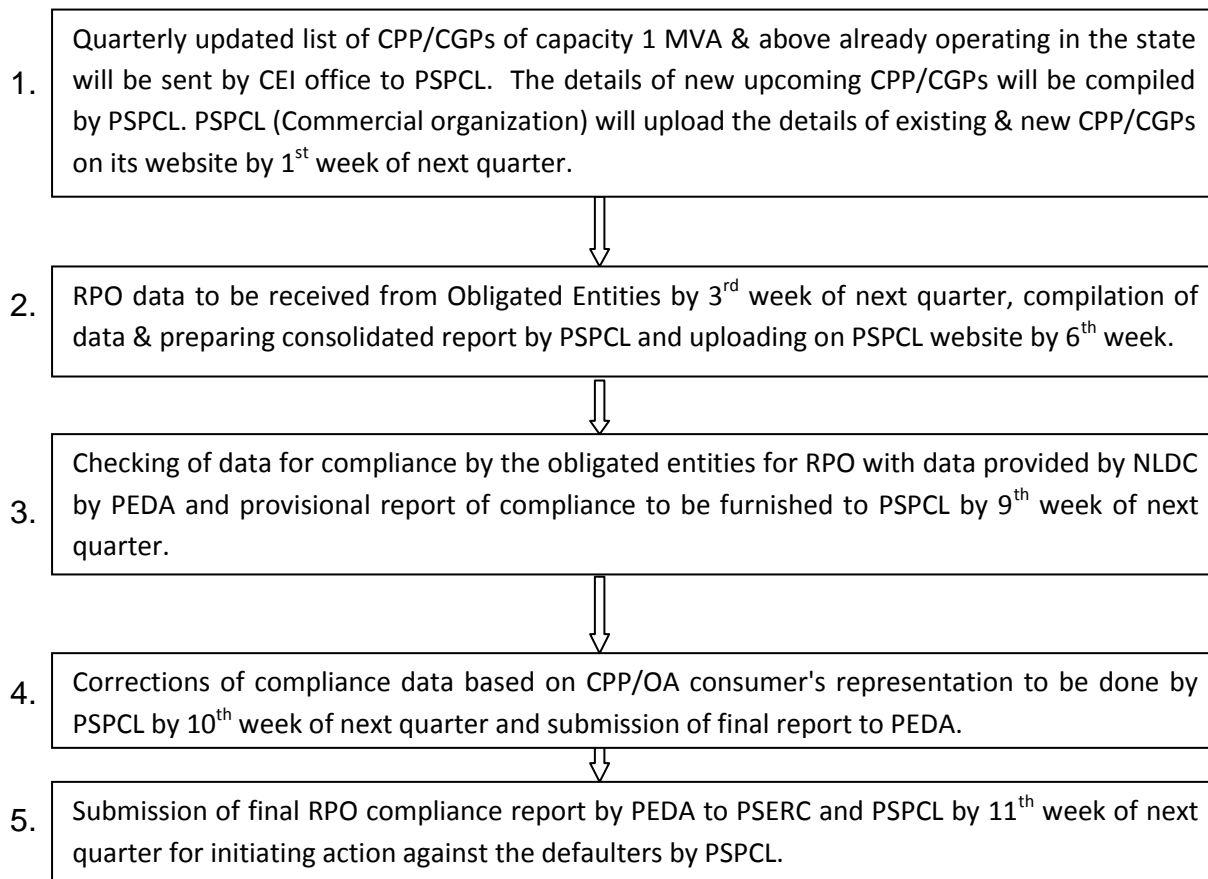
11) Exemption to RE generators

RE based CPPs/CGPs and OA consumers sourcing power from RE generators shall submit proof of using NRSE fuels and/ or technologies during the quarter /year for grant of exemption from RPO compliance.

For establishing RE technology, they shall submit the permission to establish the project issued by PEDDA/ approval of PSPCL.

For usage of exclusive RE fuels they shall submit the details of fuel used, energy generated, energy consumed as a captive generator and energy sold if any during the quarter/year duly certified by CA as per Format- C.

12) Process Flow Chart for collection & verification of data of CPP/OA consumers



Note: Submission of RPO data for fourth quarter shall also be submitted along with the Final RPO achievement data for concerned financial year by an obligated entity in prescribed format.

The RPO data reporting formats for DISCOMs are annexed as annexure I-VII are as per below.

GROSS ENERGY CONSUMPTION (YEAR -)			
	Reporting Quarterto		
	Utility : DISCOM		
1	GROSS CONSUMPTION	Quantum (MUs)	Remarks
<u>O</u>	Own Generation	MW	
	Source 1		
	Source 2		
		
	Source N		
	Sub Total (1)		
<u>P</u>	Purchase from other generating company /Intermediaries.		
	Source 1		
	Source 2		
		
	Source N		
	Sub Total (2)		
<u>S</u>	Sale to other Licensee/ Intermediaries		
	Licensee 1		
	Licensee 2		
		
	Inter 1		
	Sub Total (3)		
	Total GEC for the Quarter -(O+P-S)		
<u>2</u>	RPO Obligation (.....of GEC)		
Declaration: We hereby declare that the gross energy consumption & R.E procurement data submitted above does not includes the gross energy consumption & R.E procurement data of CPP /OA Consumers on our network.			

Sign and Seal of authorized signatory

RENEWABLE ENERGY PROCUREMENT (YEAR -)				
Solar				
Reporting Quarter -.....to				
Solar Sources Detail				
Month: _____				
Eligible Person Name : DISCOM				
1	Own Generation	MW	Quantum (MUs)	Remarks
	Solar 1			
	Solar 2			
			
	Solar..... N			
	Sub Total (1)			
2	Purchase from other Solar Sources / Licensee			
	Source 1			
	Source 2			
			
			
	Source N			
	Sub Total (2)			
3	Purchase through REC			
	Sub Total (3)			
4	Roof top solar under net metering			
	Solar 1			
	Sub Total (4)			
5	RE Sold to other Person			
	Party -1			
	Part y -2			
			
	Sub Total (5)			
	Total Procurement (1)+(2)+(3)+(4)-(5)			
Declaration: We hereby declare that the gross energy consumption & R.E procurement data submitted above does not includes the gross energy consumption & R.E procurement data of CPP /OA Consumers on our network.				

Sign and Seal of authorized signatory

RENEWABLE ENERGY PROCUREMENT (YEAR)				
Non Solar				
Reporting Quarter -.....to.....				
Non Solar RE Sources Detail				
Month :				
Eligible Person Name : DISCOM				
1	Own Generation		Quantum (MUs)	Remarks
	RE 1			
	RE 2			
			
	RE..... N			
	Sub Total (1)			
2	Purchase from other RE Sources / Licensee			
	Source 1			
	Source 2			
			
			
	Source N			
	Sub Total (2)			
3	Purchase through REC			
	Sub Total (3)			
4	RE Sold to other Person			
	Party- 1			
	Party- 2			
			
	Sub Total (4)			
	Total Procurement (1)+(2)+(3)-(4)			
Declaration: We hereby declare that the gross energy consumption & R.E procurement data submitted above does not includes the gross energy consumption & R.E procurement data of CPP /OA Consumers on our network.				

Sign and Seal of authorized signatory

RPO Settlement Account (Yearly)- Year -----									
Solar									
Name: Eligible Person- DISCOM									
Gross Energy Consumption		RPO Obligation (----- %)	RE Purchase Cumulative upto the month (1)	RE purchase for the month		RE cumulative upto the month		Cumulative Compliance (RE Power +REC) (2)	Short fall if any upto the month (1-2)
MUs		MUs	MUs	MUs		MUs		MUs	MUs
Fiscal Year (-----)				Preferential Tariff	REC	Preferential Tariff	REC		
April									
May									
June									
July									
August									
September									
October									
November									
December									
January									
February									
March									
Total									

Declaration: We hereby declare that the gross energy consumption & R.E procurement data submitted above does not includes the gross energy consumption & R.E procurement data of CPP/ OA consumers on our network.

Sign and Seal of authorized signatory

Note: Detailed information about RE generators from whom RE purchased along with proof of REC purchased if any shall be submitted along with report for confirmation purpose.

Gross Energy Consumption		RPO Obligation (----- %)	RE Purchase Cumulative upto the month (1)	RE purchase for the month		RE cumulative up to the month Month		Cumulative Compliance (RE power + REC) (2)		Short if any upto the month (1-2)
MUs		MUs	MUs	MUs		MUs		MUs		MUs
Fiscal Year (-----)				Preferential Tariff	REC	Preferential Tariff	REC	Preferential Tariff	REC	
April										
May										
June										
July										
August										
September										
October										
November										
December										
January										
February										
March										
Total										

Declaration: We hereby declare that the gross energy consumption & R.E procurement data submitted above does not includes the gross energy consumption & R.E procurement data of CPP/ OA consumers on our network.

Sign and Seal of authorized signatory of Company

Note: Detailed information about RE generators from whom RE purchased along with proof of REC purchased if any shall be submitted along with report for confirmation purpose.

The RPO data reporting formats for CPP /GPP, OA consumers are annexed as annexure I-IV are as per below.

CPP- Annexure- I

GROSS ENERGY CONSUMPTION (YEAR - ____)					
Reporting Quarterto					
Captive Users					
1	GROSS CONSUMPTION (Excluding Auxiliary)	Initial Reading MUs	Final Reading MUs	Quantum (MUs)	Remarks
<u>O</u>	Own Generation	MW			
	In case of captive Users				
	Source 1				
	Source 2				
				
	Source N				
	Sub Total (1)				
<u>P</u>	Procurement through group captive /Intermediaries.				
	Source 1				
	Source 2				
				
	Source N				
	Sub Total (2)				
<u>S</u>	Sale to other Licensee/ Intermediaries				
	Licensee 1				
	Licensee 2				
				
	Inter 1				
	Sub Total (3)				
	Total GEC for the Quarter -(O+P-S)				
<u>2</u>	RPO Obligation (.....of GEC)				

Sign and Seal of authorized signatory of Company

Sign and Seal of C.A.

GROSS ENERGY CONSUMPTION (YEAR -)			
Reporting Quarterto			
Open Access Consumers (based on schedule of energy as per SLDC data)			
1	GROSS CONSUMPTION	Quantum (MUs)	Remarks
<u>O</u>	<u>Own Generation</u> Consumption from own generation		
	Source 1		
	Source 2		
		
	Source N		
	Sub Total (1)		
<u>P</u>	<u>Purchase from other Generating Company /Intermediaries.</u> <u>(In case of Open Access Consumers)</u>		
	Source 1		
	Source 2		
		
	Source N		
	Sub Total (2)		
<u>S</u>	<u>Sale to other Licensee/ Intermediaries</u>		
	Licensee 1		
	Licensee 2		
		
	Inter 1		
	Sub Total (3)		
	Total GEC for the Quarter -(O+P-S)		
<u>2</u>	RPO Obligation (.....of GEC)		

Sign and Seal of authorized signatory of Company

Sign and Seal of C.A.

Renewable Energy Procurement (YEAR -)				
Solar				
Reporting Quarterto				
Solar Sources Detail				
Month:				
Eligible Person Name: Captive Users/ Open Access Consumers				
1	<u>Own Generation</u>		Quantum (MUs)	Remarks
	Solar 1			
	Solar 2			
			
	Solar N			
	Sub Total (1)			
2	<u>Purchase from other Solar Sources/ Licensee</u>			
	Source 1			
	Source 2			
			
	Source N			
	Sub Total (2)			
3	<u>Purchase through RECs</u>			
	Sub Total (3)			
4	RE Sold to other Person			
	Party- 1			
	Party- 2			

	Sub Total (4)			
	Total Procurement (1) + (2) + (3) - (4)			

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Sign and Seal of C.A.

Renewable Energy Procurement (YEAR -)			
Non Solar			
Reporting Quarterto			
Non Solar Sources Detail			
Month:			
Eligible Person Name: Captive Users/ Open Access Consumers			
1	<u>Own Generation</u>	Quantum (MUs)	Remarks
	RE 1		
	RE 2		
		
	RE..... N		
	Sub Total (1)		
2	<u>Purchase from other RE Sources/ Licensee</u>		
	Source 1		
	Source 2		
		
	Source N		
	Sub Total (2)		
3	<u>Purchase through RECs</u>		
	Sub Total (3)		
4	RE Sold to other Person		
	Party- 1		
	Party- 2		

	Sub Total (4)		
	Total Procurement (1) + (2) + (3) - (4)		

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Sign and Seal of C.A.

FINAL RPO ACHIEVEMENT DATA REPORTING FOR FINANCIAL YEAR 20---- to 20----

Name of the Company/Organization: -----

Obligated Entities [Tick (√) the appropriate option]: Captive User (CPP): () or Open Access Consumer: ()

Name of the Distribution Licensee’s Area: -----

For CPP: Plant Installed Capacity (in MW): Captive Use from power plant in MW: ----- Sale outside/third party (in MW) -----) Fuel-----

For OA Consumer: Contract Demand (in MVA) :------(Source: ----- Consumption location -----) OA Approval-----MW

Fiscal Year (_____)	Total Energy Consumption (from captive source in case of Captive user) / from open access source in case of OA consumer)	Solar RPO				Non-Solar RPO			
		Solar RPO Target for respective years (A)	Energy actually procured against target (B)	Total Solar Procured (c)	Shortfall if any (D)	Non-Solar RPO Target for respective years (E)	Energy actually procured against target (F)	Total Non Solar Procured (G)	Shortfall if any (H)
			MU	MU	MU		MU	MU	MU

			Solar RE	Solar REC	RE power +REC				Non- Solar RE	Non- Solar REC	RE power + REC		
April													
May													
June													
July													
August													
September													
October													
November													
December													
January													
February													
March													
Total													

Sign and Seal of authorized signatory of Company

Sign and Seal of C.A.

Note : 1) Detailed information about RE generators from whom RE purchased along proof of REC purchased if any shall be submitted along with report for confirmation purpose.

2) In case of OA consumer copy of open access permission for concerned period shall be submitted.

3) In case of CPP copy of grid connectivity permission shall be submitted.

Format-A

Format for quarterly updated details of CPPs/CGPs to be uploaded on website by PSPCL

S.No	Name of CPP/CGP unit (Self Use)	Address / Location of Self Use / CPP unit	Email-id/ Contact details	Self Use CPP /CGP installed & generation capacity (in MW)	Details of approval granted by PEDAs	Details of approval granted by PSPCL	Date of commissioning (DD/MM/YYYY)	Source of generation (RE fuel type / technology)	Voltage level of grid connection (in KV)	Grid connection status (whether Regular or Standby Supply)	Source wise Gross Energy Consumption for the last financial year	Consumer Account number	Meter location and meter type (marked on the Single Line Diagram to be provided)
1													
2													
.													
.													
N													

Quarter:toof 20.....

Format-B

Format for quarterly updated details of OA Consumers to be uploaded on website by PSPCL

Quarter:toof 20.....

S.No	Name of OA Consumer	Address / Location of OA consumer	Email-id/ Contact details	Consumer Name	Capacity of Open Access (in MW) & period for Open Access	OA consumer contract demand (in KVA)	Consumer Voltage level (in KV)	Name & address of Generator Unit/Power Exchange	Source of generation (specify fuel type/technology)	Generation Voltage level (in KV)	Energy wheeled under Open Access during last financial year
1											
2											
3											
.											
.											
N											

Format-C

In terms of Regulation 42 of the RE Tariff Regulations, the project developer shall furnish a monthly fuel usage & procurement statement duly certified by the Chartered Accountant to the beneficiary for each quarter, along with the monthly energy bill and joint meter reading report submitted to PSPCL.

			1 st month of the quarter	2 nd month of the quarter	3 rd month of the quarter	Total
1	Opening fuel stock (tonnes)	Biomass Fuel				
		Fossil Fuel				
2	Quantity of fuel procured during the month(in tonnes) for power generation	Biomass Fuel				
		Fossil Fuel				
3	Cumulative quantity of fuel procured till the end of that month (in tonnes) during the current year	Biomass Fuel				
		Fossil Fuel				
4	Quantity of fuel consumed during the month(in tonnes) for power generation	Biomass Fuel				
		Fossil Fuel				
5	Cumulative quantity of fuel consumed till the end of that month (in tonnes) during the year	Biomass Fuel				
		Fossil Fuel				
6	Actual energy generation during the month	Gross (Units)				
		Net (Units)				
7	Cumulative actual energy generation until the end of that month during the year	Gross (Units)				
		Net (Units)				
8	Closing fuel quantity (tonnes) for each fuel type available at the power plant	Biomass Fuel				
		Fossil Fuel				