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Operational Procedures for Renewable Consumption Obligation Compliance Mechanism

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Bureau of Energy Efficiency

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Disclaimer: These operational procedures are prepared with an intent to provide guidance that complements the provisions on RCO stipulated in the Ministry of Power Notification dated 27 September 2025. In case anything mentioned herein contradicts with the provisions of the said Notification, the MoP Notification will prevail in all such cases.

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Preface

Renewable energy is crucial for India's sustainable development and energy security. With a population exceeding 1.4 billion, India's energy demand is immense and growing. By investing in renewable energy sources like solar, wind, and hydropower, as well as other non-fossil sources, India can reduce its reliance on imported fuels, enhance energy security, and stabilize energy costs.

The growth of India's renewable energy sector has been remarkable. Over the past decade, the country's renewable energy capacity has surged, with solar power capacity increasing more than 30-fold since 2014. As of February 2025, India's total renewable energy installed capacity reached 214.6 GW in February 2025, reflecting a significant annual increase. This rapid expansion not only supports India's energy needs but also contributes to global climate goals by reducing greenhouse gas emissions.

As part of the Hon'ble Prime Minister's Panchamrit initiative unveiled at COP26 in Glasgow in 2021, India has committed to achieving 500 GW of non-fossil energy capacity by 2030. The five commitments made under Panchamrit were incorporated into enhanced Nationally Determined Contributions (NDCs), approved by the Union Cabinet and submitted to the UNFCCC in August 2022.

The Renewable Purchase Obligation (RPO) has been a long-standing regulatory mechanism and has significantly contributed to the increased utilization of renewable energy facilitating the fulfillment of national priorities and international commitments.

In October 2023, the Ministry of Power utilized its newly acquired statutory powers under the Energy Conservation Act to notify year-wise RPOs until 2030, commencing from 2024-25. This marks the first-ever notification of RPOs under the EC Act, encompassing distinct sub-targets for wind, hydro, and distributed renewable energy (DRE) and other RE within the overarching objectives. The notification outlines the mandated minimum share of non-fossil source consumption for designated consumers.

Bureau of Energy Efficiency

1. Abbreviations

AEA: Accredited Energy Auditor

APC: Auxiliary power consumption

BEE: Bureau of Energy Efficiency

BTM: Behind the meter

CEA: Central Electricity Authority

CERC: Central Electricity Regulatory Commission

CGP: Captive Generation Plant

Co-gen: Co-generation

COP: Conference of parties

CPP: Captive Power Plant

DC: Designated Consumer

DRE: Distributed Renewable Energy

EAC: Energy Attribute Certificates

EC Act: Energy Conservation Act

ESS: Energy Storage System

GDP: Gross Domestic Product

JERC: Joint Electricity Regulatory Commission

MCP: Market Clearing Price

MNRE: Ministry of New and Renewable Energy

MoP: Ministry of Power

NDC: Nationally Determined Contribution

RCO: Renewable Consumption Obligation

RE: Renewable Energy

REC: Renewable Energy Certificate

1. Abbreviations

REGS: Renewable Energy Generating Station

RPO: Renewable Purchase Obligation

SDA: State Designated Agency

SERC: State Electricity Regulatory Commission

Solar PV: Solar Photovoltaic

UNFCCC: United Nations Framework Convention on Climate Change

VPPA: Virtual Power Purchase Agreement

WHR: Waste Heat Recovery

WHRS: Waste Heat Recovery System

WHRSG: Waste Heat Recovery Steam Generator

2. Introduction

India's renewable energy expansion program stands as one of the largest globally, driven by robust policy and regulatory support aimed at enhancing both demand and supply within the renewable energy sector. In this context, the Renewable Consumption Obligation (RCO) mechanism provides a pivotal and revamped policy tool to drive the enhanced renewable energy (RE) integration requirements in the country. These obligations mandate that designated consumers, including distribution licensees (Discoms), open access consumers, and captive power plants, consume a minimum percentage of electricity from renewable sources. Previously referred to as Renewable Purchase Obligation (RPO), these mandates were initially defined under Section 86(1)(e) of the Electricity Act, 2003, and the National Tariff Policy, 2016.

At the 26th Conference of the Parties (COP26) to the United Nations Framework Convention on Climate Change (UNFCCC) held in Glasgow, the Hon'ble Prime Minister of India outlined the country's intensified climate action plan, presenting five key elements, known as Panchamrit. These elements include reducing the emissions intensity of GDP by 45% by 2030 compared to 2005 levels, reducing projected carbon emissions by 1 billion tonnes by 2030, achieving a non-fossil energy capacity of 500 GW by 2030, reaching net-zero emissions by 2070, and ensuring that 50% of electricity capacity comes from non-fossil sources by 2030. These commitments have been incorporated into India's enhanced Nationally Determined Contributions (NDCs), which were approved by the Union Cabinet and submitted to the UNFCCC in August 2022.

In response to the updated NDCs, several significant developments occurred. The Energy Conservation Act, 2001, was amended in December 2022 to bring RCO under its purview, and the RCO targets were significantly revised with a defined trajectory until 2030. In October 2023, the Ministry of Power utilized its newly acquired statutory powers under the Energy Conservation Act to announce year-wise RCO trajectory until 2030, commencing from 2024-25.

This marks the first-ever notification of RCO / RPO under this Act, encompassing distinct sub-targets for wind, hydro, and distributed renewable energy (DRE) within the overarching

objectives. The notification outlines the mandated minimum share of non-fossil electrical energy consumption for designated consumers. Additionally, it builds upon the July 2022 MoP notification, introducing varied consumption shares for different non-fossil sources, including a new category for distributed renewable energy (DRE).

Subsequently, the Ministry of Power has issued an amendment notification on 27th September 2025 in supersession of its Notification dated 20th October 2023 on Renewable Consumption Obligations (RCO). This amendment introduced several significant changes including some exemptions for various designated consumer sectors and enabling mechanisms like Virtual Power Purchase Agreement and Buyout Mechanism, for facilitating the compliance to RCO obligations.

According to the notification, the Bureau of Energy Efficiency (BEE) is responsible for monitoring compliance with RCO mechanism among designated consumers (DCs) and reporting to the Central Government.

BEE is also mandated to develop and publish detailed guidelines for the implementation of the RCO mechanism. Accordingly, BEE has developed these detailed operational procedures for RCO compliance. These operational procedures cover the provisions of the latest RCO notification dated 27 September 2025, and elaborate on the various operational aspects including Modes of RCO Compliance, modalities for Monitoring, Verification and Reporting, Penalties and Adjudication etc.

While developing the RCO operational procedures, BEE organized various consultation workshops across different regions of the country, engaging with all SERCs/JERCs, DISCOMs, and designated consumers with captive power plants (CPPs). The valuable feedback and suggestions received during these workshops were instrumental in refining these detailed procedures for RCO compliance and addressing sector-specific challenges.

Additionally, BEE is in the process of developing a dedicated RCO compliance portal, to facilitate RCO compliance in accordance with the notified mandates and these operational procedures.

3. Definitions

1. **Act** means the Energy Conservation Act, 2001 (No. 52 of 2001).
2. **Accredited Carbon Verification Agency (ACV Agency)** shall have the same meaning as assigned to it in the Carbon Credit Trading Scheme, 2023, as amended from time to time.
3. **Accredited Energy Auditor (AEA)** shall have the same meaning as assigned to it under the Act.
4. **Alternate fuels and raw materials** (**AFR)** means the alternate fuels including Hazardous waste Refuse derived fuel from municipal solid waste, used tyres, Biomass; Industrial plastic; and alternate raw materials including Fly ash; and Slag; which are used as alternate fuels and raw material for co-processing in the Indian Cement Industry.
5. **Area of supply** for a distribution licensee shall have the same meaning as assigned to it under Sub-section (3) of Section 2 of the Electricity Act 2003 (No. 36 of 2003) as amended from time to time.
6. **Assessment year** means the financial year immediately following the target year.
7. **Auxiliary Power Consumption (APC)** shall have the same meaning as assigned to it under Sub-section (7) of Section 3 of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2024 as amended from time to time.
8. **Biomass** means the biodegradable portion of products, waste, and residues from biological sources such as agriculture (including vegetable and animal waste), forestry and related industries, as well as biodegradable fraction of industrial and municipal waste, it includes biogas, bioliquids and biofuels.
9. **Black liquor dry solids** shall have the same meaning as assigned by the Ministry of New and Renewable Energy (MNRE) from time to time.
10. **Captive power plant (CPP)** / **Captive Generation Plant (CGP)** *shall mean any power plant complying with the requirements prescribed under Rule 3 of Electricity Rules, 2005 as amended from time to time.*
11. **Central Commission** shall have the same meaning as assigned to it under Sub-section (9) of Section 2 of the Electricity Act 2003 (No. 36 of 2003) as amended from time to time.

12. **Co-generation (co-gen)** shall have the same meaning as assigned to it under Sub-section (12) of Section 2 of the Electricity Act 2003 (No. 36 of 2003) as amended from time to time.
13. **Consumer** shall have the same meaning as assigned to it under Sub-section (15) of Section 2 of the Electricity Act 2003 (No. 36 of 2003) as amended from time to time.
14. **Designated consumer (DC)** shall have the same meaning as assigned to it under clause (g) of section 2 of the Act.
15. **Distribution licensee** shall have the same meaning as assigned to it under Sub-section (17) of Section 2 of the Electricity Act 2003 (No. 36 of 2003) as amended from time to time.
16. **Distributed renewable energy (DRE)** shall have the same meaning as prescribed under section 5.1 of these procedures.
17. **Electricity Distribution Companies** means those entities having issued distribution license by State / Joint Electricity Regulatory Commissions (SERCs/ JERCs) under the Electricity Act, 2003 (No. 36 of 2003) as amended from time to time.
18. **Eligible non-fossil (green / renewable) energy** shall have the same meaning as prescribed under section 5 of these procedures.
19. **Empaneled AEA Agency** shall mean the AEA Firm or Agency empaneled by BEE for conducting verification / check-verification activities for PAT scheme.
20. **Green energy** shall have the same meaning as prescribed under the Electricity (Promoting Renewable Energy Through Green Energy Open Access) Rules, 2022 as amended from time to time.
21. **Green hydrogen** shall have the meaning assigned to it by the MNRE from time to time.
22. **Non-fossil sources** means such sources of energy including but not limited to nuclear energy and renewable energy (RE) sources such as biomass; biofuel, urban or municipal waste; geothermal; hydro; wind; solar PV; hybrid RE projects or any other source as may be recognized or approved by the central government.
23. **Obligated DC** means such DCs on whom RCO is mandated
24. **Open access** shall have the same meaning as assigned to it under sub-section (47) of Section 2 of the Electricity Act 2003 (No. 36 of 2003) as amended from time to time.
25. **Quarter** means each of the four quarters of a financial year
26. **State Designated Agency (SDA)** shall have the same meaning as assigned to it under clause (d) of Section 15 of the Act.

27. **State Commission** shall have the same meaning as assigned to it under clause (t) of Section 2 of the Act.
28. **Target year** means the financial year for which compliance to RCO is being assessed.
29. **Trading licensee** means any entity granted license under sub-section (c) of section 12 of the Electricity Act, 2003 (No. 36 of 2003) as amended from time to time.
30. **Urban Electricity Consumer** typically means consumers of distribution licensees, who reside within municipal limits, notified urban local bodies, or city corporations, and having tariff categories such as urban domestic, urban commercial, and urban industrial.
31. **Urban Discom** for the purpose of these procedures, means a distribution licensee that caters exclusively to urban electricity consumers.
32. **Verification** means a thorough and independent evaluation by the Empaneled AEA Firm, of the data submitted by the DC for compliance with the RCO in the target year.
33. **Waste to energy** shall have the same meaning as assigned to it by the central government from time to time
34. **Waste heat** means heat that is rejected or escaping from industrial or other processes after having served its primary purpose.
35. **Waste heat recovery (WHR) based power generation** means any facility that uses waste heat recovered from industrial or other processes and reused for power generation.
36. **Year** means the financial year starting from 1st April till 31st March of subsequent year.

Words and expressions used herein and not defined in these procedures, but defined in the Act or the Electricity Act, 2003 (No. 36 of 2003), or RCO Rules shall have the meanings respectively assigned to them in those Acts.

4. Renewable Consumption Obligations: Minimum share of consumption of eligible non-fossil sources

1) **Renewable Consumption Obligations (RCO)**: The specified minimum share of electrical energy consumption from eligible non-fossil sources by obligated DCs as a percentage of their total electricity consumption (including fossil and non-fossil sources) shall be as per Ministry of Power notification S.O. 4421(E) dated 27 September 2025 as amended from time to time. These shall be known as Renewable Consumption Obligations (RCOs).
2) This notification took effect on April 1, 2024, and compliance monitoring by BEE will commence from FY 2024-25.
3) Thus,

$$\text{Renewable Consumption Obligations (RCO)} = \frac{Energy\ consumption\ from\ Eligible\ Non-Fossil\ Sources}{\left\{\begin{matrix} Energy\ consumption\ from\ all\ non-excluded\ Fossil\ Sources \\ + \\ Energy\ consumption\ from\ all\ Eligible\ Non-Fossil\ Sources \end{matrix}\right\}}$$

Note: Excluded Fossil Sources are described in this chapter, under point (6) IV – Exclusions, and Eligible Non-Fossil Sources are described under Chapter 6.

4) The Central Government may amend and notify RCOs from time to time and the amended RCOs will be applicable for the respective DCs from the date such amendment comes into effect.
5) For all designated consumers under the Energy Conservation Act, 2001, no additional Renewable Purchase Obligation shall apply under the Electricity Act, 2003, and the **state-level Renewable Purchase Obligation targets shall be subsumed within the Renewable Consumption Obligation targets** specified in this notification.
6) **Applicability, Exclusions, and Trajectory of RCO:**
    I. ***Applicability:*** RCO is applicable on all DCs falling under the following categories:
        a. All Electricity Distribution Companies (Distribution Licensees)
        b. All designated consumers who consume energy from Captive Power Plants or through Open Access
        c. The following are the DC sectors and corresponding thresholds as defined in the schedule of the EC Act. All entities falling within these sectors and having energy

consumption above the specified threshold, are classified as designated consumers, and RCO is hence applicable to them:

S.No.	Notified Sector	Threshold Energy Consumption in MTOE per year and above.
	Aluminum	7500
1.	Cement:	
2.	(a)Integrated Cement Unit	30,000
	(b)Cement grinding Unit	10,000
3.	Commercial Building or establishments:	
	(a) Hotels	500
	(b) Airports	500
4.	Chlor Alkali	12,000
5.	Electricity Distribution Companies (Distribution Licensees)	All distribution licensees are designated consumers as per EC Act
6.	Fertilizer	30,000
7.	Iron and Steel	20,000
8.	Pulp and Paper	75,000
9.	Petroleum Refinery	90,000
10.	Petrochemical units having gas crackers or naphtha crackers or both	1,00,000
11.	Railway	
	(a) All Zonal Railways (Traction)	70,000
	(b) Workshops	750
	(c) 8 Production factories of Railways namely ICF, RCF, CLW, BLW, PLW, RW, MCF and RWP	
12.	Textiles	3,000
13.	Petrochemical Manufacturing units:	
	(1) Fiber Intermediates	50,000
	(2) Polymers	10,000
	(3) Detergent intermediates	9,000
	(4) Performance Plastics	3,000
	(5) Other petrochemical products	6,000
	(6) Synthetic rubbers	15,000
	(7) Aromatics	20,000

14.	Sugar	10,000
15.	Chemical:	3,000
	(1) Alkali Chemical (Soda Ash, Potassium Hydroxide);	3,000
	(2) Inorganic Chemicals;	3,000
	(3) Organic Chemicals;	3,000
	(4) Pesticides (Technical;	3,000
	(5) Dyes and Pigments; and	3,000
	(6) Pharmaceuticals (Active Pharmaceutical Ingredient)	3,000
16.	Ceramic	5,000
17.	Glass1	10,000
18.	Zinc	20,000
19.	Copper	10,000
20.	Port Trust	500
21.	Dairy	2500
22.	Automobile Assembly Unit	3000
23.	Tyre manufacturer	7000
24.	Forging	1500
25.	Foundry	5000
26.	Refractories	3000

Note1*: Even though Thermal Power Plants (TPPs) are defined as DCs, the RCO targets are not applicable on TPPs as the TPPs function as Independent Power Producers and the power generated by them is for sale and not for consumption.*

Note2*: For the sake of ample clarity, it is reiterated here that All entities falling within the* DC sectors and corresponding thresholds as defined in the schedule of the EC Act, are designated consumers. *This is irrespective of whether the respective DCs are registered under PAT or CCTS schemes or not, and also irrespective of whether or not the respective DCs have been assigned a registration number under any of these schemes.*

II. **Electricity distribution companies**

a. All electricity distribution companies (distribution licensees) are designated consumers under the Energy Conservation Act. RCO is hence applicable to all electricity distribution companies.

b. Following is the RCO trajectory applicable to the electricity distribution companies.

Year	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Wind RCO	0.67%	1.45%	1.97%	2.45%	2.95%	3.48%
Hydro RCO	0.38%	1.22%	1.34%	1.42%	1.42%	1.33%
Distributed RCO *	1.50%	2.10%	2.70%	3.30%	3.90%	4.50%
Other RCO	27.36%	28.24%	29.94%	31.64%	33.09%	34.02%
Total RCO	29.91%	33.01%	35.95%	38.81%	41.36%	43.33%

*** Note1:** For hilly and North-Eastern States/Union Territories, namely Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, Jammu & Kashmir, Ladakh, Himachal Pradesh and Uttarakhand, the distributed RCO component shall be half of that given in the Table and the remaining component for these States shall be included in the other RCO component.

*** Note2:** For distribution licensees serving exclusively urban consumers, the distributed RCO component shall be 75% of the specified level. The remaining component for these distribution licensees shall be included in the other RCO component.

c. For the purposes of the RCO mechanism, the distribution licensees catering exclusively to Urban Consumers, including deemed licensees catering to SEZs, shall be classified as Urban Discoms. Such distribution licensees will hence be eligible for the reduced DRE component under RCO, i.e. 75% of the specified level. A list of the eligible distribution licensees is provided in Annexure 11 for reference.

d. The distribution licensees are obligated to the extent of electricity supplied to their consumers under their 'area of supply', including distribution losses.

   Explanation: Since Supply of electricity to its consumers is the primary business activity for a distribution licensee, the electricity consumed by all consumers within its area of supply including the distribution losses is considered the energy deemed to be consumed by the distribution licensee.

e. Deemed licensees (including those categorized under urban discoms and otherwise) will be obligated under the RCO mechanism, to the extent of electricity supplied to their consumers under their 'area of supply', including distribution losses.

f. Wind RCO compliance can be fulfilled only by consumption of power from Wind Power Projects commissioned after March 31, 2024.

g. Hydro RCO compliance can be fulfilled only by consumption of power from Hydro Power Projects (including Pump Storage Projects and Small Hydro Projects) commissioned after March 31, 2024. Additionally, this requirement can also be met by:

   i. Free power provided to the State/DISCOM from Hydro Power Projects commissioned after March 31, 2024.

   ii. Hydro Power Projects located outside India, if approved by the Central Government on a case-by-case basis.

h. Obligations under Wind, Hydro, and Other renewable energy components are fungible (shortfalls in one can be met by surpluses from others)

i. Also, Surplus from Distributed renewable energy can be used to meet shortfalls in Wind, Hydro, or Other renewable energy consumption.

j. However, shortfall in Distributed renewable energy can be met only by consuming Distributed renewable energy or by purchase or self-retention of RECs, or payment of buyout price (refer section 7.3)

III. **Captive consumers and open access consumers:**

a. RCO is applicable to all designated consumers who are captive consumers, and / or open access consumers.

b. The following is the RCO trajectory applicable to captive consumers and open access consumers:

Year	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
RCO	29.91%	33.01%	35.95%	38.81%	41.36%	43.33%

c. DCs consuming electricity from CPPs or open access are obligated to the extent of their consumption of electricity from the respective sources.

d. DCs with CPPs and open access are required to meet the specified total RCO, regardless of the eligible non-fossil energy source.

e. In the case of CPPs, this includes all self-consumption of power except the Auxiliary Power Consumption (APC) in the CPP(s).

f. Only the auxiliary power consumption that is attributable to the generation of power in CPPs may be considered as Auxiliary Power Consumption (APC).

g. In the case of open access consumer, consumption will be considered based on the power drawn at the point of consumption of DC.

IV. **Exclusions:**

a. For all the designated consumers, the renewable consumption obligation shall exclude electricity consumed from Nuclear power sources.

b. The Electricity consumed by a DC from a CPP based on WHR from sources other than the eligible energy sources [except for energy produced from Waste Heat Recovery Steam Generator (WHRSG) in Combined Cycle Gas Based Generating Station] is exempted from RCO.

c. Further, for captive users, the obligations shall also exclude electricity generated and self consumed through waste energy recovery, including from byproduct gases, or other forms of residual energy sources associated with industrial processes. (For example, power generated and self-consumed from Blast Furnace Gas and Coke Oven Gas in Iron & Steel industry, Flare Gas in Refineries etc.)

d. Further, for captive users, the obligations shall also exclude 50% (fifty percent) of the electricity generated and self-consumed from fossil fuel based cogeneration.

All electricity generated from backpressure turbines, and extraction condensing turbines, and the electricity generated from gas turbines where the downstream WHRSG also generates steam for thermal processes, is attributable to co-generation. Electricity generated from purely condensing turbines will not be attributable to co-generation.

For example,

Imagine a designated consumer whose total electricity consumption in a year is 1000 MUs, which includes:

- 100 MUs of electricity consumed from nuclear sources (A)
- 150 MUs of electricity generated and self-consumed from waste heat recovery process (B),

- 300 MUs of electricity generated and self-consumed from fossil-based co-generation plant (C), and
- 200 MUs of renewable energy purchased under open access (D).
- 250 MUs of fossil based captive generation other than WHR, WER and Co-generation (E)

The adjusted consumption for RCO calculation becomes:

= Total consumption – (A + B + 0.5 x C)

= 1000 MU – (100 + 150 + 0.5 x 300) MU = 600 MU

Therefore, the RCO compliance percentage is:

= (Renewable energy consumed / Adjusted consumption) × 100

= (200 MU / 600 MU) × 100 = 33.33%

Note 1: The 100% exclusion of WHR / WER based power and 50% exclusion of co-gen power is applicable for power that is generated and self-consumed. As an exception, in case of multiple DCs drawing power from the same co-gen power plant, the 100% WHR / WER exemption or 50% Co-gen exemption is admissible as long as the con-gen power plant and the multiple DCs are geographically co-located, and only if the transactions along with respective WHR/WER/Co-gen status are traceable through direct metering, and/or through bilateral agreements and invoices.

Note 2: Energy generated from microturbines (backpressure turbines) connected across pressure reduction valve or PRDS in a steam system, can be considered as waste energy recovery and will thus be 100% exempt from RCO obligations.

Note 3: In case of a designated consumer having Captive Generation only from WHR or WER based CPP, and having no open access consumption, such a DC may be exempt from RCO obligations, however such a DC will still need to get the measurement and verification audit done from a BEE empaneled AEA. Such

M&V audit report should confirm the status of captive generation as WHR, WER, or otherwise.

Note 4: In case a designated consumer does NOT have any Captive Generation of power and does NOT consume any power through open access, such a DC may be exempt from RCO obligations. However, such a DC will still need to submit the energy account (Form A) as per procedures outlined in section 8 - Monitoring, Verification and Reporting. There is NO need for such a DC to get the measurement and verification audit done from a BEE empaneled AEA.

e. The Electricity consumed by a DC from a captive power plant (CPP) shall be exclusive of the auxiliary power consumption in the CPP.

The deduction of auxiliary power shall be proportionate to the portion of the total generation on which the RCO obligations are applicable. That is to say, that the auxiliary power consumed for the power generation / consumption that is excluded from RCO obligations will also be correspondingly excluded.

Illustration 1 for deduction of APC:

(1) Total Power Generation from CPPs = 360 MU

- Power Generation from CPP (Non Co-gen) = 100 MU
- Power Generation from CPP (Co-gen) = 150 MU
- Power Generation from CPP (WHR) = 110 MU

(2) Total Power Generation on which RCO is applicable = 100 + 150 / 2 = 175 MU

(3) Total APC from CPPs = 45.5 MU

- APC of CPP (Non Co-gen) = 12% (i.e. 12 MU)
- APC of CPP (Co-gen) = 15% (i.e. 22.5 MU)
- APC of CPP (WHR) = 10% (i.e. 11 MU)

(4) Total APC on which RCO is applicable = 12 + 22.5 / 2 = 23.25 MU

(5) Net Power Generation after deducting APC on which RCO is applicable = 175 – 23.25 = 151.75 MU

Illustration 2 for deduction of APC:

(1) Total Power Generation from CPPs = 360 MU

- Power Generation from CPP (Non Co-gen) = 100 MU (80% from Co-firing of Renewable Fuels)
- Power Generation from CPP (Co-gen) = 150 MU (60% from Co-firing of Renewable Fuels)
- Power Generation from CPP (WHR) = 110 MU (50% from Co-firing of Renewable Fuels)

(2) Total Power Generation on which RCO is applicable = 100 + 150*0.6 + 150*0.4 / 2 + 110*0.5 = 100 + 90 + 30 + 55 = 275 MU

(3) Total APC from CPPs = 45.5 MU

- APC of CPP (Non Co-gen) = 12% (i.e. 12 MU)
- APC of CPP (Co-gen) = 15% (i.e. 22.5 MU)
- APC of CPP (WHR) = 10% (i.e. 11 MU)

(4) Total APC on which RCO is applicable = 12 + 22.5*0.6 + 22.5*0.4 / 2 + 11*0.5 = 12 + 13.5 + 4.5 + 5.5 = 35.5 MU

(5) Net Power Generation after deducting APC on which RCO is applicable = 275 – 35.5 = 239.5 MU

f. 50% of Fossil based electricity consumed in an Aluminium Smelter will be exempt from RCO.

Power Consumption for Non-DC Operations are NOT EXCLUDED!

From RCO Obligations

What are Non-DC Operations?

Any Operations by a Designated Consumer, that are not directly related to the core product or service of the designated consumer are termed as non-DC operations for the purpose of these operational procedures.

Examples:

- Upstream Operations other than core operations - like Mining
- Downstream Operations other than core operations – like Marketing Division, Operations related to Supply / Distribution of core products/services
- Other ancillary operations – like Staff Colony, Canteen

The rationale behind RCO obligations is to promote RE integration, and as such the RCO obligations are applicable on the total electrical energy consumption, irrespective of the end use for which the consumption is occurring.

Non-DC operations are **NOT EXCLUDED!** from RCO obligations. The **power consumed for non-DC operations** is subject to RCO obligations and **shall be included in the denominator while calculating the RCO compliance of the DC**.

5. RCO framework: Institutional Mechanism, Roles and Responsibilities

The key stakeholder groups for RCO compliance monitoring mechanism and flow of data and information between the key stakeholders is highlighted in the schematic diagram below.

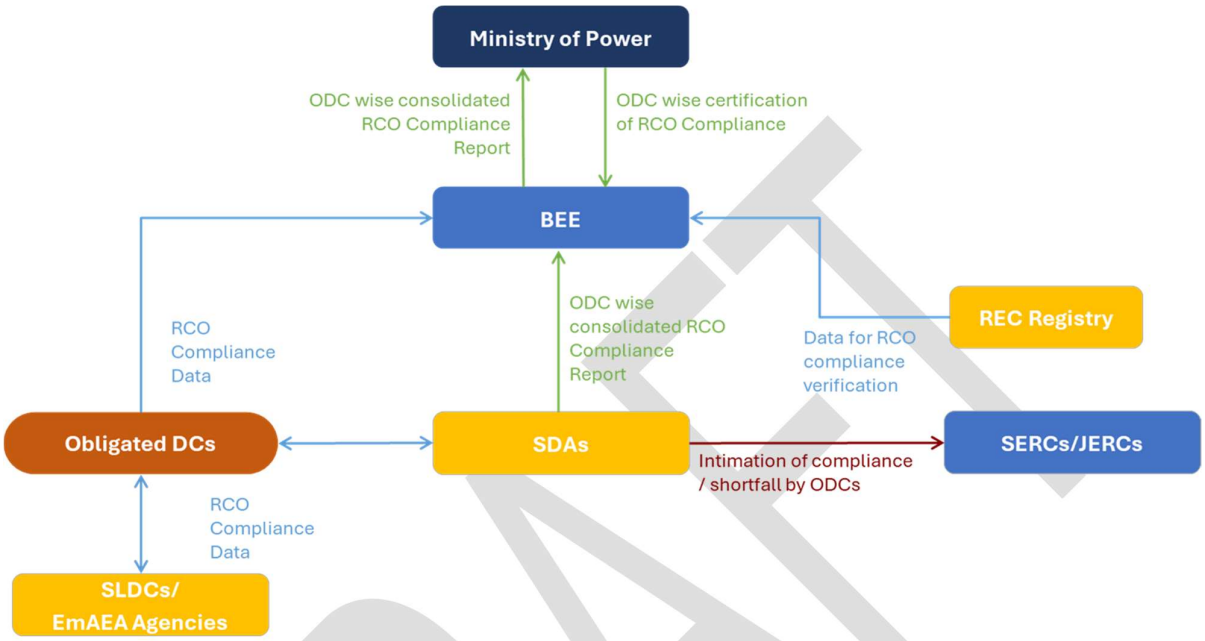

Figure 1: Institutional Mechanism

The roles and responsibilities of the stakeholder groups are as follows:

1. Roles and Responsibilities of Ministry of Power (MoP)
    I. Notifying the RCOs norms/target and year wise trajectory thereof under Sub-section (x) of Section14 of the Act
    II. Notifying and amending the Renewable Consumption Obligations including year-wise RCO trajectory as and when required
2. Roles and Responsibilities of Bureau as Compliance Administrator:
    I. Recommending RCOs (minimum share of consumption of non-fossil sources) targets / trajectory for different types of non-fossil sources for different DCs to the MoP.
    II. Development and maintenance of the procedures and guidelines for compliance with RCOs

III. Development of data submission formats, for effective functioning of mechanism for compliance with RCOs

IV. Development of a centralized portal for data collection and monitoring of RCO compliance

V. Registration of obligated Designated Consumers under the RCO mechanism

VI. Conduct training and capacity building activities for all key stakeholders on RCO monitoring and reporting aspects

VII. Operationalize the compliance procedures with the help of SDAs

VIII. Maintain the list of Empaneled AEA agencies who are eligible to verify the RCO compliance data

IX. Collection of quarterly data on RCO compliance from SDAs

X. Review and finalize the compliance status of DCs

XI. Report on the compliance status of RCOs by different DCs to the Central Government, with a copy to the individual state electricity regulatory commissions.

XII. Filing of petition for initiation of penalty proceedings with state commissions for non-compliant DCs, or to recommend to the SDA for the same, as per the provisions of Energy Conservation Enforcement Rules 2025.

XIII. Handhold DCs to help them in navigating through the challenges faced by them in RCO compliance reporting

XIV. Coordinate with the REC registry (Grid-India) for collection of data related to REC and establishment of digital mechanism for sharing of the data

XV. Certification of the annual RCO compliance / shortfall of each obligated DC, in the form of a digitally signed certificate issued to each DC on an annual basis

XVI. Conducting check verification of RCO compliance data and information received.

3. Roles and Responsibilities of State Designated Agencies:

I. Recommend to the Bureau on improving effectiveness of RCOs compliance procedures at the state level and suggest any operational modifications required

II. Communicate any discrepancies found during verification and ensuring reconciliation of the same by the obligated DC

III. Submit to the Bureau, the RCOs compliance reports in the manner and frequency as prescribed in these procedures

IV. Approach the State Commission on non-compliance of RCO targets by the obligated DCs on their own or at the recommendation of BEE, as per the provisions of Energy Conservation Enforcement Rules 2025, and as per the procedure prescribed under the relevant regulations framed by the concerned SERC/ JERC read with the Energy Conservation (Manner of holding inquiry) Rules, 2009.

4. Roles and Responsibilities of the REC Registry (Grid India)

I. Support BEE in mapping of the REC Buyer codes against the registration IDs of DCs.

II. Sharing quarterly REC issuance data with the Bureau

III. Sharing quarterly REC redemption data with the Bureau

IV. Providing all support to the Bureau required for the verification of REC purchase / issuance / self-retention data including sharing of REC data on the RCO portal in digital form.

5. Roles and Responsibilities of Empaneled AEA Agency

The Empaneled AEA Agency will be appointed by the respective obligated DC for verification of the data and information pertaining to RCO compliance of the obligated DC. The roles and responsibilities of Empaneled AEA Agency for verification of RCO Compliance are as follows:

I. Conducting the annual verification of RCO compliance for the respective obligated DC, in the manner and within timelines as prescribed by the bureau from time to time

II. Adhering, at a minimum, to the model scope of work (appended as Annexure – 3 to these operational procedures) while conducting annual verification of RCO compliance

III. Ensuring adherence, at a minimum, to the monitoring and reporting guidelines (appended as Annexure – 4 to these operational procedures) while conducting annual verification of RCO compliance

IV. Responding to queries raised and working on resolution; in case any discrepancy is discovered by the SDA in the compliance data submitted by the Obligated DC.

V. Conducting check verification as and when appointed and instructed by BEE.

6. Roles and Responsibilities of State Load Despatch Centers (SLDCs)

I. Conducting the annual verification of RCO compliance for the respective electricity distribution licensee, in the manner and within timelines as prescribed by the bureau from time to time.

II. Responding to queries raised and working on resolution; in case any discrepancy is discovered by the SDA in the compliance data submitted by the Obligated DC.

7. Roles and Responsibilities of DCs obligated under RCOs (Obligated DCs)

I. Complying with all procedures and guidelines as prescribed from time to time regarding RCOs.

II. Fulfilling RCOs as per the modes of compliance given in section 7 of these procedures.

III. Appointing empaneled AEA agency and facilitating the verification of RCOs compliance information

IV. Providing access to necessary data and information to empaneled AEA agency for verification of RCOs compliance

V. In case of corporate level compliance, the holding company is required to unequivocally demonstrate common control over concerned DCs under Companies Act, 2013 or the relevant Cooperative Societies Act, as amended from time to time.

VI. Submitting necessary data and information in prescribed formats to facilitate RCOs compliance monitoring in the manner and within timelines as prescribed in these procedures and amended from time to time.

6. Eligible energy sources for RCO Compliance

1. Non-fossil (renewable) electrical energy sources or green energy sources as specified by the Central Government from time to time are considered eligible energy sources for the sake of compliance towards Renewable Consumption targets notified by the central government.

Examples of eligible energy sources:

- Solar Photovoltaic (Solar PV) and solar thermal power
- Wind Energy
- Hydro - including Large Hydro Projects (LHPs), and Small Hydro Projects (SHPs)
- Pumped Storage Projects (PSPs) only to the extent that the PSP is charged with renewable power (i.e. only the RE power that is used to charge a PSP after deducting corresponding losses can be drawn and consumed as RE from the PSP).
- Electrical energy generated based on:
  - Biomass
  - Biogas
  - Black Liquor Dry Solids
  - Municipal Solid Waste (MSW)
  - Charcoal produced from MSW
  - co-firing of AFR recognized as renewable sources by MNRE, MoEFCC or Central Government including Refuse Derived Fuel from Municipal Solid Waste, and Biomass
  - Waste to Energy based power
  - Non-fossil fuel (including Bagasse) based co-gen projects
- Geothermal power
- Tidal power
- Consumption of green hydrogen or green ammonia as energy
- Any other source of renewable or green electrical energy as may be recognized or approved by Central Government / MNRE from time to time

2. For a RE project to be considered eligible for RCO compliance, it is required to establish suitable metering arrangements duly located, calibrated, sealed, and maintained in accordance with CEA (Installation and Operation of meters) Regulations as amended from time to time.
3. While all power generated by Standalone projects firing eligible renewable fuels will qualify as renewable power eligible for RCO compliance fulfilment, power generated by Co-firing of eligible renewable fuels will qualify to the extent of renewable fuels fired. The methodology for estimation of electricity generated from combustion of renewable fuels is provided as Annexure 1.
4. The energy generated by RE projects registered under REC Mechanism notified by Central Commission or registered under any other mechanism for Energy Attribute Certificates (EACs) is NOT eligible for being accounted towards meeting RCO compliance.
5. Energy generated from nuclear sources, not being a renewable source of energy, is not eligible for being accounted towards RCO compliance. However, nuclear energy is exempt from RCO obligations (Refer Sub-section 4.6.IV.a)
6. The energy stored in any energy storage system (ESS) including battery energy storage systems (BESS) and pumped hydro storage plants in accordance with the applicable regulations, is eligible only to the extent that the stored energy is generated from an eligible energy source.

6.1 Distributed Renewable Energy

Distributed Renewable Energy (DRE) means non-fossil (renewable) electrical energy generated from all eligible non-fossil energy sources (defined in section 6, point 1) that are not more than 10 MW in installed capacity.

DRE will also include grid connected solar and other RE installations under all configurations (net metering, gross metering, virtual net metering, group net metering, behind the meter (BTM) and any other configuration) as notified by the Central Government from time to time.

In case the DC fails to provide generation data against DRE installations, the reported capacity can be transformed into DRE generation in terms of energy by a multiplier of 4 units

per kilowatt per day (kWh/kW/day). The number of days in the respective quarter or year that the DRE installation has been in operation requires to be declared and certified by the obligated DC and verified by the empaneled AEA agency or SLDC as applicable.

7. Modes of RCO Compliance

7.1 Modes of compliance for DCs with CPPs and Open Access

1. Own generation (grid connected or otherwise) under captive mode

DCs can fulfil RCO by consumption of electricity generated from its Captive Generating Plant (CGP) based on eligible sources. The DC should not have availed RECs or any other EACs on the quantum of electricity consumed for meeting its obligation.

The quantum of renewable power generated through co-firing of any eligible energy source (as fuel) in fossil-based power plants, including captive and co-gen plants, shall be determined as per the corresponding formulae indicated in Annexure 1.

The quantum of renewable power generated through co-firing of alternate fuels of renewable nature (such as black liquor dry solids in a separate boiler feeding to the same turbine generator set), as well as power generated from waste heat extracted from operations of the obligated DC attributable to co-firing of alternate fuels of renewable nature including biomass, shall be determined as per corresponding formulae indicated in Annexure 1.

2. Requisition from DISCOM

The obligated DCs can fulfil RCO by requisition from distribution licensee as per the Electricity (Promoting Renewable Energy Through Green Energy Open Access) Rules 2022, as amended from time to time.

The DC needs to submit a no-objection certificate provided by distribution licensee mentioning that the distribution licensee agrees to provide the said quantum of power from eligible source for a minimum period of one year to the respective obligated DC and that the distribution licensee shall have no claim over the eligible non-fossil energy thus supplied, as far as RCOs of the distribution licensee is concerned. Such no-objection certificate from the distribution licensee needs to be furnished by the obligated DC while claiming the credit for consumption of power from eligible non-fossil sources towards meeting their RCOs.

3. Consumption of Green Hydrogen or Green Ammonia

I. Consumption of green hydrogen or green ammonia only as energy and not as feedstock will be considered towards fulfillment of RCO compliance.

II. Consumption of green hydrogen or green ammonia will be calculated based on the amount produced, purchased, or sold. The renewable energy (RE) used to meet obligations will be determined by the quantity of green hydrogen or green ammonia consumed and the electrical energy needed to produce one metric tonne of it.

III. Guidelines for certification of green hydrogen as per Green Hydrogen Certification Scheme of India notified by MNRE, as amended from time to time need to be adhered to.

IV. The norms for the electrical energy required to produce one metric tonne of green hydrogen or green ammonia will be as notified by the CERC or the Central Government as the case may be, and as amended from time to time.

V. In case the norms for electrical energy required for the production of one metric tonne of green hydrogen are not notified on the date of the procedures come into effect, the methodology for this calculation as specified in Annexure 2 will be adopted provisionally and the said methodology will cease to apply on the date of notification of such norms by CERC or the Central Government.

7.2 Modes of compliance for DISCOMs

1. **Sourcing green energy from RE Projects**

   DISCOMs can fulfil their RCO by generating or procuring electrical energy directly from renewable energy projects based on the eligible energy sources.

2. **Other Modes of Compliance**

   I. Consumption of power through captive generation from eligible non-fossil sources from only a grid connected source by the consumers of a distribution licensee other than obligated DCs, within the 'area of supply' of the distribution licensee can be considered towards fulfilment of the RCO of the distribution licensee. The consumer should not be registered under REC mechanism notified by CERC or any other mechanism for EACs.

   II. Power purchased by the distribution licensee from an obligated DC who is a consumer of the distribution licensee within its 'area of supply', and having captive generation from grid connected DRE sources can be accounted towards the RCO compliance of

the distribution licensee. Whereas, the remaining power generated and consumed by the obligated DC, will be accounted towards its own compliance.

III. Power generated from off-grid RE/ DRE sources owned by the distribution licensee, can be considered towards RCO compliance of the distribution licensee.

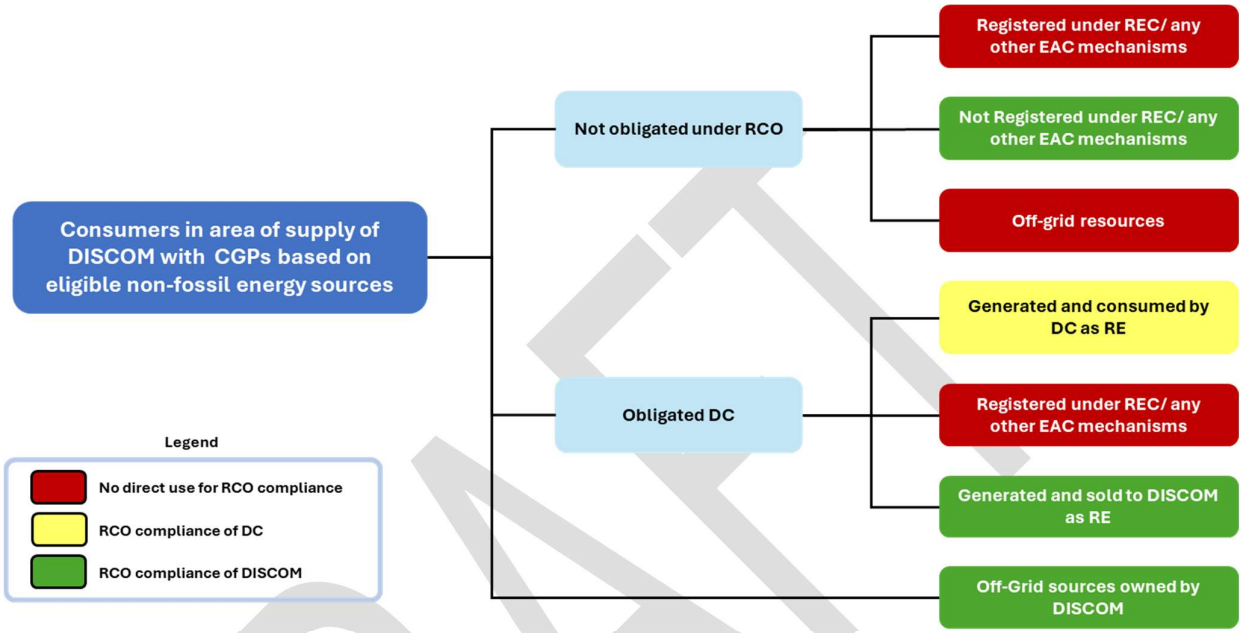

Figure 2: Other modes of compliance for distribution licensees

IV. For a discom consumer that is not obligated under RCO, the entire energy consumption that is generated by the DRE source and recorded in the generation meter will be considered towards fulfilment of RCO compliance of the DISCOM. This will be the case, irrespective of the configuration, both for Net Metering and Gross Metering configurations.

V. For a discom consumer that is also a DC obligated under RCO, the energy that is generated and sold to the DISCOM shall be considered towards fulfilment of RCO compliance of the DISCOM. The following shall apply:

In case of gross metering configuration, the entire energy that is generated and exported to the grid as recorded in the energy export meter, will be deemed to be sold to the Discom and hence considered towards fulfilment of RCO compliance of the DISCOM.

In case of net metering configuration, the net energy that is generated and exported to the grid as recorded in the bidirectional meter, will be considered towards fulfilment of RCO compliance of the DISCOM.

7.3 Modes of compliance for all DCs

1. **RE consumption through Open Access**

   DCs can fulfil RCO by sourcing Renewable Energy via Open Access route as per provisions of Green Energy Open Access Rules, 2022, as amended from time to time.

2. **Consumption from ESS**

   The obligated DCs can consume the energy generated or procured from eligible energy sources and stored in any ESS including BESS and PSPs in accordance with applicable regulations.

   In order to qualify as a mode of compliance, the stored energy needs to be consumed by the DC and mere storage of energy generated or procured from an eligible energy source using ESS does not qualify towards fulfillment of RCOs.

   The ESS needs to have metering arrangements to measure the input and output energy of the system, duly installed, located, calibrated, sealed, and maintained in accordance with the requirements for energy accounting and audit meters under Central Electricity Authority (Installation and Operation of meters) Regulations as amended from time to time.

   Only the energy consumed after deducting losses in the ESS will be considered towards fulfilment of RCOs.

3. **Purchase or Self-retention of RECs**

   The obligated DCs can purchase RECs through power exchange(s) or through electricity trader(s) or self-retain the previously issued RECs as per the provisions of the CERC (Terms and Conditions for Renewable Energy Certificates for Renewable Energy Generation) Regulations, 2022, as amended from time to time.

> **Note 1:** Procedures for redemption of RECs by purchase and self-retention are published by the REC registry (Grid India) in the 'Procedure for Implementation of REC mechanism' Rev 3. March 2024.

4. **Virtual Power Purchase Agreement (VPPA)**

The obligated DCs can procure RECs by entering into Virtual Power Purchase Agreements as notified from time to time by Central Government or CERC

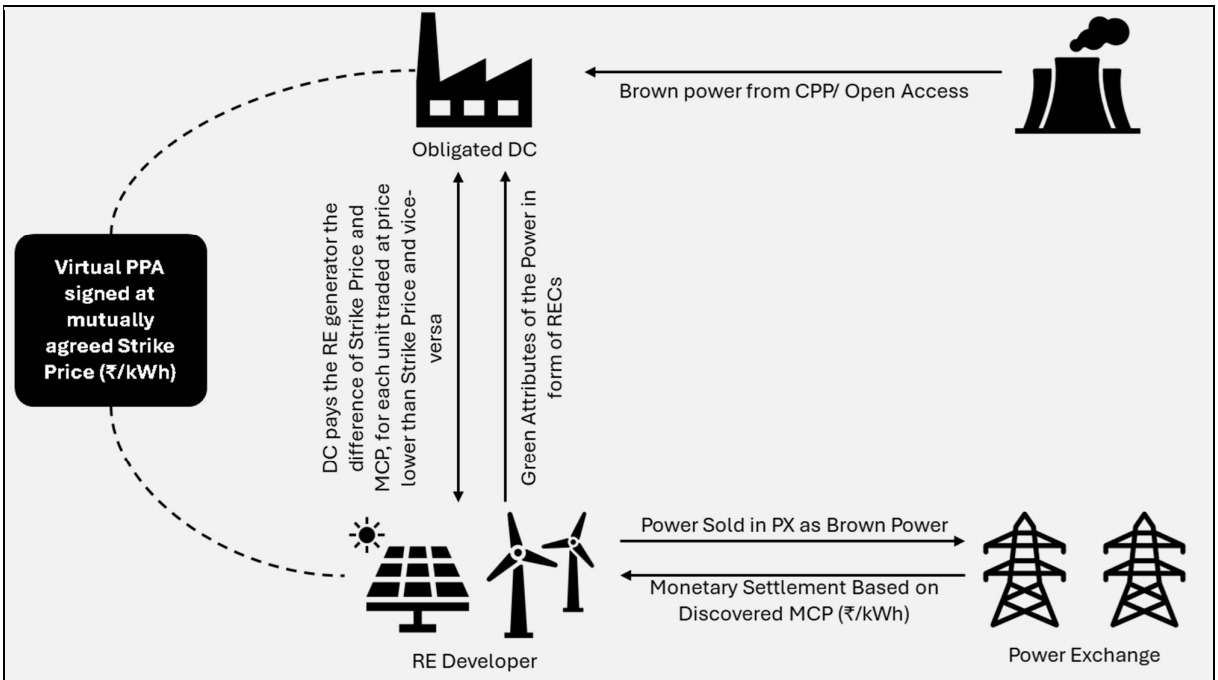

Figure 3: Virtual Power Purchase Agreement

A Virtual Power Purchase Agreement (VPPA) is a financial contract between an RE generator and a buyer. A VPPA involves no physical delivery of energy. The energy generated is sold on the Power Exchange, and the buyer continues to get their electricity from their convenient conventional sources.

The buyer and the generator agree on a fixed price for the electricity, known as the "strike price."

The generator sells electricity on the Power Exchanges as Brown Power. If the Market Clearing Price (MCP) is below the strike price, the buyer compensates the generator for the difference. If the MCP is above the strike price, the generator pays the buyer the difference

The buyer receives RECs for the renewable energy produced, which can be used for RCO compliance.

Note1: The VPPA mechanism is currently in conceptual phase and will be considered as eligible mode of compliance only after the specifications / guidelines for the mechanism are rolled out by the central government or CERC. The actual specifications / operational details of the mechanism may vary from those illustrated in the box above.

Note 2: The RCO Buyout Mechanism shall come into existence and be considered as an eligible source for RCO compliance only after specification of buyout prices by CERC as per MoP notification S.O. 4421 (E) dtd 27 September 2025 and its subsequent amendments.

5. RCO Buyout Mechanism

In case of shortfall of availability of RECs in the market, the DCs can opt for the RCO Buyout as per the MoP Notification S.O. 4421 (E) dtd. 27 September 2025 and its subsequent amendments.

I. Under this mechanism, if an obligated DC, after leveraging other modes of compliance, still has a shortfall to meet their obligation, they can choose to pay a buyout price as an alternative compliance option to make up for its RCO shortfall.

II. Buyouts will be considered as a valid means of RCO Compliance, including compliance of DRE targets.

III. Buyouts will be allowed in units of 1 MWh each. That is, purchase of one unit of Buyout will be equivalent to RCO compliance of 1 MWh. Thus, purchase of 1000 units of Buyout will be equivalent to RCO compliance of 1 MU.

IV. The price for one unit of Buyout and all related modalities will be as specified by the CERC from time to time.

V. The option for payment of buyout price for the target year will be provided during the assessment year compliance window (refer sub-section 8.5), once the Buyout price for the target year is specified by CERC.

VI. The sums received through the buyout mechanism will be credited and utilized as per the MoP Notification S.O. 4421(E) dtd. 27th September 2025 and its subsequent amendments.

6. Corporate level compliance

I. Corporate level compliance shall be allowed for corporates or cooperative societies having multiple obligated DC entities under their common control as defined in the Companies Act, 2013, or under the relevant Cooperative Societies Act.

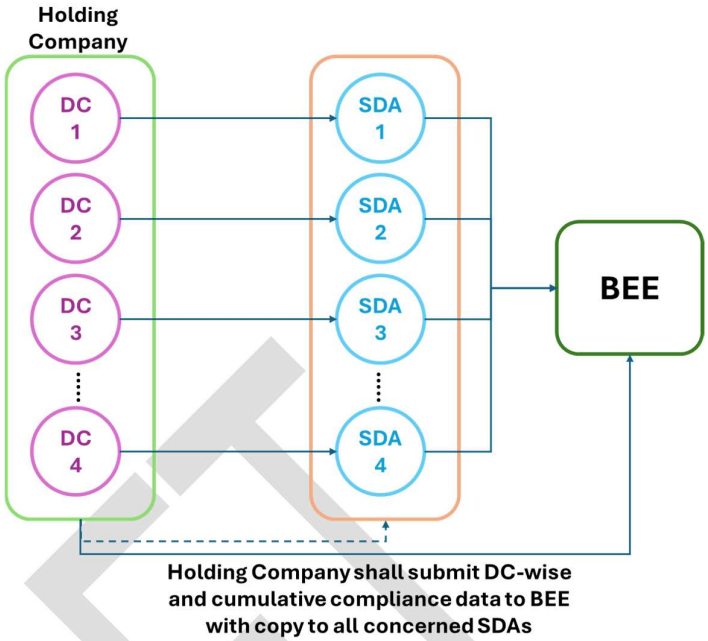

Figure 4: Corporate Level Compliance

II. The multiple obligated DC entities may be either co-located or located in different geographies in India and may belong to any of the energy intensive sectors notified as DCs under clause (e) of section 14 of the Act.

III. Corporate level compliance shall be considered at the level of the holding company having common control of the obligated DCs.

IV. Compliance to RCOs shall be considered in aggregate across the multiple obligated DC entities under common control of the holding company. Thus, shortfall or surplus in one of the obligated DC entities can be offset against the corresponding surplus or shortfall in another obligated DC entity under common control of the holding company.

V. For the purposes of providing ample clarity, it is also reiterated that RCO compliance will only be aggregated across all the obligated DCs under the common control of the holding company. In case the holding company also has non-DC entities (i.e. entities that are not falling under the DC sectors and corresponding thresholds as defined in the schedule of the EC Act), then the energy including renewable energy consumed by such non-DC entities shall not be included while aggregating the RCO compliance under corporate compliance provisions.

VI. As a special case, Corporate Compliance along with all provisions as listed above will also be applicable in cases **where a licensed entity procures power on behalf**

of the State DISCOMs. In such cases, the licensed entity authorized of such bulk procurement of power on behalf of the Discoms within the State, will act as the holding company. The holding company will follow the data submission requirements as mentioned in section 8.6 of these procedures.

VII. In such cases (refer point V above), the licensed entity shall issue a monthly category-wise statement of allocation of power to the respective DISCOMs by the 15th day of the following month. The category-wise allocation will include conventional (brown) power, nuclear power, and the categories of renewable power (viz. Wind, Hydro, DRE and Other). The allocation of power may be in proportion to the actual consumption for the preceding month or as directed by the respective state commission.

This will facilitate the quarterly and annual submission of the RCO compliance reports by the respective Discoms (refer section 8.2 and 8.2).

7. Combination of any of the above options

8. Monitoring, Verification and Reporting

8.1 Quarterly submission of RCO compliance data by DCs for monitoring:

The obligated DCs need to provide information related to RCO compliance to the SDA with a copy to BEE in the manner prescribed in these procedures, on a quarterly basis. Information for the present quarter needs to be provided within 45 days of the next quarter.

I. The obligated DC is required to provide the information duly verified and certified by its own energy manager or plant head in the following manner:

a) The source-wise (Fossil based and Non-Fossil based) energy generation, purchase and sale data as per format provided in Annexure 5 (Form A).

b) Consumption (computed from the production, purchase, and/ or sale) of green hydrogen or green ammonia as energy as per Form A. The RE accounted towards the fulfilment of obligations to be computed based on quantum of green hydrogen or green ammonia consumed, and electrical energy equivalent of the production of one metric tonne of green hydrogen or green ammonia.

c) Green Ammonia produced using the quantity of Green Hydrogen already reported in Form A and Green Ammonia procured from an obligated DC cannot be accounted for compliance.

d) The difference of energy stored in any ESS and the portion of stored energy drawable from the ESS represents the sum of losses or charges, and needs to be deducted from energy consumed

e) Total energy consumption and total non-fossil energy consumption will be determined using formulae as indicated in Form A.

II. In case an entity becomes an obligated DC in the present quarter, the entity needs to provide the information as per sub-clause 8.1(I) above, from the next quarter onwards

III. Quarterly compliance processes are intended for periodic monitoring only and these submissions will not be subject to oversight / verification at quarterly intervals, including verification by AEAs / SLDCs.

IV. The following supporting documents need to be made available by obligated DC to the empaneled AEA Agency, SDA and the Bureau. The empaneled AEA agency will verify these, and any other supporting documentation as mentioned in the Monitoring and Reporting Guidelines (Annexure – 3) and append the same in a properly indexed manner along with the annual report submitted by empaneled AEA firm.

Sr. No.	Submitted By	Supporting Document
I.	Distribution Licensees	• Data on sale of fossil-based energy to their consumers within their area of supply, who are obligated DCs.
II.	Obligated DCs with fossil fuel based CGPs or co-gen plants	• Form 1, as notified by the MoP under G.S.R. 174(E) dated 02.03.2007 as amended from time to time, • duly signed by AEA • along with Calibration Certificate of generation meters
III.	Obligated DCs with fossil fuel based CGPs or co-gen plants along with Co-firing RE Fuel	• Monthly Details of Co-firing of Fuels (Qty. and Wt. Avg. GCV of fuel, Qty. and Wt. Avg. Enthalpy of Steam etc.) as specified in Annexure - 1 • along with Calibration Certificate of generation meters
IV.	Obligated DCs consuming non-fossil power through open access	• Monthly / Periodic electricity bills provided by distribution licensee, RE generator or any other relevant entities as the case may be
V.	Obligated DCs with co-located off-grid or grid-connected RE based CGPs connected under net metering, gross metering or BTM configuration	• monthly generation and consumption data • monthly electricity bills issued by the distribution licensee (in case of grid-connected configurations)
VI.	Obligated DCs purchasing green hydrogen or green ammonia	• invoices indicating quantum of green hydrogen or green ammonia purchased,

Sr. No.	Submitted By	Supporting Document
		• green hydrogen or green ammonia consumption data from the plant's ERP system or production documentation
VII.	Obligated DCs with captive production of green hydrogen or green ammonia	• Quantum of RE (electricity) used for producing green hydrogen or green ammonia (electricity bills or captive RE generation meter[1] data along with calibration certificates)
VIII.	Obligated DCs consuming eligible non-fossil energy through a BESS	• Calibration certificates for energy meters measuring energy input and output from the BESS

8.2 Annual submission of independently verified RCO data by DC to SDA

I. All DCs who are captive or open access consumers of power, are required to get an independent annual verification for RCO compliance conducted through a BEE empaneled AEA Firm.

II. All distribution licensees are required to get an annual verification of RCO compliance conducted by the respective State Load Despatch Center (SLDC).

III. The obligated DC, in consultation with the empaneled AEA Firm / Agency needs to put in place a transparent mechanism for verification of the compliance data. The verification arrangements need to be in accordance with guidelines set out in these procedures, and the Monitoring and Reporting Guidelines appended as Annexure – 3, and the Model Scope of Work for Empaneled AEA Agency appended as Annexure – 4.

IV. The Empaneled AEA Firm or SLDC as applicable, is required to submit a report to obligated DC elaborating the verification activities conducted to arrive at the conclusions recorded, calculations done, supporting documents verified, any physical verification of metering arrangements, BTM installations, etc.

[1] A dedicated energy meter needs to be provided to record the electrical energy consumed for production of green hydrogen, and the meter specifications and calibration requirements shall be as specified by CEA, CERC or the Central Government as the case may be.

Detailed Monitoring and Reporting Guidelines including a sample table of contents / outline of the report is appended as Annexure 3 to these procedures.

V. Every obligated DC needs to submit to the SDA, with a copy to the Bureau, the annual compliance assessment form (Form A, as provided in Annexure 5) with compliance information for the complete target year duly certified and signed by the AEA Agency or respective SLDC as applicable. Form A will need to be submitted by the DC within 120 days of the completion of the Target Year (i.e. by 31 July of the assessment year). The following documents should be appended to the Certified Form A (annual):

a) Copy of unique number of registration (under RCO and/or PAT) given to the obligated DC

b) M&V Report of the Empaneled AEA Agency along with all supporting documentation

c) Quarterly compliance reports (Form A, quarterly) for all 4 quarters, as described in sub-section 8.1 of section 8 of these procedures.

d) Supporting documents to substantiate the fulfilment of RCOs as described in sub-section 8.1(III) of section 8

e) Certification by the empaneled AEA Agency or SLDC as applicable, as per Form B (Provided in Annexure 6).

Note 1: For target year FY25, Form A and Form B will need to be submitted by the DC by 31October 2025.

VI. All obligated DCs including those with CPPs based on 100% Waste Heat Recovery (WHR) or 100% Waste Energy Recovery (WER), will need to submit the energy account in the prescribed formats (Form A).

8.3 Provision of Information by REC Registry for verification of compliance

I. For each State/UT, REC registry needs to provide to the SDA with a copy to BEE, the obligated DC wise information on RECs as per format provided in Annexure 9 (Form E). The data to be submitted includes:

   a. Buyer code of DC

   b. No. of RECs purchased in the target year

   c. Code(s) / identifier(s) of Certificate(s) of Purchase for REC purchases in (b) above

   d. No. of RECs purchased in the assessment year compliance window

   e. Code(s) / identifier(s) of Certificate(s) of Purchase for REC purchases in (d) above

   f. No. of RECs redeemed through self-retention in the target year

   g. No. of RECs redeemed through self-retention in the assessment year compliance window

II. The REC registry will provide the information as specified above to the SDA and BEE, during the following points in time during the verification process:

   a. Within 135 days of conclusion of the target year, i.e. by 15 August of the assessment year. The information provided will be either real time, or up-to-date till 31 July of the Assessment Year, corresponding to the point of submission of Form A, Form B and M&V Report by DC to SDA and BEE (Refer sub-section 8.2)

   b. Within 285 days of the conclusion of the target year, i.e. by 15 January of the assessment year. The information provided will be either real time, or up-to-date till 31 December of the Assessment Year, corresponding to closure of compliance window for RECs / Buyout. (Refer sub-section 8.5 for details).

8.4 Verification of compliance by SDA

I. The SDA, will conduct a verification in the manner described below on an annual basis:

a) The State Designated Agencies will cross-verify the compliance information provided by the obligated DC as per Form A (annual) with the supporting documents and M&V report (Refer sub-section 8.1, 8.2).

b) The verification needs to be completed within twenty (20) days of receipt of the data from obligated DC to SDA, or within five (5) months of completion of the target year, whichever is earlier.

II. In case of any mismatch or need for reconciliation identified during the verification, a resolution will be arrived at in the manner prescribed below:

a) In case SDA finds that there is any mismatch between the data submitted by obligated DC (Form A) and the supporting documents (and / or M&V report) submitted by obligated DC, or incomplete documents or non-submission of documents or data, SDA will take up the matter with the obligated DC and arrive at a suitable resolution and the Form A, Form B and/or the M&V report submitted by the DC will be updated.

b) If SDA finds that there is any mismatch between the data submitted by obligated DC (Form A, annual) and the data submitted by REC registry (Form E), SDA will take up the matter with the obligated DC and with the REC registry, to arrive at a suitable resolution and the Form A, Form B and/or the empaneled AEA M&V report will be updated and resubmitted accordingly by the DC.

c) In case of any changes to the Form A, Form B or M&V Report, the obligated DC will complete the same within twenty (20) days of receipt of the query from SDA, or within six (6) months of completion of the target year, whichever is earlier.

III. The SDA will finalize the obligated DC wise RCO compliance Report (Form A and Form B) based on the verification results (including any reconciliation required) and a consolidated RCO compliance report for the state. SDA will submit the consolidated RCO compliance report and all DC wise RCO compliance reports to BEE, within seven (7) months of completion of the target year.

8.5 Assessment Year Compliance Window (for RECs or Buyout)

I. The DCs can make up for any shortfall in compliance within a compliance window of nine (9) months of the conclusion of the target year (i.e. by 31st December of the

assessment year) by purchase or self-retention of RECs or by payment of buyout price.

II. Within fifteen (15) days post completion of the compliance window for fulfilment of RCO compliance through RECs or payment of buyout price (i.e. by 15th January of the assessment year), the DCs are required to submit the RCO compliance declaration Form D (appended as Annexure 8), to the SDA and BEE. Form D should be duly certified by the obligated DC and appended with supporting documentation for purchase of REC and Buyout as applicable.

Note: For target year FY25, the DCs are provided with an extended compliance window as a special case, till 31st March 2026, for submission of Form D after purchase or self-retention of RECs, or payment of buyout price to make up for any shortfall in RCO compliance.

8.6 Submission of data by Holding companies to BEE

I. The holding company with common control of the multiple obligated DCs is required to submit to the Bureau, with a copy to all SDAs of the states where respective obligated DCs are located, the corporate compliance assessment form (Form C provided in Annexure 7) with compliance information for the complete target year duly certified and signed by the respective empaneled AEA Agencies or SLDCs as applicable (Form A & B provided in Annexure 5 & 6).

II. The duly completed and certified corporate compliance assessment form (Form C) should include the following:

a) Cumulative compliance information for all the obligated DCs under common control of the holding company.

b) Quarterly compliance reports (Form A) for all 4 quarters, along with proof of timely submission of quarterly reports as described in sub-section 8.1 of these procedures.

c) The Certified Form C should be appended with Form A, Form B, & Form D as applicable, along with M&V report for each of the multiple obligated DCs under common control of the holding company.

d) Certification by the Chief Executive Officer or equivalent of the Holding Company (including Cooperative Society or licensed entity for bulk power procurement on behalf of Discoms in State as applicable), and from Company Secretary or Chartered Accountant mentioning the legal name of the Holding Company or Cooperative Society and the legal names of each of the subsidiaries which are obligated DCs under the common control of such Holding Company or Cooperative Society, thereby certifying the common control of the Holding Company or Cooperative Society over such obligated DCs.

Such certification needs to be accompanied by any relevant documents submitted to the Registrar of Companies and the Certificate of Incorporation issued by the Registrar of Companies. Equivalent documents will need to be furnished in case of cooperative society registered under the relevant Cooperative Societies Act.

III. The following timelines need to be adhered to, for submission of Form C by a holding company (with multiple obligated DCs as subsidiaries):

a. **After Target Year:** Form C with Part A to Part D duly filled, and with relevant supporting documents, to be submitted within 135 days of the conclusion of the target year (i.e. by 15th August of the assessment year). Inter-alia, the supporting documents should mandatorily include those needed to establish the relationship between holding company and subsidiaries (refer sub-section 8.6 (II) above).

b. **After Assessment Year Compliance Window:** Form C duly completed, and with relevant supporting documents, to be submitted within 285 days of the conclusion of the target year (i.e. by 15th January of the assessment year).

IV. **In case of a deficit / shortfall** in RCO compliance at the holding company level after aggregation of RCO compliance at individual DCs, the settlement process will be as follows:

a. **After Target Year:** In case of deficit / shortfall during target year, any of the subsidiary DCs can contribute towards compliance by purchase or self-

retention of RECs and/or payment of Buyout Price, during the AY compliance window.

The holding company can also purchase RECs, in which case such RECs can be redeemed or self-retained against any of the subsidiary DCs.

The holding company can also redeem or self-retain the RECs self-generated by any of its non-DC subsidiary entities, against any of the subsidiary DCs. In such a case, the holding company will mandatorily provide the documentary evidence of its relationship to such non-DC entity (refer section 8.6 II (d) above for guidance on submitting documentary evidence).

In case of deficit / shortfall during target year, the Holding company will also mandatorily identify and assign, from among the subsidiary DCs, a DC responsible for final settlement.

b. **After Assessment Year Compliance Window:** In case of any deficit / shortfall in RCO compliance after AY Compliance Window, the same will be allocated to the DC responsible for final settlement. The penalty proceedings will be initiated in the name of this DC responsible for final settlement.

8.7 Verification of compliance by the Bureau

I. BEE will review the RCOs Compliance Report submitted by individual State Designated Agencies.

II. Whenever required, the Bureau may seek additional information from SDA / REC Registry / DC.

III. To the extent that the empaneled AEA Agency records a positive opinion on the fulfilment of the RCOs in their verification report, and the report is verified by SDA, the Bureau will consider that all requirements with regard to the compliance with RCOs have been fulfilled by the obligated DC to the extent mentioned in the report.

IV. The Bureau will conduct review of corporate level compliance where applicable.

V. Based on the consolidated RCOs Compliance Report submitted by each SDA, the Bureau will prepare a consolidated National RCOs Compliance Report including individual compliance status of DCs and report the same for the consideration of the Ministry of Power, within fifteen (15) days of receipt of all reports from all SDAs.

8.8 Certification and Intimation of DC wise Compliance Status by BEE

A digitally signed certificate will be issued separately for each obligated DC, indicating the compliance / shortfall for the target year, within thirty (30) days of receipt of all reports from all SDAs.

BEE will communicate the status of DC wise RCO compliance based on the certification, to the respective SERCs and SDAs within ten (10) days of certification.

The aggregated annual national and state level RCO compliance information will also be published by BEE on the National RCO Portal (under development).

8.9 Summary of Timelines for RCO Compliance Monitoring

I. Timelines for Annual RCOs Compliance process are as follows:

Activity	Timeline
End of Target Year (Q4)	**T**
Submission of Form A, Form B and M&V Report with verification by empaneled AEA Agency (Form D) by DC to SDA, BEE	T + 4M
Submission of Form C in case of Corporate Compliance by Holding Company to BEE (Part A duly filled at a minimum)	T + 4.5M
Provision of Information by REC Registry to SDAs, BEE	T + 4.5M
Verification of Data by SDAs	T + 5M
Submission of clarifications or updating of RCO Reports by DC and empaneled AEA Agency	T + 6M
Finalization and submission of consolidated report by SDA to BEE	T + 7M
Compliance Window (For purchase of REC or Buyout)	T + 9M
Submission of Completed Form C in case of Corporate Compliance by Holding Company to BEE	T + 9.5M
Provision of Information by REC Registry to SDAs, BEE	T + 9.5M
Compliance Verification by BEE and Recommendation to MoP	T + 10M
Certification of compliance by BEE and intimation to SDAs, SERCs/JERC	T + 11M

II. Timelines for Quarterly RCOs Compliance process are as follows. Quarterly compliance processes are intended for periodic monitoring only and these submissions will not be subject to oversight / verification at quarterly intervals, including verification by empaneled AEA Agencies / SLDCs.

End of Quarter	**Q**
Quarterly Submission of Form A by DC to SDA and BEE (Quarterly Monitoring)	Q + 1.5 M

9. Penalties and adjudication

1. **Intimation of compliance / shortfall to DCs**

   Based on the certification of RCOs compliance by the Central Government, SDAs will intimate the RCOs compliance for the target year to the DCs within ten (10) days of certification by Central Government.

2. **Penalties and Adjudication by SERCs**

   In case an obligated DC fails to comply with the RCOs targets as specified under these procedures, the said DC shall be liable to be penalized as per Energy Conservation (Compliance Enforcement) Rules, 2025.

   I. Various types of non-compliance and the applicability of penalties in each case are as follows:

      a. **Shortfall in meeting RCO**: In case an obligated DC fails to comply with the RCOs as specified under these procedures, it will be liable to be penalized as per Energy Conservation (Compliance Enforcement) Rules, 2025.

      b. **Submission of incorrect information**: In case of submission of incorrect information, the DC shall be liable to be penalized as per the provisions of Energy Conservation (Compliance Enforcement) Rules, 2025.

      c. **Submission of incomplete information**: In case of submission of incomplete, the DC shall be liable to be penalized as per the provisions of Energy Conservation (Compliance Enforcement) Rules, 2025.

      d. **Late submission of information**: In case of late submission of information, the DC shall be liable to be penalized as per the provisions of Energy Conservation (Compliance Enforcement) Rules, 2025.

      e. **Non-submission of data**: In case of non-submission of information or submission of incomplete or incorrect information, the DC shall be liable to be penalized as per the provisions of Energy Conservation (Compliance Enforcement) Rules, 2025.

         Furthermore, non-submission of data will be treated as zero percent compliance and the DC will be liable to be penalized as per Energy Conservation (Compliance Enforcement) Rules, 2025.

II. In case of any non-compliances related to RCO under the Act, including those listed above, the SDA or the Bureau, will initiate the process for imposing penalty, in accordance with the provisions of the Act and the Rules made thereunder.

III. The respective Designated Consumers will be responsible for all matters related to the submission and accuracy of data related to compliance.

IV. Other penal provisions and penalties — including those related to empaneled AEA Firm and AEA etc. — remain applicable under relevant provisions of the EC Act.

V. The DC can file a petition before the Adjudicating Officer under section 27 of the Act, as per the procedure prescribed under the relevant regulations framed by the concerned SERC/JERC read with the Energy Conservation (Manner of holding inquiry) Rules, 2009.

VI. For the DCs that have opted for Corporate Level Compliance, the SDA is required to seek approval of the Bureau prior to filing of petition with the respective SERC/ JERC.

10. Check verification

1. The Bureau may on its own, or on receipt of a complaint regarding any error or inconsistency or misrepresentation, initiate action for independent review of RCOs Compliance Report in accordance with the sub-section 2 of this section.
2. Such Check Verification may be initiated at any time after the date of verification of energy account (Form A) of the DC by the empaneled AEA or SLDC as applicable, and within six (6) months from the date of certification of RCOs Compliance / Shortfall by Ministry of Power.
3. The Bureau can initiate the action in accordance with the following procedure namely,
    I. A notice will be issued to the obligated DC as well as empaneled AEA Agency who has submitted the verification report to provide comments in reply to the said notice within ten (10) days from the date of receipt of aforesaid notice.
    II. The comments furnished by the obligated DC and empaneled AEA Agency should clearly state that:
        a) They stand by the compliance report and verification report submitted by them and submit a confirmation report giving point wise replies with necessary documents in response to the said notice; or
        b) They accept the errors or inconsistencies, or misrepresentation pointed out in the aforesaid notice and are required to give detailed explanation in respect to each point in the notice and work out the impacts of such errors or inconsistencies or misrepresentation.
    III. Within ten (10) days from the date of the receipt of the comments mentioned in 2 (II) above, the Bureau, after taking into consideration the said comments may decide to undertake or not to undertake the independent review and the Bureau will record the reasons in writing for its decision and inform decision in writing to the obligated DC, his empaneled AEA Agency and complainant.
    IV. Where the Bureau decides to undertake review,
        a) It will appoint an empaneled AEA Agency, who has not performed the verification functions with respect to the concerned obligated DC, to conduct the independent review

b) On a complaint, the independent review will be carried out at the cost of complainant.

4. The independent review process should involve assessment to ensure that:
   I. The activities relating to RCOs compliance have been performed and the certification of RCOs Compliance / Shortfall are in accordance with the guidelines defined in these procedures.
   II. The monitoring and reporting process are in accordance with these procedures.
   III. The details of the data and activities are evaluated, and conclusions then made that errors, omissions or misrepresentation or aggregation thereof in the said data do, or do not affect the RCOs compliance achieved by the activities.
5. The said empaneled AEA Agency is required to assess and verify that the activities performed by the obligated DC for RCOs Compliance are in accordance with the process defined in this procedure, and the assessment and independent review should involve the following:
   I. A review of the documents as well as the on-site assessment to verify that the activities performed to comply with the RCOs are in accordance with the process defined in these procedures and in case the aforesaid empaneled AEA agency decides that it was not possible or appropriate to make a site visit, then reasons are required to be recorded in writing in this regard.
   II. A review of both quantitative and qualitative information on the RCOs compliance, the quantitative information comprising of the reported data in 'Form A, 'Form B', 'Form C' and 'Form D' as applicable, and the qualitative information comprising of information on internal management controls, calculation procedures, procedures for transfer of data, reports, and review of internal field audit of calculations or data transfer.
   III. A review of previous verification reports.
   IV. A review of any other information and documents relevant to or having a bearing on the activities performed under the process defined in these procedures.
   V. A review of monitoring and reporting processes followed for RCOs compliance.

a) The obligated DC should furnish full and complete data, provide necessary documents and other support required by the empaneled AEA Agency for the purpose of performing the function of independent review under the process defined in these procedures.

b) The empaneled AEA Agency undertaking the independent review function is required to report the results of their assessment through an independent review report containing the following:

   I. The summary of independent review process, results of their assessment and their opinion along with the supporting documents.

   II. The details of independent review carried out in order to arrive at the conclusion and opinion including the details captured during the verification process and conclusion relating to compliance with RCOs.

   III. Certification of the results of Check-Verification as per the Form F appended as Annexure 10 to these procedures.

a) If the empaneled AEA Agency records in their independent review report, a positive opinion, it will be concluded that all the requirements with regard to the RCOs compliance and the certification of compliance / shortfall have been met.

b) If the empaneled AEA Agency records in their independent review report, a negative opinion, the effect of such opinion on RCOs compliance norms, certification of RCOs compliance / shortfall, the liability of the empaneled AEA Agency in giving the verification report and amount of the unfair advantage by the obligated DC as a result of such verification report will be calculated by the empaneled AEA Agency conducting the independent review.

c) The empaneled AEA Agency in charge of independent review (check verification) is required to submit their review report with due certification in 'Form F' (as per annexure 8) to the Bureau.

d) Where the independent review (check verification) has been initiated on the basis of a complaint received by the Bureau, the cost of independent review needs to be borne by the obligated DC in case it was found during the independent review that the obligated DC has submitted false and incorrect information in Form A

11. Fees

1. Each Designated Consumer obligated is required to pay a non-refundable one-time registration fee of Rs. 10,000 for the purpose of compliance monitoring of renewable consumption obligation. Also, a yearly compliance monitoring fee of Rs. 5000 needs to be paid by each Designated Consumer obligated under RCO on an annual basis.
2. Only the Designated Consumers who have registered and paid all due fees as per this provision only, will be able to access the portal for submission of compliance data on the Portal.
3. Each Empaneled AEA Firm is required to pay a non-refundable annual empanelment fee of Rs. 20,000.
4. The fees payment can be made online on the RCO Portal, or by NEFT, and the details of the transaction need to be updated on the RCO portal.
5. The sums received from the fees will be utilized by the Bureau to cover the operational expenses including the cost of development and maintenance of the online RCO Portal, check verification, capacity building activities for Stakeholders and any other operational expenses.

Annexure – 1: Methodology for estimation of electricity generated from combustion of renewable fuels

The methodology specified hereunder needs to be followed by obligated Designated Consumers for estimating electricity generated from co-firing of renewable fuels in fossil fuel based CPPs including co-gen plants.

The electricity generated from renewable fuels will be estimated at Generator Terminal on a quarterly / monthly basis in accordance with the following formulae:

Case # 1: Methodology for estimation of renewable electricity generated from Co-firing of multiple renewable fuels along with fossil fuels in the same boiler in thermal power plants (CPP), including captive and co-gen power plants.[2]

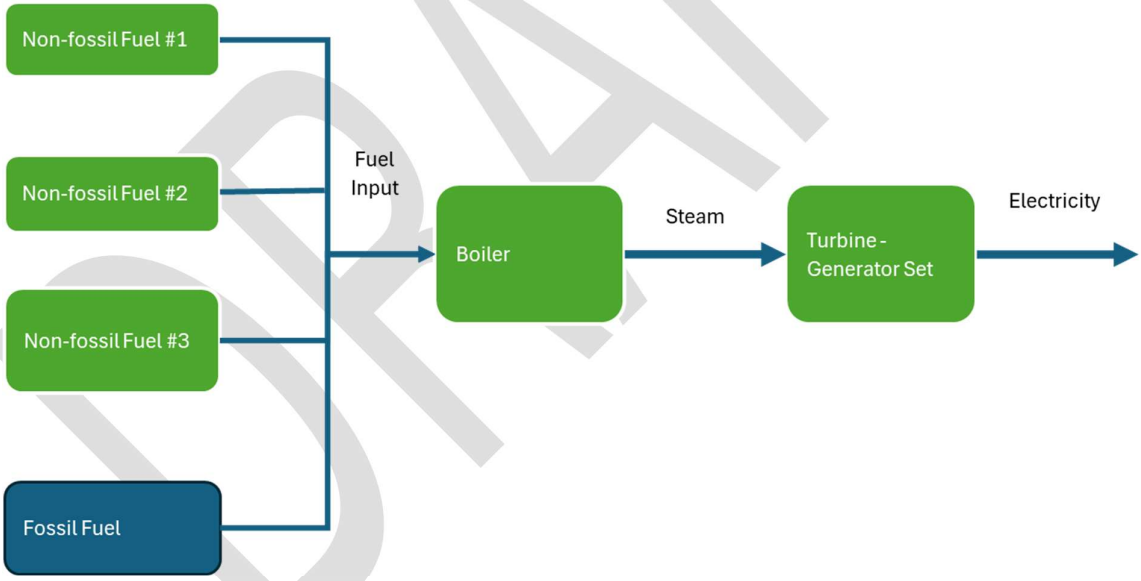

Figure 5: Schematic representation of Case 1- Methodology for estimation of electricity generated from combustion of renewable sources

$$Electricity\ Generation\ through\ Co-firing\ of\ RE\ based\ fuels = \left(\frac{Energy\ input\ through\ co-fired\ RE\ fuel}{Energy\ input\ through\ total\ fuel\ quantity\ fired}\right) x\ Total\ Electricity\ Generation$$

$$\text{i.e. } Er(G) = \left(\frac{\sum_{i=1}^{i=n} \mathrm{Qr_i\ x\ Gr}_i}{\sum_{i=1}^{i=n} \mathrm{Qr_i\ x\ Gr_i} + \sum_{i=1}^{i=n} Qf_i\ x\ Gf_i}\right) x\ E(GT)$$

[2] Adapted from the methodology decided by the Central commission in its order dated 18.02.2020 in Suo-moto Petition No. 12/SM/2019

Where,

Er(G)	=	Electrical energy generated by renewable fuels at Generator terminal during the month (kWh);
Qr	=	Quantity of renewable fuels consumed during the month (kg)
Gr	=	Weighted average Gross Calorific Value (GCV) of biomass (other renewable sources) consumed during month (kCal/kg)
Qf	=	Quantity of coal or other fossil fuel burnt during the month (kg)
Gf	=	Weighted average GCV of coal or other fossil fuel burnt during the month (kCal/kg)
E(GT)	=	Gross electrical energy generated at Generator Terminal during the month (kWh)

Case # 2: Methodology for estimation of renewable electricity generated by Co-firing of multiple renewable fuels (e.g., black liquor dry solids - BLDS) and fossil fuels, each in separate boiler and with these boilers feeding to a common turbine generator set for electricity generation:

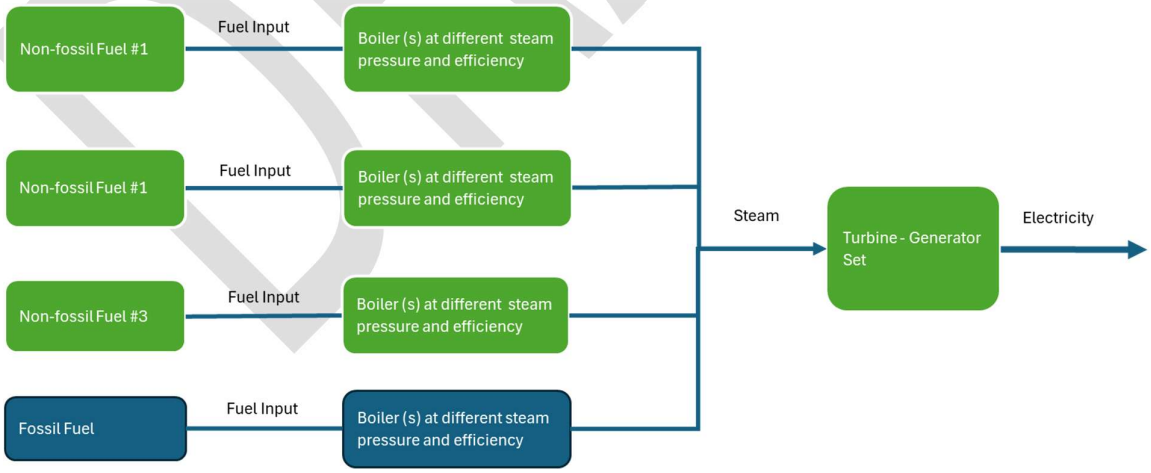

Figure 6: Schematic representation of Case 2- Methodology for estimation of electricity generated from combustion of renewable sources

$$Electricity\ Generation\ through\ Co-firing\ of\ RE\ based\ fuels = \left(\frac{RE\ Energy\ input\ at\ turbine\ inlet}{\text{Total energy } input \text{ at turbine inlet}}\right) x\ Total\ Electricity\ Generation$$

$$\text{i.e. } Er(G) = \left(\frac{\sum_{i=1}^{i=n} \text{Qr}_\text{i} \text{ x } \text{Hr}_i}{\sum_{i=1}^{i=n} \text{Qr}_\text{i} \text{ x } \text{Hr}_\text{i} + \sum_{i=1}^{i=n} Qf_i \, x \, Hf_i}\right) x \, E(GT)$$

Where,

Er(G) = Electrical energy generated by renewable fuels at Generator terminal during the month (Million kWh);

Qr = Quantity of steam generated from renewable fuels consumed during the month (Tons);

Hr = Weighted average enthalpy of steam generated from renewable fuels consumed during month (kCal/kg);

Qf = Quantity of steam generated from coal or other fossil fuel burnt during the month (Tons);

Hf = Weighted average enthalpy of steam generated from fossil fuel burnt during the month (kCal/kg)

E(GT) = Gross electrical energy generated at Generator Terminal during the month (Million kWh);

Case # 3: Methodology for estimation of renewable electricity generated from Co-firing of multiple fossil and renewable fuels in multiple boilers (Combination of Case 1 and Case 2).

$$Electricity\ Generation\ through\ Cofiring\ of\ RE\ based\ fuels\ Er(G) = \left(\frac{\sum_{i=1}^{i=n} Qr_i \, x \, Hr_i \, x \, ERBI_i}{\sum_{i=1}^{i=n} Qr_i \, x \, Hr_i \, x \, ERBI_i + \sum_{i=1}^{i=n} Qf_i \, x \, Hf_i \, x \, ERBI_i}\right) x \, E(GT)$$

$$and\ ERBI_j = \left(\frac{\sum_{j=1}^{j=n} Qr_\text{j} \, x \, Gr_j + (I_p + U_p) x \, RER_{pi}}{\sum_{j=1}^{j=n} Qr_j \, x \, Gr_j + \sum_{j=1}^{j=n} Qf_j \, x \, Gf_j + (I_p + U_p)}\right)$$

Where,

Er(G) = Electrical energy generated by renewable fuels at Generator terminal during the month (Million kWh);

Qr	=	Quantity of steam generated from renewable fuels consumed during month (Tons);
Hr	=	Weighted average enthalpy of steam generated from renewable fuels consumed during month (kCal/kg);
Qf	=	Quantity of steam generated from coal or other fossil fuel burnt during the month (Tons);
Hf	=	Weighted average enthalpy of steam generated from fossil fuel burnt during the month (kCal/kg)
ERBI	=	Energy Ratio at Boiler Input (ratio of energy from co-firing of non-fossil fuels to energy from firing of all fuels at boiler input);
$I_P + U_P$	=	Energy input at WHR Boiler through recovery of heat generated from process (by combustion of fossil fuel and by exothermic reactions) during the quarter (Mega Cal). Applicable in case of WHR Boiler only. Refer to Case 4 for schematic diagram;
RER_{pi}	=	Input Energy Ratio of RE Fuels to total Fuels fired at the Process Input. Applicable in case of WHR Boiler only. Refer to Case 4 for schematic diagram;
E(GT)	=	Gross electrical energy generated at Generator Terminal during the quarter (Million kWh);

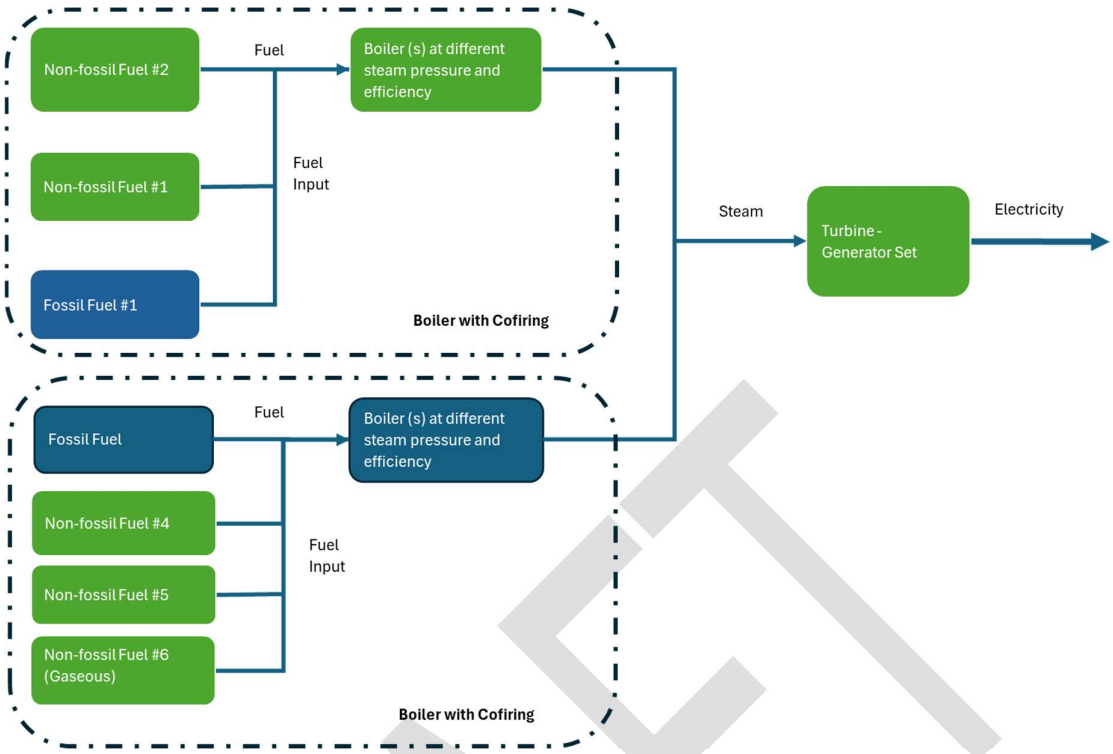

Figure 7: Schematic representation of Case 3 - Methodology for estimation of electricity generated from combustion of renewable sources

Case # 4: Methodology for estimation of electricity generated from combustion of other renewable sources like AFR in kiln and Waste Heat Recovery system (WHRS).

$$Electricity\ Generation\ through\ Auxliary\ firing\ of\ fossil\ fuels = \left(\frac{Energy\ input\ through\ auxiliary\ \text{firing of}\ RE\ fuel}{\text{Total energy}\ input\ \text{to WHR Boiler}}\right) x\ Total\ Electricity\ Generation$$

$$\text{i.e. } Ef(GT)_{AUX} = \left(\frac{\sum_{i=1}^{i=n} \text{Qf}_i \text{ x } \text{G}f_i}{(I_p + U_p) + \sum_{i=1}^{i=n} Qr_i\ x\ Gri + \sum_{i=1}^{i=n} Qf_i\ x\ Gf_i}\right) x\ E(GT)_{WHR}$$

$$\text{and } Er(GT)_{AUX} = \left(\frac{\sum_{i=1}^{i=n} \text{Qr}_i \text{ x } \text{G}r_i}{(I_p + Up) + \sum_{i=1}^{i=n} Qr_i\ x\ Gri + \sum_{i=1}^{i=n} Qf_i\ x\ Gfi}\right) x\ E(GT)_{WHR}$$

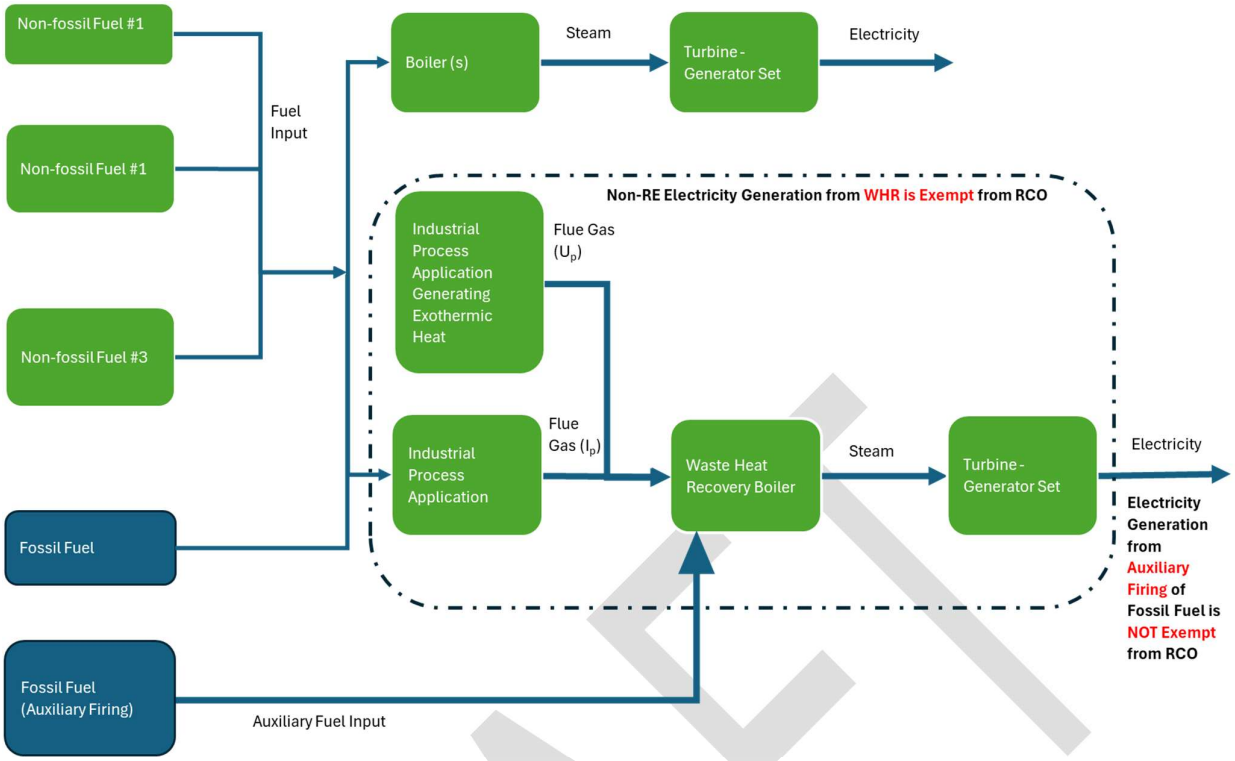

Figure 8: Schematic representation of Case 4- Methodology for estimation of electricity generated from combustion of renewable sources

Where,

$Ef(G)_{AUX}$	=	Electrical energy generated at Generator terminal of WHR system by auxiliary firing of fossil fuels during the month (kWh);
$Er(G)_{AUX}$	=	Electrical energy generated at Generator terminal of WHR system by auxiliary firing of renewable fuels during the month (kWh);
Qf	=	Quantity of steam generated from coal or other fossil fuel burnt during the month (kg);
Hf	=	Weighted average enthalpy of steam generated from fossil fuel burnt during the month (kCal/kg)
Qr	=	Quantity of renewable fuels consumed during the month (kg);
Gr	=	Weighted average Gross Calorific Value (GCV) of biomass (other renewable sources) consumed during month (kCal/kg);

$I_P + U_P$ = Energy input at WHR Boiler through recovery of heat generated from process (by combustion of fossil fuel and by exothermic reactions) during the month (kCal);

$E(GT)_{WHR}$ = Gross electrical energy generated at Generator Terminal through WHR during the month (Million kWh);

The obligated Designated Consumer are required to maintain and report information to respective SDA, empaneled AEA Agency and the Bureau, in the following manner as part of the RCO reporting process:

- The obligated Designated Consumer is required to maintain separate fuel accounts for fossil fuel and biomass (or other renewable sources), with opening balance, fuel received during the month, fuel consumed, any sales of fuel to external entities and closing balance in tonnes.
- The obligated Designated Consumer is also required to maintain separate Gross Calorific Value (in kCal/kg) accounts for coal and biomass (and each of the other renewable fuels), for all fuel consumed for co-firing during the month.
- GCV will be determined based on Ultimate and proximate analysis of sample of each fuel (i.e. coal, biomass and each of the other RE fuels fired) in an NABL certified Lab (lab may be internal facility with the DC or an external Lab).
- In case of other renewable fuels fired, mass of all gas and liquid fuels will be corrected using the density factor for determination of weighted average GCV.
- These monthly accounts of fuel and GCV, duly signed by the authorized official of the obligated Designated Consumer need to be submitted quarterly along with the bills towards purchase of fossil fuel and biomass (or other renewable sources). The monthly accounts of fuel and GCV should include the information at a minimum as prescribed in Form – G.
- Inspection officer or other authorised representative of State Designated Agencies will have the right to witness the GCV testing of renewable fuels and to inspect the captive generation facility during the period when renewable fuels are being co-fired.

Annexure – 2: Provisional Methodology for estimation of electricity required for production of unit mass of Green Hydrogen

The methodology specified hereunder needs to be provisionally followed by obligated Designated Consumers for estimating electricity required for production of One Ton of Green Hydrogen, till such time that the corresponding norms are notified by the Central Commission or the Central Government as the case may be.

The Ministry of New and Renewable Energy vide office memorandum no. 353/35/2022 – NT, dated 18.08.2023 has defined green hydrogen based on two main types of production routes, namely through electrolysis of water and conversion of biomass to hydrogen. Accordingly, this provisional methodology is specified for these two production routes of green hydrogen.

Case # 1: Methodology for estimation of electricity consumption for generation of Green Hydrogen from electrolysis of water

To calculate the electricity consumption for producing 1 kg of green hydrogen through the electrolysis process, the following formula should be used:

Electricity Consumption per kg of H_2 (kWh) = Theoretical Energy Required (39.4 kWh/kg) / Efficiency of Electrolyzer

Where, **Theoretical Energy Required per kg of H_2 (kWh/kg):**

The theoretical energy required to produce 1 kg of hydrogen via electrolysis is approximately 39.4 kWh. (See box below for details)

Electrolyzer Efficiency:

The efficiency of the electrolyzer typically ranges from 60% to 80%. For example, if an electrolyzer with 70% efficiency is used, you would adjust the energy requirement accordingly.

The theoretical energy required to produce hydrogen via electrolysis can be calculated using the thermodynamic principles of the water-splitting reaction. Here's how to derive it step-by-step:

1. The Electrolysis Reaction

The electrolysis of water is represented by the following reaction:

$$2H_2O \rightarrow 2H_2 + O_2$$

This reaction requires a certain amount of energy to break the bonds in water molecules.

2. Standard Gibbs Free Energy Change (ΔG)

The theoretical energy requirement can be determined from the Gibbs free energy change of the reaction at standard conditions (25°C and 1 atm). The standard Gibbs free energy change for the electrolysis of water is approximately:

$$\Delta G \approx 237.13 \text{ kJ/mol of } H_2$$

The standard Gibbs free energy change (ΔG) for the electrolysis of water can be calculated using thermodynamic principles. Here's a breakdown of how this value is typically derived:

Thermodynamic Definition: The Gibbs free energy change (ΔG) for a chemical reaction at standard conditions (25°C, 1 atm) can be found using the following formula:

$$\Delta G = \Delta H - T\Delta S$$

Where:

- ΔH = Change in enthalpy (heat content) of the reaction.
- T = Temperature in Kelvin (298 K for standard conditions).
- ΔS = Change in entropy of the reaction.

Thermodynamic Data for Electrolysis of Water: For the electrolysis of water, the relevant thermodynamic data can be found in standard tables:

- **Enthalpy Change (ΔH)**: The enthalpy change for the reaction at 25°C is approximately 285.83 kJ/mol for the formation of H_2 and O_2 from water.
- **Entropy Change (ΔS)**: The entropy change for the reaction is about 163.15 J/(mol·K), which is 0.16315 kJ/(mol·K).

Calculating ΔG: Plugging these values into the Gibbs free energy formula,

$$\Delta G = \Delta H - T\Delta S$$

$$\Delta G = 285.83 \text{ kJ/mol} - (298 \text{ K} \times 0.16315 \text{ kJ/(mol·K)})$$

$$\Delta G = 285.83 \text{ kJ/mol} - 48.65 \text{ kJ/mol} \approx 237.18 \text{ kJ/mol}$$

This value is often rounded to approximately 237.13 kJ/mol

3. Calculate Theoretical Energy per kg of Hydrogen

Since the standard Gibbs free energy is for 1 mole of hydrogen (which is 2 grams of H_2) we need to scale it up to find the energy required for 1 kg of hydrogen:

1. Gibbs free energy per mole:

$$\Delta G \approx 237.13 \text{ kJ/mol of } H_2$$

2. Find how many moles are in 1 kg of hydrogen:

$$\text{Molar mass of } H_2 \approx 2 \text{ g/mol}$$
$$\text{Moles in 1 kg of } H_2 = 1000 \text{ g} / 2 \text{ g/mol} = 500 \text{ mol}$$

3. Calculate total energy for 1 kg of hydrogen:

$$\text{Total Energy (kJ)} = 500 \text{ mol} \times 237.13 \text{ kJ/mol} = 118565 \text{ kJ}$$

4. Convert this to kWh:

1 kWh = 3.6 MJ = 3600 kJ

Total Energy (kWh) = 118565 kJ / 3600 ≈ 32.9 kWh

5. Total Energy including the losses of the system

Theoretical Energy Required ≈ 39.4 kWh / kg

Wherein, these losses may include the below mentioned factors

- Activation Overpotential: Energy is required to initiate the electrochemical reactions at the electrodes.
- Concentration Overpotential: This arises due to the depletion of reactants (water) near the electrode surfaces.
- Ohmic Losses: Resistance in the electrolyzer components (electrodes, membranes, etc.) leads to energy loss.
- Cooling Requirements: Some systems require additional energy for cooling, especially at high operational rates.
- Maintenance and Degradation: Over time, the performance of electrolyzers can degrade, requiring more energy for the same output.
- Balance of Plant (BoP): This includes all auxiliary systems (pumps, compressors, control systems) that also consume energy but are not directly involved in the electrolysis process.

This value of theoretical energy required per kg of GH_2 can vary based on temperature and pressure. The value of 39.4 kWh/kg takes into consideration the typical pressure and temperature conditions for commercial production of hydrogen in electrolyzers.

The production of green hydrogen through electrolysis typically occurs under specific temperature and pressure conditions, which can vary depending on the electrolyzer technology used. Following are the general conditions for the main types of electrolyzers:

Type of Electrolyzer	Temperature	Pressure
Alkaline Electrolyzers	Around 60-80°C	Typically operate at atmospheric pressure. Some designs can operate at higher pressures (up to 30 bar) to improve hydrogen production rates and reduce gas separation costs
Proton Exchange Membrane (PEM) Electrolyzers	Around 50-80°C	Can operate at pressures ranging from atmospheric up to 70 bar or more, which enhances efficiency and allows for easier hydrogen storage
Solid Oxide Electrolyzers	Operate at high temperatures,	Often operate at atmospheric pressure but can also function at

	typically between 600-800°C	elevated pressures for specific applications

A comparison based on National Green Hydrogen Mission Targets: The National Green Hydrogen Mission targets Five (05) million tonnes of annual production capacity of Green Hydrogen by 2030, supported by 125 GW of renewable energy capacity. A calculation of the energy consumption per kg of Hydrogen based on these national targets compares well with the corresponding value arrived at using the formula under Case #! of the provisional methodology based on Standard Gibbs Free Energy Change (ΔG).

Description	Units	Value
Based on National Green Hydrogen Mission Targets		
GHM 2030 target for annual GH2 production capacity	MMT	5
GHM 2030 target for annual GH2 production capacity	kg	5 x 10^9
GHM 2030 target for corresponding RE capacity required for the GH_2 production	GW	125
Annual RE required to achieve annual GH_2 production target	kWh	2.7375E+11
RE consumption per kg of GH_2	kWh/kg	54.75
Based on Gibbs Free Energy		
Theoretical energy requirement based on Gibbs Free Energy Change	kWh/kg	39.4
Electrolyzer Efficiency (Typical Value)	%	73%
RE consumption per kg of GH_2	kWh/kg	54.34

Sources: National Green Hydrogen Mission, MNRE; Development of Water Electrolysis in the European Union; International Energy Agency (IEA) - "The Future of Hydrogen" (2019); NREL (National Renewable Energy Laboratory) - Publications on electrolysis technologies and performance metrics.

Case # 2: Methodology for estimation of energy consumption for generation of Green Hydrogen from gasification of biomass

Biomass Gasification: Organic materials (biomass) can be converted into hydrogen through gasification, where biomass is heated in a low-oxygen environment, producing a gas mixture that can be processed to extract hydrogen. This method can be considered green if sustainable biomass sources are used.

The energy required to produce 1 kg of hydrogen from biomass gasification can vary significantly depending on several factors, including the type of biomass used, the efficiency of the gasification process, and the specific technology employed. However, a general approach to estimate the energy requirement involves a few key considerations.

1. **Energy Content of Biomass**: First, determine the energy content (calorific value) of the biomass feedstock, typically measured in MJ/kg.
2. **Gasification Efficiency**: Identify the efficiency of the gasification process, which can vary but is often around 60-80%. This efficiency represents the percentage of the biomass energy that is converted into usable hydrogen.
3. **Hydrogen Yield**: Estimate the yield of hydrogen produced per kg of biomass. This can also vary but is often in the range of 4-7 kg of hydrogen per ton of biomass (or about 0.004-0.007 kg of hydrogen per kg of biomass).

Formula

A simplified formula to estimate the energy required to produce 1 kg of hydrogen could be expressed as:

$$E = C / (Y * \eta)$$

Where:

- E = Energy required (MJ/kg H_2)
- C = Energy content of biomass (MJ/kg)
- Y = Hydrogen yield (kg H_2/kg biomass)
- η = Gasification efficiency (as a decimal, e.g., 0.7 for 70%)

The obligated DC will maintain and report information to respective SDA, empaneled AEA Agency and the Bureau, in the following manner as part of the RCO reporting process:

- For each of the hydrogen electrolysers, from which the green hydrogen is produced or purchased or sold, the obligated DC is required to maintain the relevant design details like the type / technology variant of the electrolyser (e.g. Alkaline, PEM, Solid Oxide Electrolyser etc.), the respective electrolyser efficiency, source and quantity of green (RE) electricity used etc.
- In case of in-house electrolysers, the electricity used will be established through dedicated meters for respective electrolysers, maintained as per CEA metering regulations, along with annual calibration records. In case of purchase of green hydrogen from external sources, the design details of electrolyser need to be sourced by the obligated DC from the respective external party.
- For each of the biomass gasifiers from which the green hydrogen is produced or purchased or sold, the obligated DC is required to maintain the relevant design details like the type /

technology variant of the biomass gasifier, Hydrogen yield (kg H_2/kg biomass) based on biomass properties, Calorific Value of Biomass (MJ/kg) etc.

Annexure – 3: Table of Contents / Outline of Report to be submitted by empaneled AEA Agency to DC

1. **Executive Summary**
    I. Brief outline of the report covering obligated DC profile, energy sources and consumption patterns, RCO compliance summary, and opportunities for improvements if any
2. **Profile of the obligated DC**
    I. Brief overview - of the obligated DC entity, beneficial owners, group company hierarchy, operations and locations etc.
    II. RPO Targets and Compliance in previous years - Any relevant aspects about previous RPO regime and related compliances achieved in the past (optional, if relevant in current context)
    III. Current RCO obligations, modes of compliance leveraged
    IV. Other sustainable energy obligations - including RE 100 commitments, CBAM, Customer / Market imposed obligations, Reporting requirements and practices followed etc.
3. **Electricity Sources (including conventional and RE)**
    I. Overview of Electricity Sources - Details on consumption from Discom (Grid), Open Access, and Captive consumption for:
        a) Conventional Electricity sources and their percentage shares - including Thermal, Co-generation, Other Fossil based and Nuclear
        b) RE Electricity sources including Wind, Hydro, Other RE, DRE
        c) Include a line diagram or schematic for both a) and b) above
    II. Arrangements for Open Access - In case of open access, mention separately on arrangements including Bilateral PPA, and Purchase from Power Market
    III. Captive RE sources - In case of Captive RE sources, mention arrangements including Group Captive, Collaboration with RE Developers (Formation of SPV etc.)
    IV. DRE Sources - In case of DRE sources, mention arrangements with DISCOMs (e.g. Net Metering, Gross Metering or other applicable configurations)
4. **Electricity Generation from WHR (if applicable)**

I. Include broad process description, flow diagram in each case

II. Mention separately for each WHR process including Fossil based and Non-fossil based WHR

III. Include separate mention for WHR from exothermic heat liberated from Process in Industry

5. **Load profile / energy consumption details**

I. Major energy consumption avenues, and their percentage shares

II. Broad process description, flow diagram for each major energy consumption avenue

6. **Quarterly RCO compliance details (Form A) for all four quarters of the target year**

7. **Annual RCO compliance details (Form A)**

8. **Corporate Compliance details where applicable (Form C)**

I. In case of Distribution Licensees, corporate compliance can be opted for through the State Power Corporation or equivalent managing / holding entity common to all PSU discoms

II. In case of private sector distribution licensees, corporate compliance can be opted through the holding company as per RCO Operational Procedures

III. In case of corporate compliance, if the same empaneled AEA Agency is retained for compliance assessment of all the obligated DCs involved, then a single RCO Compliance Report may be submitted covering all details as per these guidelines for all of the obligated DCs involved. Also, Forms A and B for each of the obligated DCs involved shall be appended with Form C.

9. **Certification by Empaneled AEA Agency (Form D)**

10. **Supporting Documentation**

Annexure – 4: Model Scope of Work of Empaneled AEA Agency

Empaneled Accredited Energy Auditor Agency has to carry out the RCO Audit focusing on the following Scope of Work at a minimum:

1. **RCO Verification Audit should be carried out in line with the MoP Notification on RCO dtd. 27 September 2025, with latest amendments.**

   I. The agency carrying RCO verification audit should be empaneled by BEE for any of the industrial sector notified as designated consumer.

   II. RCO proforma (formats) prepared by BEE for submission of compliance will be used for this verification audit. The RCO notification and its amendments, correspondences issued by MoP, BEE, along with proforma's (formats) can be downloaded from BEE's website.

2. **Data collection and Verification:**

   I. Collecting and reviewing the data on the total energy consumption and non-fossil energy consumption in consultation with energy manager, appointed by the designated consumer obligated under RCO.

   II. Verification of energy distribution including consumption from various sources like DISCOMs, own generation, purchase through bilateral agreement etc., and as per the details given in the format (Form A).

   III. Reviewing and validating the collected data through examination of energy bills, production data, inspection of energy-using equipment and instrumentation, discussion or interview with relevant officers and staff at the DC regarding operation of plants, energy management procedures. Establish validated data on quarterly and annual energy consumption.

   IV. Verification of authenticity and accuracy of energy consumption data and other supporting data provided by obligated entity as per the following:

      a) MoP Notification on RCO dtd. 27 September 2025, with latest amendments

      b) 'Operational Procedures for RCO Compliance Mechanism' as published by BEE from time to time.

c) ‘Monitoring and Reporting Guidelines’ for RCO as published by BEE from time to time

d) RCO data collection formats (Form A)

V. Data will be verified for the previous financial year (i.e. the target year) within the timelines as prescribed in the ‘Operational Procedures for RCO Compliance Mechanism’ as published by BEE from time to time.

3. Reporting:

I. Preparation and submission of detailed report on the entity's RCO compliance status as per MoP Notification on RCO dtd. 27 September 2025, with latest amendments and ‘Operational Procedures for RCO Compliance Mechanism’ as published by BEE with latest amendments.

II. Report submitted to the DC will at a minimum be in accordance with report format as published by BEE as Annexure 3 to the ‘Operational Procedures for RCO Compliance Mechanism’

III. The report should highlight areas of non-compliance and suggest corrective actions.

4. Audit and Compliance Assessment:

I. Conducting periodic audits during the target year to ensure ongoing compliance with RCO requirements (optional as per arrangements with the respective DCs).

II. Conducting annual audits to ensure compliance with RCO requirements within prescribed timelines at end of target year.

III. Assessing the entity's compliance with RCO targets as mandated by MoP for the target year.

IV. Identifying any shortfalls or excesses in renewable energy procurement.

5. Supporting Development and continual improvement of RCO Compliance Monitoring System:

I. Based on audit findings, providing advisory support and recommendations for establishing, implementing and maintaining a transparent mechanism for monitoring and verification of the RCO compliance.

II. Providing recommendations for maintaining and improving the effectiveness of systems for RCO data collection, metering, and record keeping to support effective monitoring of RCO compliance.

6. Certification of Compliance or Shortfall by Empaneled AEA Agency:

I. Issuing compliance certificates (as per Form B) to the obligated DC as required by the MoP and BEE.

7. Attachments / Enclosures to the Model Scope of Work of Empaneled AEA agency:

I. Following attachments / enclosures should be ideally provided along with the Scope of Work to the empaneled AEA Agency:

a) Data collection formats as per Form A to Form F as prescribed in 'Operational Procedures for RCO Compliance Mechanism' as published by BEE with latest amendments

Annexure – 5: Form – A

RENEWABLE CONSUMPTION OBLIGATIONS COMPLIANCE DECLARATION FORM

(To be filled by Obliged Designated Consumer)

1	Name of Obligated Designated Consumer	
2	Sector	
3	Registration No. of Obligated Designated Consumer	
4	REC Buyer Codes	
5	Address	
6	State / UT	
7	State Category (Hilly/NE/Other)###	
7a	Only if obligated DC is a Distribution Licensee, whether distribution licensee serves exclusively urban consumers (Yes / No)	
8	Type of obligation(s) of Obligated Designated Consumer#	
9	Target Financial Year (FY __-__)	
10	Target Quarter (Q1, Q2, Q3, Q4)†	
Part A – Gross Total Energy Consumption (Fossil based + Non-fossil based)		
11	Own Electricity Generation, Net after deducting Auxiliary Power Consumption (APC)*** (A=D-0.5*E)	

12	Total Fossil based electricity generation (in GWh) (A')	
	Fossil based electricity from WHR (B)	
11	Fossil based electricity from WER (in GWh) (B')	
12	Ex-Bus Electricity generation from Fossil based Auxiliary Firing in WHR & WER System (in GWh) (C)	
13	Balance Fossil based energy generation other than WHR and WER (in GWh) (D=A'-B-B'+C)	
14	Co-generation component of Balance Fossil based generation (other than WHR and WER) (in GWh) (E)	
15	APC corresponding to Generation including 50% Cogen and excluding WHR (in GWh) (F)	
16	Fossil based energy (through PPA/Bilateral and Power Exchanges) (in GWh) (G)	
17	Banking (Drawl) of Electricity (in GWh) (H)	
18	Fossil based electricity sales (PPA/Bilateral and Power Exchange) (in GWh) (G')	
19	Banking (Storage) of Electricity (H')	
20	Electricity Consumption at Aluminium Smelter (G)	

	Electricity Purchase from Discom (Not included in RCO calculations) (I)	
21	Gross Total Electricity Consumption on which Renewable Consumption Obligations is applicable (K=A+G+H-G'-H'-J)	
Part B – Gross Non-fossil based Energy Consumption		
22	RE Own Generation, Purchase and Banking (Sub-Total)	
23	Generation (except firing of RE fuel in CPP) and Purchase of All Renewable Energy	
24	Ex-bus electrical energy generated by combustion of renewable fuels including Co-firing	
25	Banking (Drawl) of Electricity	
26	RE Sales and Banking (Sub-Total)	
27	Sale of All Renewable Energy (M')	
28	Banking (Storage) of Electricity (O')	
29	Energy Equivalent of GH2 Consumed (Q)	
24	Energy Equivalent of Green Ammonia Consumed (R)	
25	Gross Non-fossil based Electricity Consumption (S=L-P+Q+R)	
26	Renewable Energy Certificates (RECs) (in GWh) (T=(T'+T'')/1000)	

27	Number of RECs Purchased (No. of certificates) (T')					
28	Number of RECs Self-Retained (No. of certificates) (T'')					
Part C – Compliance to Renewable Consumption Obligations						
29	Renewable Consumption Obligations (%) specified by MoP (U)[##]					
30	MoP Renewable Consumption Obligations Target (in GWh) (U'=U*K)[##]					
31	Compliance (in GWh) (V=S+T)					
32	Compliance (%) (V'=V/K*100)					
33	Surplus / Deficit (in GWh) (W=V-U')					

Notes:

[#] Mention each of the type of obligations of the obligated Designated Consumer i.e. Distribution Licensee, and/or Open Access Consumer and/or Captive Power Consumer

[†] Mention respective quarter (Q1, Q2, Q3, Q4) as applicable for submission of quarterly details. Mention 'Annual' in case of annual compliance data submission

[###] Hilly and North-Eastern States/Union Territories will be as per MoP Trajectory notification S.O. 4421(E) dtd. 27 September 2025 or as per latest amendments from time to time.

[!] In case of distribution licensees, if the other entity to whom energy is sold is itself an obligated Designated Consumer(s) in the periphery of the distribution licensee, then such sale of fossil based power shall be considered as deemed consumption by the distribution licensee and shall not be treated as energy sale to other entity. On the other hand, such sale of non-fossil based power (RE) shall be treated as energy sale to other entity if requisitioned by the other obligated Designated Consumer for fulfilment of its Renewable Consumption Obligations.

In case an obligated designated consumer has different renewable consumption obligation targets by virtue of its being a Distribution Licensee, and/or Open Access Consumer and/or Captive Power Consumer, then each such separate target in percentage and GWh shall be evaluated separately and the compliance shall be monitored separately

†† RE Source wise details (Wind, Hydro, DRE and Others) to be filled mandatorily by Distribution Licensees

* Definition of RE Sources (Wind, Hydro, DRE and Others) shall be as per MoP Trajectory notification S.O. 4421(E) dtd. 27 September 2025 or as per latest amendments from time to time

** Energy equivalent of GH_2 and Green Ammonia Consumed shall be evaluated as per Green Energy Open Access Rules with latest amendments as applicable.

‼ Green Ammonia produced using the quantity of Green Hydrogen already reported shall not be included. Likewise Green Ammonia procured from an obligated Designated Consumer, shall not be included.

Undertaking

I/We undertake that the information supplied in this Renewable Consumption Obligations Compliance Declaration Form For Obligated Designated Consumers is accurate to the best of my knowledge and if any of the information supplied is found to be incorrect and such information results into loss to the Central Government or any of the authority under them or any other person affected, I/we undertake to indemnify such loss.

I /We agree to extend necessary assistance in case of any enquiry to be made in the matter.

Signature

Name

Designation

For and behalf of

Name of the Firm/Company/Organization

SEAL of the Firm /Company/Organization

Annexure – 6: Form – B

Certificate of Verification

(To be filled by Empaneled AEA Agency)

We _____the empaneled AEA agency, have undertaken a thorough independent evaluation of the activities undertaken by M/s. _____, a designated consumer for compliance with renewable consumption norms specified under the Government of India, Ministry of Power notification number_____, dated the _____ for the compliance year FY ____ - ____ and certify that-

a) the collection and verification of the data in relation to renewable consumption norms / target in the compliance year in Annual RENEWABLE CONSUMPTION OBLIGATIONS Compliance Assessment Form (Form A), has been carried out diligently and truthfully;

b) the verification of the total amount of renewable energy consumption in the compliance year through all modes of green and renewable energy consumption including purchase of renewable energy certificates (RECs) by the obligated Designated Consumer and the consequent extent of compliance with renewable consumption norms, and extent of fulfilment or shortfall in RENEWABLE CONSUMPTION OBLIGATIONS compliance given in the Form A have been carried out diligently and truthfully;

c) the key results of compliance verification are reiterated here:

   i. Total Energy Consumption (MU) = _____
   ii. RCO Compliance Target (MU) = _____
   iii. Total Renewable Energy Consumption (MU) = _____
   iv. Total REC purchased / self-retained (MU) = _____
   v. Total RCO Compliance during Target Year (MU) = _____
   vi. Surplus / Deficit during Target Year (MU) = _____

d) the verification of the identified modes of compliance, methods for measurement and monitoring of compliance with renewable consumption norms has been carried out diligently and truthfully;

e) all reasonable professional skill, care, and diligence have been taken in verifying the various verification activities, findings and conclusions, documents, reports, preparing the documents including the compliance assessment document in Form 'A' and verification report and the contents thereof are a true representation of the facts.

Signature:

Authorized Signatory on behalf of SLDC (For Discom) / empaneled AEA agency (for Other DCs)

Designation:

Annexure – 7: Form – C

CORPORATE COMPLIANCE DECLARATION FORM FOR RENEWABLE CONSUMPTION OBLIGATIONS

(To be filled by Holding Company of Obliged Designated Consumers)

1	Name of Holding Company	
2	Address	
3	State / UT	
4	Registration No. of Holding Company	
5	Target Financial Year (FY __-__)	
Part A – Obligated Designated Consumers under Holding Company		
6	Name of Obligated Designated Consumer 1	
7	Registration No. of Obligated Designated Consumer 1	
8	Type of obligation(s) of Obligated Designated Consumer 1[#]	
9	Name of Obligated Designated Consumer 2	
10	Registration No. of Obligated Designated Consumer 2	
11	Type of obligation(s) of Obligated Designated Consumer 2[#]	
	...[!]	
Part B – Gross Total Energy Consumption (Fossil based + Non-fossil based)		
12	Gross Total Energy Consumption for Obligated Designated Consumer 1 (in GWh) (A)	

13	Gross Total Energy Consumption for Obligated Designated Consumer 2 (in GWh) (B)					
	…[!]					
14	Gross Total Energy Consumption for Obligated Designated Consumer n (in GWh) (C)					
15	Gross Total Energy Consumption for Target Financial Year (in GWh) (D = A+B+…+C)					
Part C[!] – Gross Non-fossil based Energy Consumption						
	†† Please refer to notes below	Wind*	Hydro*	DRE*	Others*	**Total RE**
16	Gross Non-fossil Energy Consumption for Obligated Designated Consumer 1 (in GWh) (E)					
17	Gross Non-fossil Energy Consumption for Obligated Designated Consumer 2 (in GWh) (F)					
	…[!]					
18	Gross Non-fossil Energy Consumption for Obligated Designated Consumer n (in GWh) (H)					
19	Gross Non-fossil Energy Consumption for Target Financial Year (in GWh) (I = E+F+…+H)					
Part D – Compliance Transactions through REC during Target Year						
20	Total of RECs Purchased / Self-retained, and Buyouts					

	Purchased for Obligated Designated Consumer 1 (in GWh) (J)					
21	Total of RECs Purchased / Self-retained, and Buyouts Purchased for Obligated Designated Consumer 2 (in GWh) (K)					
	…!					
22	Total of RECs Purchased / Self-retained, and Buyouts Purchased for Obligated Designated Consumer n (in GWh) (L)					
23	Total of RECs Purchased / Self-retained, and Buyouts Purchased for Target Financial Year (in GWh) (M=J+K+…+L)					
Part E – Compliance Transactions through REC and / or Buyout Price (during AY Compliance Window)						
24	Total of RECs Purchased / Self-retained, and Buyouts Purchased for Obligated Designated Consumer 1 (in GWh) (N)					
25	Total of RECs Purchased / Self-retained, and Buyouts Purchased for Obligated Designated Consumer 2 (in GWh) (O)					
	…!					

26	Total of RECs Purchased / Self-retained, and Buyouts Purchased for Obligated Designated Consumer n (in GWh) (P)					
27	Total of RECs Purchased / Self-retained, and Buyouts Purchased for Target Financial Year (in GWh) (Q=N+O+…+P)					
Part F – Compliance to Renewable Consumption Obligations						
Obligated Designated Consumer 1						
28	Renewable Consumption Obligations (%) specified by MoP (R)##					
29	MoP Renewable Consumption Obligations Target (in GWh) (S)##					
30	Surplus / Deficit (in GWh) (T=S-E-J-N)					
Obligated Designated Consumer 2						
31	Renewable Consumption Obligations (%) specified by MoP (U)##					
32	MoP Renewable Consumption Obligations Target (in GWh) (V)##					
33	Surplus / Deficit (in GWh) (W=V-F-K-O)					
…!						
34	Renewable Consumption Obligations (%) specified by MoP##					
35	MoP Renewable Consumption Obligations Target (in GWh)##					

	Surplus / Deficit (in GWh)					
Obligated Designated Consumer n						
36	Renewable Consumption Obligations (%) specified by MoP (X)##					
37	MoP Renewable Consumption Obligations Target (in GWh) (Y)##					
38	Surplus / Deficit (in GWh) (Z=Y-H-L-P)					
Holding Company						
39	Renewable Consumption Obligations (%) specified by MoP (AA=BB x 100 / D) ##					
40	MoP Renewable Consumption Obligations Target (in GWh) (BB= S+V+...+Y) ##					
41	Final RCO Compliance after AY Compliance Window (in GWh) (CC= I+M+Q)					
42	Surplus / Deficit (in GWh) (DD=BB-CC)					
43	Actual % RE Consumption (Renewable Consumption Obligations Achieved) (EE = CC x 100 / D)					

Notes:

Mention each of the type of obligations of the obligated Designated Consumer i.e. Distribution Licensee, and/or Open Access Consumer and/or Captive Power Consumer

! Add more rows as needed for each obligated designated consumer under the common control or ownership of the Holding Company

* Definition of RE Sources (Wind, Hydro, DRE and Others) shall be as per MoP Trajectory notification S.O. 4421(E) dtd. 27 September 2025 or as per latest amendments from time to time

In case an obligated designated consumer has different renewable consumption obligation targets by virtue of its being a Distribution Licensee, and/or Open Access Consumer and/or Captive Power Consumer, then each such separate target in percentage and GWh shall be evaluated separately and the compliance shall be monitored separately.

†† RE Source wise details (Wind, Hydro, DRE and Others) to be filled mandatorily by Distribution Licensees

Undertaking

I/We undertake that the information supplied in this Annual Renewable Consumption Obligations Compliance Declaration Form For Holding Company of Obligated Designated Consumers is accurate to the best of my knowledge and if any of the information supplied is found to be incorrect and such information results into loss to the Central Government or any of the authority under them or any other person affected, I/we undertake to indemnify such loss.

I /We agree to extend necessary assistance in case of any enquiry to be made in the matter.

Signature

Name

Designation

For and behalf of

Name of the Firm/Company/Organization

SEAL of the Firm /Company/Organization

Annexure – 8: Form – D

RENEWABLE CONSUMPTION OBLIGATIONS COMPLIANCE DECLARATION FORM

(To be filled by Obligated Designated Consumers)

1	Name of Obligated Designated Consumer	
2	Energy Intensive Sector of Designated Consumer	
3	Registration No. of Obligated Designated Consumer	
4	Address	
5	State / UT	
6	State Category (Hilly/NE/Other)###	
7	Type of obligation(s) of Obligated Designated Consumer#	
	Target Financial Year (FY __-__)	
Part A! – Renewable Consumption Obligations Compliance during Target Year		
8	Gross Total Electricity Consumption on which RCO is applicable (A)	
9	RCO (%) notified by MoP (B)	
10	Renewable Consumption Obligation Target (in GWh) (C=A*B/100)	
11	Compliance (in GWh) (D)	
12	Compliance (in %) (E = D/C*100)	
13	Surplus/ Deficit (in GWh) (F=C-D)	
14	Surplus/ Deficit (in %) (G=F/C*100)	
Part B – Compliance Transactions through REC and Buyout during Post TY Compliance Window		
13	Number of RECs Purchased (in numbers) (G)	
14	Number of RECs self-retained (in numbers) (H)	
15	Compliance using RECs (in GWh) (I=(G+H)/1000)	
16	Number of Buyouts Purchased (in numbers) (J)	
17	Buyouts (in GWh) (K=J/1000)	
18	Total Compliance (RECs + Buyouts) (in GWh) (L=I+K)	
Part C – Final RCO Compliance Post TY Compliance Window		

18	RCO (%) notified by MoP (M)	
19	Renewable Consumption Obligation Target (N=M*A)	
20	Compliance (O=D+L)	
21	Compliance (%) (P=O/N*100)	
22	Surplus / Deficit (Q=O-N)	
23	Surplus / Deficit (%) (R=Q-M)	

Notes:

[#] Mention each of the type of obligations of the obligated Designated Consumer i.e. Distribution Licensee, and/or Open Access Consumer and/or Captive Power Consumer

[†] Mention respective quarter (Q1, Q2, Q3, Q4) as applicable for submission of quarterly details. Mention 'Annual' in case of annual compliance data submission

Annexure – 9: Form – E

CERTIFICATE OF REC REDEMPTION

(To be filled by REC Registry)

Target Quarter (Q1, Q2, Q3, Q4)†: _____

Target Year (FY): _____

State: _____

Name of Obligated Designated Consumer	**Buyer Code**	**No. of RECs Purchased in the period**	**No. of RECs redeemed through self-retention**	**Codes of 'Certificates of Purchase'**

† Mention respective quarter (Q1, Q2, Q3, Q4) as applicable for submission of quarterly details.

Mention 'All Quarters' for submission of Annual Details

Signature

Name

Designation

For and behalf of

Grid India (REC Registry)

SEAL

Annexure – 10: Form – F

Certificate of Check Verification

(To be filled by empaneled AEA Agency conducting Check Verification)

We _____the empaneled AEA agency, have undertaken a thorough independent evaluation of the activities undertaken by M/s. _____, a obligated designated consumer for compliance with renewable consumption norms specified under the Government of India, Ministry of Power notification number_____, dated the _____ for the compliance year FY ____ - ____ and consequent extent of fulfilment or shortfall in renewable energy consumption given in the Form A, and certify that-

a) the check verification of the data collection in relation to renewable consumption norms / target in the compliance year in Annual RENEWABLE CONSUMPTION OBLIGATIONS Compliance Form (Forms A and B) (and Form C where applicable*), has been carried out diligently and truthfully;

b) the check verification of the total amount of renewable energy consumption in the compliance year through all modes of green and renewable energy consumption including purchase of renewable energy certificates (RECs) by the obligated Designated Consumer and the consequent extent of compliance with renewable consumption norms, and extent of fulfilment or shortfall in RENEWABLE CONSUMPTION OBLIGATIONS compliance given in the Forms A and B (and Form C where applicable*) have been carried out diligently and truthfully;

c) the key results of check verification are reiterated here:

Sr. No.	Parameter	Prior to Check Verification	Post Check Verification
i	Total Energy Consumption (MU)		
ii	RCO Compliance Target (MU)		
iii	Total Renewable Energy Consumption (MU)		
iv	Total REC purchased / self-retained (MU)		
v	Total RCO Compliance during Target Year (MU)		
vi	Surplus / Deficit during Target Year (MU)		

d) the check verification of the identified modes of compliance, methods for measurement and monitoring of compliance with renewable consumption norms has been carried out diligently and truthfully;

e) all reasonable professional skill, care, and diligence have been taken in check verifying the various verification activities, findings and conclusions, documents, reports, including the compliance assessment document in Form 'A' and Form 'B' and verification report submitted by the empaneled AEA agency appointed by the obligated Designated Consumer _____ for verification and the contents thereof are a true representation of the facts.

f) all reasonable professional skill, care, and diligence have been taken in preparing the check verification reports and documents and the contents thereof and opinion expressed are a true representation of the facts.

Signature:

Authorized Signatory on behalf of empaneled AEA agency for Check Verification

Designation:

Note: * strike out if not applicable

Annexure – 11: List of Distribution Licensees eligible for the reduce DRE component under RCO Obligations

Following is a list of distribution licenses that cater exclusively to urban consumers and hence shall have a Distributed Renewable Energy (DRE) obligation set at 75% of the specified level. The remaining Distributed renewable energy component portion of the DRE obligation for these distribution licensees shall be included in the Other renewable energy component.

State	Discom
Maharashtra	Adani Electricity Mumbai Ltd (earlier Reliance Infrastructure Ltd.)

List of SEZ/ Industrial Park/ Port that cater exclusively to urban consumers:

State	Deemed Distribution Licensee	Consumer Served
Gujarat	Kandla Port Trust (KPT)	PORT
Gujarat	Torrent Energy Limited –SEZ –Dahej	SEZ
Gujarat	Mundra Port SEZ Utilities Pvt Ltd (MUPL)	SEZ
Gujarat	Aspen Infrastructures Ltd (Synefra), SEZ, Vadodara	SEZ
Gujarat	Gift Power Company Ltd Gandhinagar	Industrial Park
Maharashtra	Jawaharlal Nehru Port Trust & SEZ	SEZ
Maharashtra	Mindspace Business Parks Pvt Ltd (SEZ -IT Park Airoli)	SEZ
Maharashtra	Nidar Utility Panvel LLP (SEZ Panvel)	SEZ
Maharashtra	Gigaplex Estate Pvt Ltd (SEZ-IT & ITES at Airoli)	SEZ
Kerala	Infopark, Kochi	Industrial Park
Kerala	Technopark, Trivandrum	Industrial Park
Kerala	Rubber Park India Pvt Limited, Ernakulam	Industrial Park
Kerala	Cochin Special Economic Zone Authority (CSEZA), Kochi	SEZ
Kerala	Cochin Port Trust, Kochi	PORT
Maharashtra	M/s EON Kharadi Infrastructure Pvt. Ltd. SEZ Pune	SEZ
Maharashtra	M/s EON Kharadi Infrastructure Pvt. Ltd. SEZ, Pune	SEZ
Kerala	Kerala State Information Technology Infrastructure Limited (KSITIL)	Industrial Park
Karnataka	AEQUS SEZ Private Limited	SEZ

Karnataka	Mangalore SEZ Limited.	SEZ

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