



सत्यमेव जयते

# CEA ANNUAL REPORT 2024-25



**CENTRAL ELECTRICITY AUTHORITY  
MINISTRY OF POWER  
GOVERNMENT OF INDIA**

**THE AUTHORITY (As on 31.03.2025)**



**Sh. Ghanshyam Prasad**  
Chairperson



**Sh. Ajay Talegaonkar**  
Member (E&C)



**Sh. Hemant Jain**  
Member (GO&D)



**Sh. Ashok Kumar Rajput**  
Member (Power System)



**Sh. Praveen Gupta**  
Member(Thermal)

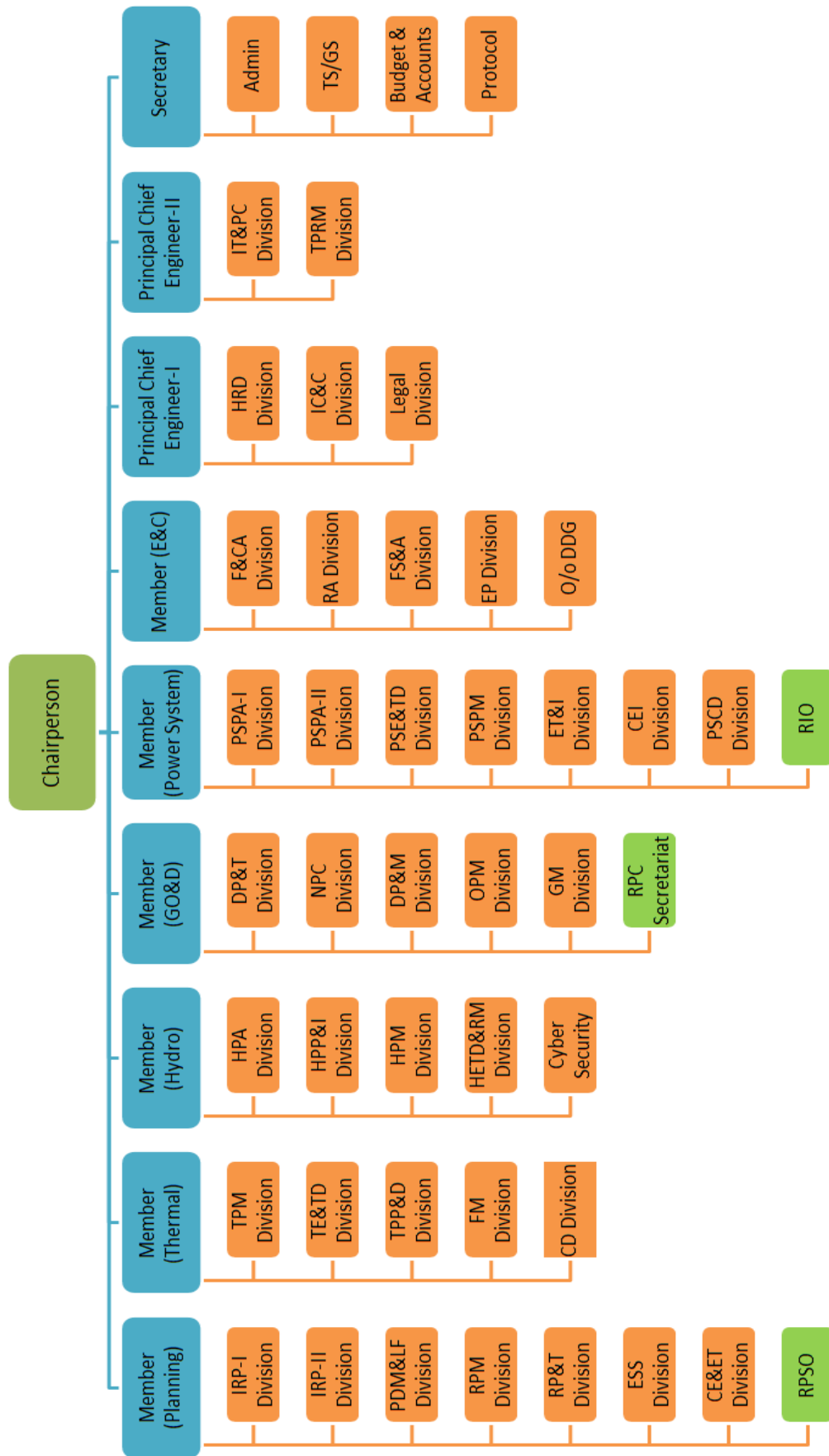


**Sh. A. Balan**  
Member (Planning)



**Sh. M. G. Gokhale**  
Member (Hydro)

ORGANISATION CHART OF CEA



**CENTRAL ELECTRICITY AUTHORITY**  
**Sewa Bhawan, R.K. Puram, New Delhi – 110066 CEA**  
**Website: www.cea.nic.in**

### **Sub-ordinate Offices**

#### **Regional Power Committees**

- 1. Member Secretary, Eastern Regional Power Committee, ERPC Building, 14 Golf Club Road, Tollygunge, Kolkata – 700033.**
- 2. Member Secretary, Northern Regional Power Committee, NRPC Building, 18-A, Shaheed Jeet Singh Marg, New Delhi – 110016.**
- 3. Member Secretary, Southern Regional Power Committee, 29 Race Course Cross Road, Near Anand Rao Circle, Bangaluru – 560009.**
- 4. Member Secretary, Western Regional Power Committee, Plot No. F-3, Opposite SEEPZ Complex, MIDC Area Marol, Andheri (East), Mumbai – 400093.**
- 5. Member Secretary, North-Eastern Regional Power Committee, Meghalaya NERPC Complex, 3<sup>rd</sup> Floor, Dong Parmaw, Lapulang, Shillong-793006.**

#### **Regional Power Survey Offices (RPSOs)**

- 1. Deputy Director, Regional Power Survey Office (East), ERPC Building, 14 Golf Club Road, Tollygunge, Kolkata - 700033.**
- 2. Deputy Director, Regional Power Survey Office (North), West Block-II, Wing V, R.K. Puram, Sector-1, New Delhi– 110066.**
- 3. Deputy Director, Regional Power Survey Office (South), Post Box No. – 38, 6th Floor, ‘F’ – Wing, Kendriya Sadan, Koramangala, Bangaluru – 560034.**
- 4. Deputy Director, Regional Power Survey Office (West), 5th Floor, Plot No. F-3, Opposite SEEPZ Complex, MIDC Area Marol, Andheri (East), Mumbai – 400093.**

#### **Regional Inspectorial Organisations**

- 1. Superintending Engineer, Regional Inspectorial Organisation (East), ERPC Building, 14 Golf Club Road, Tollygunge, Kolkata – 700033.**
- 2. Superintending Engineer, Regional Inspectorial Organisation (North), NRPC Building, 18-A, Shaheed Jeet Singh Marg, Katwaria Sarai, New Delhi – 110016.**
- 3. Superintending Engineer, Regional Inspectorial Organisation (South), Block-IV, Floor-III, Shastri Bhawan, Chennai – 600006.**
- 4. Superintending Engineer, Regional Inspectorial Organisation (West), Ground Floor, WRPC Building, F-3, MIDC Area Marol, Andheri (East), Mumbai – 400093.**
- 5. Superintending Engineer, Regional Inspectorial Organisation (North-East), NERPC Complex, 3<sup>rd</sup> Floor, Dong Parmaw, Lapalang, Shillong - 793006.**

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### **From the Chairperson**

Electricity is one of the most vital components of infrastructure for inclusive economic growth and development of the nation. The sustained growth with continuous transformation according to new challenges has been characteristic of Indian power sector. Central Electricity Authority (CEA) has played key role in this process since many decades. The journey of power sector on growth trajectory has continued in the year 2024-25 with focus on reliable, economic and quality power to all. CEA, as one of the apex organizations in the country, has been carrying out statutory functions including planning, specifying technical regulations, facilitating timely completion of schemes and advising Central Government, State Governments, Electricity Regulatory Commissions as well as other stakeholders on technical matters to ensure sustainable power sector development.

It is our pleasure to bring out this Annual Report of CEA for the year 2024-25. The Report gives an insight into the organization structure, functions and activities of CEA highlighting the contributions made in the development of power sector in the country during the year 2024-25.

The key developments during the year 2024-25 are highlighted below:-

1. Resource Adequacy studies for 28 States, 4 UTs, and 7 Distribution Licensees were carried out in association with States/UTs/Discoms and a detailed report was prepared.
2. National Electricity Plan-Transmission for the period 2022 to 2032 has been prepared and released in October, 2024.
3. Base paper on 'Methodology for Capacity Credit of Generation Resources & Coincident Peak Requirement of Utilities under Resource Adequacy Framework' was prepared.
4. Study report of CEA on future roadmap for greening the A&N Islands was prepared.
5. Advisory on co-locating Energy Storage systems with Solar Power Projects to enhance grid stability and cost efficiency was issued.
6. Study on Net Zero Pathway for Power Sector till 2070 for the Inter Ministerial "Working Group on Power Sector" headed by NITI Aayog was conducted.
7. Annual report titled "Electricity Tariff & Duty and Average rates of electricity supply in India-March 2024" for FY 2023-24 was published.
8. Report on Weighted Average Rate of Sale of Power (WARSP) of conventional power plants for the year 2023-24 was prepared.
9. The procedure for assessment of the Design Temperature for RE Plants, in compliance to CEA (Technical Standards for Connectivity to the Grid) Regulations, was issued.
10. The final Distribution Perspective Plan 2030-35 was submitted to MoP in November 2024.
11. Guidelines for Benchmarking of Operation & Maintenance norms for Distribution Utilities were issued in January, 2025.
12. Guidelines for Standardization and Interoperability in AMI Systems for End-to-End Communication between Smart Meter, HES and MDM were issued in January, 2025.
13. Disaster Resource Inventory for Power Sector (DRIPS) portal was launched by HMoP on 20<sup>th</sup> August 2024 for rapid identification and deployment of necessary resources in a disaster situation.

14. Amendment in CEA (Installation and Operation of Meters) Regulations, 2006 to facilitate Green Energy Open Access to consumers at LT level was taken up.
15. The Uniform Protection Protocol and Standard Operating Procedure (SOP) for VOIP connectivity was approved by the National Power Committee (NPC) in November, 2024.
16. The Revised Standard Operating Procedure (SOP) for (a) Third Party Protection System Audit (b) Grid Disturbances/Grid Incidents/Trippings (c) Communication Audit for Substations and (d) Communication System Outage Planning for bringing uniformity at National Level were approved by the National Power Committee (NPC) in November 2024.
17. Report on Finalization of Opening and Closing time ranges of guide vane during turbine and pumping modes of operation in Pumped Storage Plants was published in May'2024.
18. Revised Standard Operating Procedure (SOP) on Early Warning System (EWS) in Hydro Electric Projects was published in June 2024.
19. Advisory issued on 11.07.2024 for Pro-active and comprehensive monitoring of Transmission Lines to ensure safety.
20. Advisory issued on 17.09.2024 for minimizing electricity related mortality of wildlife species of high concerns.
21. Prepared modalities to bring all PPAs of Bhutan (including legacy PPAs) with Indian entities under DSM mechanism and the modalities were implemented with effect from 01st May, 2024.
22. Manual on Transmission Planning Criteria, 2023 was issued on 1st April, 2023 and an Amendment-I to the Manual was issued on 8th January, 2025.
23. Prepared headquarter agreement for establishment of BIMSTEC Energy Centre (BEC) which was signed on 08th November, 2024 and drafted Rules of Procedure of BIMSTEC Energy Centre. Prepared BIMSTEC Grid Interconnection Master Plan, BIMSTEC Policy for Transmission of Electricity and BIMSTEC Policy for Electricity Trade, Exchange of Electricity and Tariff Mechanism and Development of BIMSTEC Regional Energy Database (BRED) and launched website of BEC.
24. A report was prepared to explore the possible ways to reduce RoW issues in construction of transmission lines. Based on the recommendation of CEA, MoP revised RoW compensation guidelines.
25. Standard Operating Procedure for shifting of Transmission line for other Infrastructure Projects was issued on 10.03.2023 and revised on 14.01.2025.
26. A report for calculation of reduction of Right-of-Way (RoW) width through Technological Options was issued vide letter dated 24.09.2024.
27. In March 2025, Guidelines on Unified Philosophy for Placement of Phasor Measurement Unit (PMUs) in Indian Grid were brought.
28. In August 2025, report of the Technical Committee on Addressing Technical Challenges in Rolling-out 1150 kV Transmission System on Unified Philosophy for Placement of Phasor Measurement Unit (PMUs) in Indian Grid was prepared.
29. A draft Incentive Mechanism for Flexible operation of thermal power plants was submitted to MoP.
30. PROMPT Portal was inaugurated by Hon'ble Minister of Power on 20.08.2024 with a vision of enabling transparent, coordinated, and effective monitoring of the thermal power projects in the country.

Ghanshyam Prasad  
Chairperson, CEA

## CHAPTER – 1

### CEA AS AN ORGANIZATION

#### 1.1 Organization of CEA

**1.1.1** The Central Electricity Authority (CEA) is a statutory organization originally constituted under Section 3(1) of the repealed Electricity (Supply) Act, 1948 since substituted by Section 70 of the Electricity Act, 2003. CEA was founded in October, 1974 after carved out of erstwhile Central Water and Power Commission.

**1.1.2** As per Section 70(3) of the Electricity Act, 2003, the Authority shall consist of not more than fourteen members (including its Chairperson) of whom not more than eight shall be full-time Members to be appointed by the Central Government.

**1.1.3** CEA is headed by a Chairperson who as the Chief Executive of the Authority largely oversees the development of Power Sector in the country. A Secretary, appointed by the Authority with the approval of the Central Government under Section 72 of the Electricity Act 2003, assists the Chairperson in discharging of CEA's statutory functions. The Secretary also assists the Chairperson in all matters pertaining to administration and technical matters including concurrence of hydro power projects etc. There are six (6) Wings in CEA namely Planning, Hydro, Thermal, Grid Operation & Distribution, Economic & Commercial and Power System each headed by a Member of the Authority. Under each Member, there are technical Divisions, headed by an officer of the rank of Chief Engineer. At present, there are forty Divisions in CEA headquarter at New Delhi.

#### 1.1.4 Sub-ordinate offices of CEA

There are 14 subordinate offices of CEA viz. five (5) Regional Inspectorial Organizations, four (4) Regional Power Survey Offices and five (5) Regional Power Committees located in various parts of the country.

#### A) Regional Inspectorial Organization (RIO)

Under Chief Engineer (CEI) in Power System Wing, five (5) Regional Inspectorial Organization (RIO) offices, each headed by an officer of the rank of Superintending Engineer, function at New Delhi, Mumbai, Chennai, Kolkata and Shillong to inspect the HV/MV installations of the Central Government.

#### B) Regional Power Survey Offices (RPSOs)

Four (4) Regional Power Survey Offices (RPSOs), each headed by an officer of the rank of Deputy Director, function at New Delhi, Mumbai, Bengaluru and Kolkata under Chief Engineer (PS&LF) in the Planning Wing to carry out surveys to forecast the demand of power in their respective regions and are entrusted with the work of gathering information for Captive Power Plants.

#### C) Regional Power Committees (RPCs)

Five (5) Regional Power Committees (RPCs), each headed by a Member Secretary, an officer of the rank of the Chief Engineer, are functioning at New Delhi, Mumbai, Bangalore, Kolkata and Shillong to facilitate the integrated operation of the Regional Electricity Grids.

#### 1.2 Functions of CEA

The functions and duties of the Authority are delineated under Section 73 of the Electricity Act, 2003. Besides, CEA has to discharge various other functions as well under Sections 3, 8, 34, 53, 55 and 177 of the Act.

#### Section 73 - Functions and Duties of the Authority

(a) advise the Central Government on the matters

relating to the national electricity policy, formulate short- term and perspective plans for development of the electricity system and coordinate the activities of the planning agencies for the optimal utilization of resources to sub serve the interests of the national economy and to provide reliable and affordable electricity to all consumers;

(b) specify the technical standards for construction of electrical plants, electric lines and connectivity to the grid;

(c) specify the safety requirements for construction, operation and maintenance of electrical plants and electric lines;

(d) specify the Grid Standards for operation and maintenance of transmission lines;

(e) specify the conditions for installation of meters for transmission and supply of electricity;

(f) promote and assist in the timely completion of schemes and projects for improving and augmenting the electricity system;

(g) promote measures for advancing the skills of persons engaged in electricity industry;

(h) advise the Central Government on any matter on which its advice is sought or make recommendation to that Government on any matter if, in the opinion of the Authority, the recommendation would help in improving the generation, transmission, trading, distribution and utilization of electricity;

(i) collect and record the data concerning the generation, transmission, trading, distribution and utilization of electricity and carry out studies relating to cost, efficiency, competitiveness and such like matters;

(j) make public from time to time the information secured under this Act, and provide for the publication of reports and investigations;

(k) promote research in matters affecting the generation, transmission, distribution and trading of electricity;

(l) carry out, or cause to be carried out, any investigation for the purpose of generating or transmitting or distributing electricity;

(m) advise any State Government, licensees or the generating companies on such matters which shall enable them to operate and maintain the electricity system under their ownership or control in an improved manner and where necessary, in coordination with any other Government, licensee or the generating company owning or having the control of another electricity system;

(n) advise the Appropriate Government and the Appropriate Commission on all technical matters relating to generation, transmission and distribution of electricity; and

(o) Discharge such other functions as may be provided under this Act.

In addition to above functions and duties, CEA has to perform the following functions in terms of the under mentioned Sections of the Electricity Act, 2003: -

### **Section 3 - National Electricity Policy and Plan**

(1) The Central Government shall, from time to time, prepare the National Electricity Policy and Tariff Policy, in consultation with the State Governments and the Authority for development of the power system based on optimal utilization of resources such as coal, natural gas, nuclear substances or materials, hydro and renewable sources of energy.

(2) The Central Government shall publish the National Electricity Policy and Tariff Policy from time to time.

(3) The Central Government may, from time to time, in consultation with the State Governments and the Authority, review or revise the National Electricity Policy and Tariff Policy referred to in sub-section (1).

(4) The Authority shall prepare a National Electricity Plan in accordance with the National Electricity Policy and notify such plan once in five years.

Provided that the Authority while preparing the National Electricity Plan shall publish the draft National Electricity Plan and invite suggestions and objections thereon from licensees, generating companies and the public within such time as may be prescribed;

Provided further that the Authority shall –

(a) notify the plan after obtaining the approval of the Central Government;

(b) Revise the plan incorporating therein directions, if any, given by the Govt. while granting approval under clause (a).

(5) The Authority may review or revise the National Electricity Plan in accordance with the National Electricity Policy.

### **Section 8 - Hydro-Electric Generation**

(1) Notwithstanding anything contained in Section 7, any generating company intending to set up a hydro-generating station shall prepare and submit to the Authority for its concurrence, a scheme estimated to involve a capital expenditure exceeding such sum, as may be fixed by the Central Government, from time- to time, by notification.

(2) The Authority shall, before concurring in any scheme submitted to it under sub-section (1) have particular regard to, whether or not in its opinion:-

(a) the proposed river-works will prejudice the prospects for the best ultimate development of the river or its tributaries for power generation, consistent with the requirements of drinking water, irrigation, navigation, flood- control, or other public purposes, and for this purpose the Authority shall satisfy itself, after consultation with the State Government, the Central Government, or such other agencies as it may deem appropriate, that an adequate study has been made of the optimum location of dams and other river- works;

(b) The proposed scheme meets, the norms regarding dam design and safety.

(3) Where a multi-purpose scheme for the development of any river in any region is in operation, the State Government and the generating company shall co-ordinate their activities with the activities of the person responsible for such scheme insofar as they are inter-related.

### **Section 34 – Grid Standards**

Every transmission licensee shall comply with such technical standards, of operation and maintenance of transmission lines, in accordance with the Grid Standards, as may be specified by the Authority.

### **Section 53 Provision relating to Safety and Electricity Supply**

The Authority may, in consultation with the State Governments, specify suitable measures for-

(a) protecting the public (including the person engaged in the generation, transmission or distribution or trading) from dangers arising from the generation, transmission or distribution or trading of electricity, or use of electricity supplied or installation, maintenance or use of any electric line or electrical plant;

(b) eliminating or reducing the risks of personal injury to any person, or damage to property of any person or interference with use of such property;

(c) prohibiting the supply or transmission of electricity except by means of a system which conforms to the specification as may be specified;

(d) giving notice in the specified form to the Appropriate Commission and the Electrical Inspector, of accidents and failures of supplies or transmission of electricity;

(e) keeping by a generating company or licensee the maps, plans and sections relating to supply or transmission of electricity;

(f) inspection of maps, plans and sections by any person authorized by it or by Electrical Inspector or by any person on payment of specified fee;

(g) Specifying action to be taken in relation to any electric line or electrical plant, or any electrical appliance under the control of a consumer for the purpose of eliminating or reducing the risk of personal injury or damage to property or interference with its use.

### **Section 55 Use, etc. of Meters**

For proper accounting and audit in the generation, transmission and distribution or trading of electricity, the Authority may direct the installation of meters, by a generating company or licensee at such stages of generation, transmission or distribution or trading of electricity and at such locations of generation, transmission or distribution or trading, as it may deem necessary.

### **Section 177 Powers of Authority to make Regulations**

(1) The Authority may, by notification, make regulations consistent with this Act and the rules generally to carry out the provisions of this Act.

(2) In particular and without prejudice to the generality of the power conferred in sub-section (1), such regulations may provide for all or any of the following matters, mainly: -

(a) the Grid Standards under section 34;

(b) suitable measures relating to safety and electricity supply under section 53;

(c) the installation and operation of meters under section 55;

(d) the rules of procedure for transaction of business under sub-section (9) of section 70;

(e) the technical standards for construction of electrical plants and electric lines and connectivity to the grid under clause (b) of section 73;

(f) the form and manner in which and the time at which the State Government and licensees shall furnish statistics, returns or other information under section 74;

(g) any other matter which is to be, or may be, specified;

(3) All regulations made by the Authority under this Act shall be subject to the conditions of previous publication.

### **1.3 Broad Functional Areas of work of Chairperson and the Members of the Authority**

#### **➤ Chairperson**

Chairperson is the Chief Executive of the Authority.

#### **➤ Member (Planning)**

Formulation of National Electricity Plan; integrated resource planning; coordinating the activities of planning agencies for optimization of resource utilization; formulation of short, medium and long term power plans; long and short term demand forecast and sensitivity studies; material and manpower planning; surveys for power demand growth; identification and testing of co-lateral parameters for economic model for demand forecasting; collection, compilation and publication of statistics of Power Sector; securitization of resources/fuel availability and fuel efficiency with the support of emerging technologies; modernization of project management; concepts of skill development; pro-active technology forecasting approaches; research and development in Power Sector, co-ordination with multiple agencies involved in research and development activities, coordination of fuel oil/liquid fuel supplies; coal quantity and quality control; development of renewable energy resources for electricity generation etc.

#### **➤ Member (Thermal)**

Overall thermal power development in the country; updating, development and evaluation of thermal technologies; design and engineering of thermal projects; quality assurance standards and plans; preparation of model documents and standards; thermal projects investigation and ash utilization; coal, oil and gas linkages to power projects; energy conservation; energy auditing; environmental

aspects of thermal projects; monitoring of construction and stabilization of thermal projects and suggesting remedial measures to problems involved; renovation, modernization and life extension programs of thermal generating stations; making operating norms for thermal generating stations, development of Ultra Mega Power Projects (UMPPs) etc.

#### ➤ **Member (Hydro)**

Overall hydro power development in the country; technical appraisal of hydro-electric projects; integrated planning for utilization of water resources; assessment of hydro potential; assistance to States on investigation and project report preparation; construction & investigation, monitoring of hydro projects and suggesting remedial measures to problems involved; updating, development and evaluation of hydro technologies; environmental aspects of hydro projects; quality assurance plans and standardization, design and engineering of hydro projects; renovation, modernization and up rating of hydro stations; co-operation with neighboring countries of Nepal, Bhutan and Myanmar for development of water resources for mutual benefits; etc.

#### ➤ **Member (Power System)**

Planning and development of transmission system consistent with national power plans; studies for the purpose of appraisal of transmission projects; transmission technology development; design and engineering; standardization and preparation of model document; renovation and modernization of transmission schemes; construction monitoring of transmission projects; coordination of telecommunication system and power lines; matters related to communication, data acquisition and software support in power sector; inspection of existing electrical installations in Union Territories and Central Government Departments; investigation of accidents on electrical installations and suggesting remedial measures for their minimization and prevention etc.

#### ➤ **Member (Grid Operation & Distribution)**

Formulation of policies for safe, secure and

economic operation of regional grids; integrated operation, co-ordination of five regional grids through Regional Power Committees(RPCs); monitoring of delivery of shares from Central Sector projects; intra and inter-regional exchange of power; regional energy accounting; load generation balance; investigation of grid disturbances; matters related to distribution planning, policy and regulations; monitoring of rural electrification programme and distribution schemes of the Central Government; all matters relating to power development in union territories; operation monitoring and performance review of thermal power stations; updating of maintenance procedures; generation data collection; performance analysis; maintenance monitoring etc.

#### ➤ **Member (Economic & Commercial)**

Economic evaluation of power policies and projects; appraisal of tariff for Nuclear Power Stations; analysis of financial packages; financial parameters; interest during construction and completed cost; performance of power sector utilities, Examination of Power Purchase Agreement, advice and legal matters, amendments in Electricity Act, 2003 National Electricity Policy, Tariff Policy and Electricity Rules, etc.

#### ➤ **Secretary**

The Secretary (CEA) appointed by the Authority with the approval of the Government of India, assists the Authority in discharge of CEA's statutory functions. The Secretary also assists the Chairperson (CEA) in all matters pertaining to administration and technical matters including techno-economic appraisal and concurrence of hydro power projects, planning of budget and expenditure control etc.

## **1.4 Personnel and Administration**

### **1.4.1 Staff strength of CEA**

The staff strength of CEA as on 31.03.2025 was 740 as against the sanctioned strength of 1134 leaving 394 posts vacant. The summarized position of staff strength is shown in the table below:

Category	No. of Govt. Employees	No. of Women employees In position	% age
Group-A	409	63	15.40%
Group-B	143	38	26.50%
Group-C	188	45	23.90%
<b>Total</b>	<b>740</b>	<b>146</b>	<b>19.70%</b>

#### 1.4.2 Representation of Scheduled Castes, Scheduled Tribes, OBC & Physically Handicapped Employees

Category	No. of Govt. Employees	No. of SC Govt. employees in position		No. of ST Govt. employees in position		No. of OBC Govt. employees in position		No. of Phy. H. Govt. employees in position
		SCs	SCs%	STs	STs%	OBCs	OBCs%	PWDs
Group-A	409	66	16.13	29	7.09	72	17.60	08
Group-B	143	24	16.78	04	2.79	33	23.07	05
Group-C	188	36	19.15	08	4.25	49	26.06	05
<b>Total</b>	<b>740</b>	<b>126</b>	<b>17.02</b>	<b>41</b>	<b>5.54</b>	<b>154</b>	<b>20.81</b>	<b>18</b>

#### 1.4.3 Representation of Physically Handicapped employees

Group	Total employees as on 31.03.2025	Physically Challenged Employees				Percentage of Physically Challenged
		VD	HD	OD	Total	
Group A	409	-	03	05	08	1.95
Group B	143	01	02	02	05	3.49
Group C	188	03	-	02	05	2.65
<b>Total</b>	<b>740</b>	<b>04</b>	<b>05</b>	<b>09</b>	<b>18</b>	<b>2.43</b>

## 1.5 Annual Budget

### 1.5.1 Budget of CEA during the year 2024-25.

Rs. In Crores			
<b>BUDGET OF CENTRAL ELECTRICITY AUTHORITY (CEA)</b>			
<b>Budget Estimate of CEA for the Year 2024-25</b>		<b>Revised Estimate of CEA for the year 2024-25</b>	
Salary	124.46	Salary	125.09
Non-Salary	28.44	Non-Salary	26.23
<b>Total</b>	<b>152.90</b>	<b>Total</b>	<b>151.32</b>
<b>Allocation of Budget Estimate 2024-25</b>		<b>Allocation of Revised Estimate 2024-25</b>	
Admin. Of Electricity Act	131.57	Admin. of Electricity Act	128.82
Hydel Generation	3.53	Hydel Generation	6.1
Transmission & Distribution	17.8	Transmission & Distribution	16.4
<b>Total</b>	<b>152.90</b>	<b>Total</b>	<b>151.32</b>
<b>Expenditure Status as on 31.03.2025</b>			
Salary			113.96
Non-Salary			26.19
<b>Total</b>			<b>140.15</b>
<b>Budget utilization %</b>			<b>92.92%</b>

### 1.5.2 Consultancy services by CEA

CEA renders Consultancy Services for design and Engineering of hydro projects to various utilities. Bill raised towards consultancy services render to various utilities during the financial year 2024-25 is Rs. 1,79,98,576/- and payment received is Rs. 28,42,113/- .

### 1.5.3 Pension and Retirement Benefits Overview:

All pension cases were processed within the stipulated timeframe through the online Bhavishya portal, ensuring seamless and efficient service delivery to retiring employees. No pension-related grievances were received during the year, reflecting proactive resolution and responsive administration. Out of 5 court cases, 1 cases was successfully disposed of in favor of the

organization by the Hon'ble court. For the remaining four ongoing cases, counter replies have been duly submitted, and the matters are being followed up appropriately.

## 1.6 Progressive use of Hindi in Official work of CEA

Central Electricity Authority was notified in the Official Gazette in pursuance of sub-rule 4 of Rule 10 of the Official Language Rules 1976 and under sub-rule 4 of rule 8, officers possessing proficiency in Hindi were specified to do all their official work in Hindi.

### 1.6.1 Quarterly Meetings of Official Language Implementation Committee:

During the year following four meetings of Official Language Implementation Committee were held:

- 1st meeting - 28st Jun, 2024
- 2nd meeting – 26th Sept, 2024
- 3rd meeting – 18th Dec, 2024
- 4th meeting – 08<sup>th</sup> April, 2025

During these meetings, action are taken for implementation of official language policy.

- i. All works such as noting, drafting, office orders, letters, etc. in all the divisions/sections throughout the year were done as per Section 3(3) of the Official Language Act.
- ii. Full efforts were also made to meet the goal of Hindi correspondence in all divisions/sections.
- iii. All the letters received in Hindi were answered in Hindi itself. Thus, Rule 5 of the Official Language Rules, 1976 was complied with.

### 1.6.2 Letters sent in Hindi during the financial year 2024-25:

Quarterly percentage of Letters sent in Hindi during the year 2024-25 is as follows:-

Quarter	Letters sent in Hindi Region ('A' + 'B')	% of Hindi letters
1st	8762	99.24%
2nd	9058	97.36%
3rd	7652	98.86%
4th	9383	98.84%

- In the 'C' Region, the target of the letter sent in Hindi was 100 percent.

### 1.6.3 During the year, following Reports/ Documents were issued in bilingual form:

- ड्राफ्ट एनईपी वॉल्यूम-II का हिंदी अनुवाद  
Hindi Translation of the Draft NEP Vol-II
- केविप्रा की वार्षिक रिपोर्ट-2023-24  
Annual Report 2023-24 of CEA
- राष्ट्रीय विद्युत योजना के मसौदे का हिंदी अनुवाद  
Hindi translation of the draft of the National Electricity Plan
- पीक पावर डिमांड के लिए जनरेशन डिस्पैच फैक्टर और लोड जनरेशन बैलेंसिंग का हिंदी अनुवाद  
Hindi translation of the Generation dispatch factor and load generation balancing for peak power demand.
- ऊर्जा संबंधी स्थायी समिति की रिपोर्ट का हिंदी अनुवाद  
Hindi translation of the Standing Committee on Energy

### 1.6.4 Hindi Fortnight Celebrations, 2024:

As per the instructions given by the Department of Official Language, Ministry of Home Affairs, Government of India a Hindi fortnight was organized at Central Electricity Authority Headquarters from 14th September 2024 to 29th September 2024. **Five (5)** competitions namely Hindi Essay Writing, Hindi Noting & Drafting, Hindi Article Writing (Only for MTS), Official Language Rules/Acts and Hindi Language/Literature General Knowledge Competition, and Hindi Debate Competition for Officers were organized during Hindi fortnight. A total of **114** officers and employees participated enthusiastically in these competitions.

In this function, 15 winners were given cash prizes and certificates. Also, eight personnel, who did noting and drafting originally in Hindi, were awarded under the incentive scheme for the year 2022-23. Apart from this, **the HPA Division and Administration-II** section of CEA performing

best in the promotion of Hindi in official work was awarded the "Rajbhasha Trophy".

### 1.6.5 Publication of "Vidyut Vahini":-

During the last year, 4 issues of CEA's official Hindi quarterly magazine "Vidyut Vahini" were published and distributed and for the next issue, efforts are being made.

## 1.7 Welfare Activities in CEA

### 1.7.1 Recreation and Sports:

The employees of CEA are actively participating in the Sports & Cultural Tournaments/Competitions at All India Civil Services (A National Status), Inter-Ministry and Inter-CPSU levels every year regularly. For the year 2024-25, the following Sports Team/Individuals of CEA are participated in the AICS/Inter-Ministry/Inter-CPSU Tournaments and brought laurels to CEA by winning the medals. The achievements of these Sports/Cultural Teams/Individuals are as under:

#### 1. VOLLEYBALL:

CEA Men Team participated in Volleyball Tournament organized by BBMB at Nangal Township from 11.11.2024 to 13.11.2024 under the aegis of Power Sports Control Board, MoP. The team played very well and reached at QF stage. The members of Team are as under:

S.No.	Name & Designation S/Shri	Section/Division
<b>MEN TEAM</b>		
1.	Virpal Singh, ASO	TS
2.	Ramesh umar, ASO	Cash-II
3.	Sachin, Section Officer	APAR
4.	Anil Kumar, ASO	Cash-I
5.	Ravi Raj, ASO	Admn.I
6.	Surender Singh Gusain, MTS	O/o DD(P)
7.	Mohakam Singh, MTS	DD(Pension & IFD)
8.	Vikas MTS	APAR
9.	Rajendra Kumar, MTS	Cash-I
10.	Anil Singh Rawat, MTS	RIO Division

**2. CHESS:**

Shri Gurjit Medhi, Deputy Director, ESDD Division, CEA has won the Silver Medal in Individual appearance in the Inter-CPSU Chess Tournament 2024-25 organised by NEEPCO at NEEPCO auditorium, Corporate Office, Shillong (Meghalaya) from 09.09.2024 to 13.09.2024 under the aegis of Power Sports Control Board, MoP. The Chess Teams of Men and Women have performed very well and reached at SF stage. The Men and Women Chess Team members are as under:

S.No.	Name & Designation S/Shri/Smt./Km.	Section/Division
<b>MEN TEAM</b>		
1.	Gurujit Medhi, Deputy Director-	ESDD Division
2.	Rajesh, Deputy Director	DP&M Division
3.	Lokesh Kumar, Assistant Director-II	Services Division
4.	Pradeep Kumar, PA	F&CA Division
5.	D. Tanoj Kumar, Assistant Director-II	RPSO(N)
6.	Niteesh Kumar, Steno	O/o DS(Vig.)
<b>WOMEN TEAM</b>		
1.	Aarti Singh, Deputy Director	DP&M Division
2.	Sangeeta Meena, Deputy Director	IFD & Pension
3.	Deepa Sharma, PA	Civil Design Div
4.	Swati Sriwastwa, Assistant Director-II	Admn.II Section
5.	Neerja, PA	O/o Director (Admn.)

**3. BADMINTON:**

Ms. Archana, PPS, PSPA-II Division, CEA has won the following Medals in the Inter-Ministry Badminton Tournament 2024-25 organised by CCSCSB, DoPT from 02.12.24 to 13.12.2024 at AIIMS Gymkhana, New Delhi:

- i) Women Veterans Singles (40+) - Bronze Medal
- ii) Women Veterans Doubles (40+) - Bronze Medal

**4. Other Games:**

The following ICPSU Sports Tournament has yet to be held for the year 2024-25:

- i) Athletics

- ii) Cricket
- iii) Lawn Tennis
- iv) Kabaddi

**5. Other Recreational activities:**

- a. To celebrate "Fit India" initiative by Government of India, a Gymnasium has been set up in CEA premises at ground floor (near SBI ATM) for the officers/officials of CEA, where CEA Men and Women officers/officials use/exercise on the gym machines such as Tread Mill, Cycling, Bench press, different kg weights/dumbbells, work station, Pull string, gym balls etc. Further some more gym equipment's have been procured.
- b. CEA/BEE Recreation Club has also been running at Ground Floor, West Block-II, R.K. Puram, New Delhi. At present Carrom, Chess and Table Tennis facilities are available for recreation of CEA officers/officials during the lunch hours.
- c. A Sports & Cultural Laurels function is being organised to felicitate the officers/officials, who bring the laurels to CEA by winning the medals/merit at various sports tournament during the year 2023-24.
- d. Various observance days have also been organized in CEA as per the details given below:
  - 1) Swachhta Pahwada (16th – 31st May)
  - 2) Swachhta Hi Seva (15th September to 02nd October)
  - 3) Constitution Day Celebration ( 20th November)
  - 4) '#एक पेड़ माँ के नाम #Plant4Mother'
  - 5) Mission Life
  - 6) International Yoga Day (21st June)
  - 7) Productivity Week
  - 8) Anti-Terrorism Day (21st May)
  - 9) Sadbhavna Diwas (20th August)
  - 10) Rashtriya Ekta Diwas – National
  - 11) Unity Day (31st October\*)
  - 12) International Women's Day
  - 13) Fit India
  - 14) Fire Service Week (commencing from

14th April)

15) Meri Maati Mera Desh

16) Celebration of World Environment Day

(05th June)

17) Azadi ka Amrit Mahotsav

18) Observance of Martyrs Day (30th January)

19) Arms Force Flag Day (7th December)

20) Dr. B.R. Ambedkar Birth Celebration (01st April)

21) Communal Harmony Campaign Week (19th to 25th Nov.)

22) No Tobacco Day (31st May)

23) Jan Jatiya Gaurav Diwas (15th November)

24) Observance of Har Ghar Tiranga-AKAM (13th to 15th August)

25) Swacch Diwali Shubh Diwali (06th to 12th November)

- e. Apart from above, various sports team like Athletics, Badminton, Bridge, Carrom, Chess, Cricket, Football, Kabbadi, Table Tennis, Volleyball and Cultural has been selected every year to their participation in the Power Sports Control Board and Inter-Ministry Tournaments.

### 1.8 Vigilance Activities/Disciplinary Cases in CEA

1. The Vigilance Division, CEA is headed by Chief Vigilance Officer (CVO) and is the nodal point in Vigilance set up of the Authority and its Subordinate Offices. The Division deals with various facets of vigilance mechanism and functions for carrying out investigations into complaints, suggesting corrective measures for improving the control system, compliance of the laid down procedures and also for carrying out preventive vigilance exercise.
2. As part of preventive vigilance, the Vigilance Division conducts Periodic inspections of Subordinate offices under CEA for time to time. Scrutiny of Immovable Property Returns (IPRs) filed by Officers of CEA are being carried out by this Division at regular intervals. Workshop/ training were conducted for CEA employees. Vigilance Awareness Week – 2024 was observed in Central

Electricity Authority and its subordinate offices from 28.10.2024 to 03.11.2024. The Vigilance Awareness Week was observed to highlight the theme “सत्यनिष्ठा की संस्कृति से राष्ट्र की समृद्धि”. “Culture of Integrity for Nation’s Prosperity”.

3. Complaints other than anonymous / pseudonymous were taken for investigation promptly and after completion of investigations, reports submitted to the prescribed competent authority. As on 31.03.2025 no disciplinary case is pending in the Vigilance Division. Prescribed periodical returns were sent to Ministry of Power and Central Vigilance Commission in time.

### 1.9 Electric Power Information Society

The Electric Power Information Society (EPIS) was established in June, 1996 under the aegis of Central Electricity Authority on no-loss-no profit basis for bringing out various CEA publications. These are also available for sale for general public.

#### 1.10 Grievance Cell

Chief Engineer (ET&I) has been entrusted with the task of Grievance Officer of Ministry of Power. In this regard, the Progress Report of the grievances handled for the period 01/04/2024 to 31/03/2025 is as below:

Total grievances received during the period: **164**  
Total grievances disposed during the period: **157**

#### 1.11 Right to Information Act, 2005

Under the Right to Information Act, 2005, the Chief Engineer (Coordination) acts as the Nodal Officer for RTI for CEA. 1043 applications were received during the year 2024-25 (i.e. up to 31.03.2025), under the Act and were disposed of by various CPIOs in CEA. Out of 1043 applications, 30 applications were received in hard copy format while the remaining were received through RTI MIS portal. Further, 146 applicants filed appeal to the First Appellate Authority (FAA), 2 of which were received in hard copy format while remaining were received through RTI MIS portal. All 146

appeals have been disposed off.

Section 4 of the RTI Act provides a comprehensive framework for promoting openness in the functioning of the public authorities. RTI suo moto disclosure in the format specified by the Central Information Commission (CIC) and approved by the Chairperson, CEA was uploaded on the website of CEA. The detailed information as per the specified format was also forwarded to CIC for transparency audit.

Third Party Audit on “Proactive Disclosures” of CEA, as mandated by Central Information Commission for facilitation of suo moto disclosure of information under section 4 of RTI Act 2005, was conducted in the month of Aug, 2025 in CEA Head Quarter by Indian Institute of Public Administration (IIPA), Puducherry.

## 1.12 Parliament Questions/Assurances, VIP references

(A) Works relating to various assignments given below were carried out:

1. Parliament Questions
2. Parliamentary Assurances
3. Oral evidence
4. PMO/VIP/MOP references
5. Consultative Committees
6. Standing Committee on Energy
7. Material for Calling Attention Motion
8. Material for Economic Survey 2024-25
9. Major Achievements in Power Sector
10. Annual Report of the MOP for 2024-25
11. Material for interview of Power Minister and Secretary (power) to various press media
12. Monitor able targets for the year 2024-25 and Achievements
13. Power Ministers' Conference
14. Material for various speeches.
15. International Cooperation with various countries
16. Inputs for regional meeting relating to power matters of the regions
17. Action taken reports were prepared based on the inputs received from various divisions.

18. Niti Aayog Dashboard

19. Examination of DPRs

20. Material for President's Address to both the Houses of Parliament and Finance Minister's Budget Speech.

21. Compilation and processing of material for matters such as:

- i) Power sector reform,
- ii) Private Sector participation including action taken reports, and
- iii) Ministers meeting on power scenario etc.

**1.13 During the year 2024-25 (till 03.04.2025) there were three Parliament Sessions and the Admitted version of Questions were dealt with as follows:**

Sr. No.	Session	Starred	Un-starred
1.	Monsoon Session 2024	06	72
2.	Winter Session 2024	09	80
3.	Budget Session 2025	07	159

## 1.14 Reports Prepared in Coordination

The CEA receives data regularly on various aspects of Indian Power Sector, such as generation, transmission and distribution of power. The information received is incorporated in the following regular reports:

- Summary report for Council of Ministers on important developments in Power Sector during the month.
- Monthly Executive Summary
- Annual Report of CEA

## CHAPTER – 2

### PLANNING FOR POWER DEVELOPMENT

#### 2.1 Power Planning

##### 2.1.1 Generation Planning Studies

Ministry of Power had notified the Electricity (Amendment) Rules in December 2022. As per Rule 16 of the Electricity (Amendment) Rules, the Ministry of Power has notified Resource Adequacy (RA) Guidelines dated 28<sup>th</sup> June 2023. In fulfilment of the guidelines, CEA is hand holding / assisting the states and the Distribution Licensees in carrying out the Long-Term Distribution Licensee Resource Adequacy Plan (LT-DRAP) to reliably meet its peak and energy requirements.

Following studies were/are being carried out using the state of the art, sophisticated energy system planning Software “ORDENA” modeling tool:

- i) Resource Adequacy studies for 28 States, 4 UTs, and 7 Distribution Licensees were carried out and the results were finalized after due consultation with the States and UTs. The detailed report on the results of the study was shared with the respective states.
- ii) A methodology for Capacity Credit of Generation Resources & Coincident Peak Requirement of Utilities under Resource Adequacy Framework was published.
- iii) Issued advisory on co-locating Energy Storage systems with Solar Power Projects to enhance grid stability and cost efficiency.
- iv) Carried out a short-term optimum dispatch study for FY 2025-26 and 2026-27 for

meeting out the Solar and Non-solar peak demand.

- v) A study was carried out to prepare a roadmap for greening of Andaman and Nicobar (A&N) Islands and report titled ‘Study report of CEA on future roadmap for greening the A&N Islands’ was prepared.
- vi) A study was carried out on Net Zero Pathway for Power Sector till 2070 for the Inter Ministerial “Working Group on Power Sector” headed by NITI Aayog. The draft results were presented before the Working group.

##### 2.1.2 Generation Capacity addition during the Year 2022-23 and 2023-24

- i) For the Year 2024-25, against a schedule of capacity addition of 19880 MW, Capacity addition of 5330 MW was achieved comprising of 800 Hydro, 4530 MW Thermal.
- ii) For the Year 2023-24, against a schedule of capacity addition of 18980 MW, Capacity addition of 6,864 MW was achieved comprising of 60 MW Hydro, 5404 MW Thermal, and 1400 MW Nuclear

##### 2.1.3 Participation of CEA as Committee Member /Interaction Meets etc.

- i) Collaboration with Danish Energy Agency (DEA) under ‘INDO Danish energy partnership’: CEA is jointly working with DEA in the field of energy planning, modelling and forecasting scenarios.

- ii) Chief Engineer (IRP) is Chairman of the committee for purchase of Resource Adequacy modelling tools.
- iii) Chief Engineer (IRP) is entrusted with Net Zero Pathway study for Power Sector for the Inter Ministerial “Working Group on Power Sector” headed by NITI Aayog.

#### 2.1.4 Reports Published

### 2.2 National Level Data Registry System

Section 74 of Electricity Act, 2003 and Regulation 4 & 5 of CEA (Furnishing of statistics, returns and information) Regulations, 2007, mandates every licensee, generating company, or person(s) generating electricity for its or his own use to furnish the statistics, returns or other information relating to generation, transmission, distribution, trading to CEA.

In accordance with the above provisions, a framework of National Level Data Registry System (NLDRS) has been devised to collate the statistics of the power generation projects. The framework provides for mandatory registration of each power generating unit of the country having installed capacity of 0.5 MW or above with CEA.

In order to facilitate the registration process, a web portal (<https://egen.cea.gov.in>) has been developed that is now operational in public domain. The registration with the portal is now one of the mandatory conditions for availing grid connectivity w.e.f. 20.11.2020 as per CEA Regulations “Central Electricity Authority (Technical Standards for Connectivity to the Grid) (Amendment) Regulations, 2019” issued vide Notification No. 12/X/STD (CONN)/GM/CEA/2018 dated 06.02.2019 and CEA Order No. CEA-PL-15-13(11)/1/2020-PSLF dated 05.11.2020.

### 2.3 Electricity Demand Forecasts

The electricity demand of the country is reassessed periodically, once in five years, for the medium term and long term period. The demand

projection exercise is carried out by obtaining inputs from Regional Power Survey Offices located in various regions, along with data obtained from various organizations/ utilities. The electricity demand forecast is the basic input for the formulation of Developmental Plans and Programmes & Schemes concerning generation, transmission, trading, distribution and utilization of electricity.

The Volume –I report of 20th EPS covering the year-wise electricity demand projection for each Discom/State/ UT/ Region and the all-India for the years 2021-22 to 2031-32 as well as the perspective electricity demand projection for the year 2036-37 and 2041-42 was published in November, 2022.

The electricity demand projection of the National Capital Region (Volume-II of 20<sup>th</sup> EPS) was published in August 2023.

The Volume-III of 20<sup>th</sup> EPS report covering electricity demand forecasts of Mega was published in December 2024.

The report titled “Report on Twentieth Electric Power Survey of India (Econometric Method)”, i.e. Volume-IV of EPS Report was published in January 2023

### 2.4 Crisis and Disaster Management Plan

CEA prepares “Disaster Management Plan” for the whole Power Sector on behalf of Ministry of Power to fulfil its obligations under the provisions of section 37 of the Disaster Management Act, 2005 and revises it on regular basis to keep it abreast with the new challenges and issues coming up with changing time. The document has recently been revised in accordance with the National Disaster Management Plan 2019 prepared by National Disaster Management Authority (NDMA). The plan is consistent with the three landmark global agreements reached in 2015 – (i) the Sendai Framework for Disaster Risk Reduction, (ii) Sustainable Development Goals of United Nations and (iii) Climate Change Agreement (COP21) that together represent a nearly

complete agenda for Disaster Risk Reduction. The plan also aims at achieving the contemporary national priorities set within Prime Minister's Ten Point Agenda for Disaster Risk Reduction.

Also, as per the Crisis Management Plan (CMP) of the Government of India prepared by the Cabinet Secretariat, each Central Nodal Ministry is required to prepare a detailed Crisis Management Plan for dealing with crisis situations falling in the areas of their responsibility. The plan indicates Ministry of Power as the nodal ministry for crisis situations arising out of disruption in generation, transmission, distribution and supply of electricity. Accordingly, CEA has also prepared "Crisis Management Plan for the Power Sector" on behalf of Ministry of Power. Apart from that, sector-specific generic documents on crisis and disaster management for thermal, hydro, renewable, transmission and distribution sector are also prepared and updated periodically by CEA. Crisis Management Plans for Cyber Security for each such sector have also been prepared separately.

These crisis and disaster management plans provide broad guidelines to the power utilities to prepare their own documents for crisis and disaster management encompassing the emergency situations to which their establishments are vulnerable. Crisis Management Plan and Disaster Management Plans for Power Sector have been reviewed in December, 2024.

## **2.5 Publications on All India Electricity Statistics – General Review & Growth Electricity Sector in India**

In fulfillment of its duties and functions under section 73 (i) & (j) and exercising powers vested under Section 74 of the Electricity Act, 2003, CEA publishes following documents containing annual electricity statistics.

### **2.5.1 All India Electricity Statistics – General Review**

In General Review-2024, Nationwide electricity statistics relating to Generation, Transmission, Distribution, Consumption and Trading are included along with important information relating to growth of the Indian Electricity Sector, organizational structure of Electricity Supply Industry in India and reforms carried out by Utilities are incorporated.

The General Review incorporates important statistics/ data on installed capacity, electric energy generation and utilization of electric energy along with the transmission and distribution losses, per capita consumption.

This publication also contain energy utilization by various categories of electricity consumers like domestic, commercial, irrigation, industries (LV /MV, HV /EHV), public lighting, public water works, etc. The various Chapters/Tables of the publication indicate the above Information State wise/ Sector wise/ Category wise/ Mode wise etc.

In addition to the above, the GR-2024 containing information regarding Installed Capacity and generation of captive power plants (about 8408 Nos. of Industries having Captive Power Plants). General Review-2024 containing data for the year 2022-23 was published in May 2024. General Review-2025 for publishing data for the year 2023-24 is under the finalization.

### **2.5.2 Growth of Electricity Sector in India**

Publication titled "Growth of Electricity Sector in India from 1947-2024" was published in July, 2024 containing data up to 2022-23 and provisional /estimated data for the year 2023-24 in respect of Indian Electricity Sector. The data for these publications has been sourced from various Utilities and Non-utilities and various National & International sources. This publication illustrates the growth of vital development indicators like installed generating capacity, electrical energy production, transmission and distribution network, captive power plants in industries and pattern of consumption of electricity etc. The important statistics have been compared with the

International data with respect to some of the developed and developing nations. The publication also contains charts indicating state of basin wise and region wise Hydro Electric Potential development in the country.

The booklet contains maps and charts presenting a panoramic view of the growth of Indian Electricity Sector.

## 2.6 Implementation of initiative of Working Group III on NMEEE for retirement of old and inefficient Thermal Units

Ministry of Power, under National Action Plan on Climate Change (NAPCC) has initiated National Mission on Enhanced Energy Efficiency (NMEEE). Working Group -III under NMEEE had inter-alia recommended retirement of old and inefficient Thermal Units.

## 2.7 Standing Committee on Derating, Upgrading and Retirement of installed capacity of Generating Stations

The list of the generating units retired during the year 2024-25 is given below: -

Sl. No.	Name of Station/Plant	State	Unit No.	Retired (MW)	Retired on
1.	GMR Energy Ltd - Kakinada	Andhra Pradesh	5	220	29.04.2024
2.	PEGUTHAN CCPP	Gujarat	4	655	27.03.2025
	<b>Total</b>		<b>9</b>	<b>875</b>	

Plan wise and Fuel wise summary of retired capacity:-

Plan	Coal		Lignite		Gas		Diesel		Plan wise Total	
	No. of Units	MW	No. of Units	MW	No. of Units	MW	No. of Units	MW	No. of Units	MW
10th Plan	9	629.5	0	0	2	72	0	0	11	701.5
11th Plan	38	2135	0	0	11	261	5	2	54	2398
12th Plan	49	4721.5	0	0	7	205	9	155.94	65	5082.44
After 12th Plan	87	8979.38	11	740	33	1228	10	327.92	141	11275.3
<b>Total</b>	<b>183</b>	<b>16465.4</b>	<b>11</b>	<b>740</b>	<b>53</b>	<b>1766</b>	<b>24</b>	<b>485.86</b>	<b>271</b>	<b>19457.2</b>

A Standing Committee is constituted under the chairmanship of Member (Planning) for considering the proposals of de-rating, uprating & retirement of electricity generating units. The Committee considers the performance of the units for de-rating & uprating, analyses the performance data and the overall generation throughout the life of the plant/unit and carries out detailed scrutiny of technical parameters of proposed units.

A total of 18582.24 MW have been retired from 10<sup>th</sup> Plan onwards. Out of which 701.50 MW during 10<sup>th</sup> Plan, 2398 MW during 11<sup>th</sup> Plan, 5082.44 MW during 12<sup>th</sup> Plan and 10400.3 MW after 12<sup>th</sup> Plan (out of which 2550.38 MW during the year 2017- 18, 2409 MW during the year 2018-19, 2462.92 during 2019-20 797.50 MW during 2020-21, 1604.5 MW during 2021-22 356 MW during 2022-23, 220 MW during 2023-24 and 875 MW during 2024-25 was retired.

## 2.8 Progress of Grid connected Renewable Energy Projects:

As on 31.03.2025, India has successfully achieved installed capacity of 220.10 GW in respect of Renewable Energy (including Large Hydro) generation projects comprising of 50.04 GW of Wind Power, 105.65 GW of Solar Power, 11.58 GW of Bio Power, 5.10 GW of Small Hydro and 47.73 GW of Large Hydro.

## 2.9 Generation from Renewable Energy Sources:

3 Generation from Renewable Energy (RE) Sources (including Large Hydro) and Conventional sources (Thermal and Nuclear), for the years 2020-21, 2021-22, 2022-23, 2023-24 & 2024-25 and the share of RE to total generation for the above period, are as under:

Year	Conventional Generation	RE Generation (excluding Large Hydro and Bhutan Imports)	Large Hydro Generation including Bhutan Imports	Total Renewable Energy Generation (including Large Hydro and Bhutan Imports)	Total Generation	% of RE Generation (including Large Hydro and Bhutan Imports) w.r.t. Total Generation
	(MU)	(MU)	(MU)	(MU)	(MU)	
<b>2019-20</b>	1089220.31	138377.02	161563.60	299940.62	1389160.93	21.59
<b>2020-21</b>	1075542.62	147247.51	159065.02	306312.53	1381855.15	22.17
<b>2021-22</b>	1161826.54	170912.30	159120.53	330032.83	1491859.37	22.12
<b>2022-23</b>	1252071.76	203552.17	168841.17	372393.34	1624465.10	22.92
<b>2023-24</b>	1374486.34	225834.82	138770.02	364604.84	1739091.18	20.96
<b>2024-25</b>	1420570.59	255009.19	154118.16	409127.35	1829697.94	22.36

Renewable energy generation share during the year 2024-25 was around 22.36 % of total energy generation in the country. Year wise generation from renewable energy sources (RES) indicating the growth rates is given below:

Year	Generation from RE (including Large Hydro and Bhutan Imports) (BU)	Year-wise growth (%)
<b>2018-19</b>	261.65	
<b>2019-20</b>	299.94	14.63
<b>2020-21</b>	306.31	2.12
<b>2021-22</b>	330.03	7.74
<b>2022-23</b>	372.39	12.84
<b>2023-24</b>	364.60	(-) 2.09
<b>2024-25</b>	409.13	12.21

The graphical representation of the Source-wise All India Energy Generation and the source-wise breakup of RE generation (excluding Large Hydro), for the year 2024-25 is attached as **Annexure I**. The details of State/UT-wise and Source-wise RE Generation (excluding Large Hydro) for the year 2024-25 are given at **Annexure II**.

## **2.10 Development of Renewable Energy (RE) Sources:**

For sustainable development and economic growth, focus of the Government of India is towards de-carbonization of Indian Power Sector and shifting from the fossil fuels based energy to the renewable sources based energy which is cleaner, safer, environment friendly and more sustainable. The Renewable Planning and Technology (RP&T) Division in the Planning Wing of the CEA has been entrusted with responsibility to assist in promotion of renewable sources of energy, development of new RE technologies, preparation of Construction Standards for RE power plants, to make Regulations and Guidelines for the smooth and rapid integration of RE in Indian Power Grid and to assist MoP, MNRE, States and other stakeholders on policy and regulatory matters. CEA is actively participating in faster development of RE sources and reduction of dependency of power sector on fossil fuels to ensure smooth energy transition and contributing to achieve India's international commitments. To achieve the aforesaid objectives, the tasks accomplished by RP&T Division of CEA during the year 2024-25 are as under:

### **2.10.1 Formulation of Renewable Energy Power Plants Construction Standards:**

Central Electricity Authority (CEA), in exercise of powers conferred by subsection (2) of Section 177 of the Electricity Act, 2003, is formulating "Technical Standards for construction of RE Power Plants [(Solar Power Plants, Wind Power Plants and construction practices, facilitate smooth development of RE capacity in the country and help meet the Government of India's target to achieve 50% of total installed capacity through non fossil fuel by 2030.

A Committee in this regard has been constituted in CEA under the Chairmanship of Member (Planning), CEA for the preparation of draft for the aforesaid Technical Standards.

### **2.10.2 RE Policy/Guidelines/references related matters:**

RP&T Division has handled various references pertaining to Policy/Regulation/Guidelines in respect of RE Sector and provided its valuable inputs on the same. Some of these are as below:

- i. RP&T Division has handled various references pertaining to Policy/Regulation/Guidelines in respect of RE Sector and provided its valuable inputs on the same. Some of the references on which RP&T division provided inputs are as below:
- ii. Draft memorandum for consideration of Public Investment Board (PIB) on investment approval for development of 1200 MW Solar

- Park at Jalaun Dist., Uttar Pradesh by BSUL under MNRE Scheme (MODE 8-UMREPP).
- iii. Draft memorandum for consideration of Delegated Investment Board (DIB) on investment approval for development of 45 MW Solar Project at Jalaun Dist., Uttar Pradesh by BSUL.
  - iv. Preliminary Project Report - (PPRID – 12272) of NLC India Limited, Ministry of Coal on “810 MW Solar Project at RVUNL Solar Park at Pugal, Bikaner, Rajasthan with external assistance of 62584.91 million YEN from the Japan International Cooperation Agency (JICA)”.
  - v. Preliminary Project Report – (PPR ID-12266) of NLC India Limited, Ministry of Coal on “600 MW Solar Project at GSECL Solar Park at Khavda, Gujarat with external assistance of 50358.49 million YEN from the Japan International Cooperation Agency (JICA)
  - vi. Draft O.M. prepared by MNRE on the subject “Wind Potential Sites for setting up wind power projects”.

### **2.10.3 Establishment of Renewable Energy Management Centres (REMCs) in RE Rich States and other parts of the Country:**

Ministry of Power (MoP) has entrusted the task of third party evaluation/ inspection of all commissioned/upcoming Renewable Energy Management Centres (REMCs)/EMCs across the Country to CEA. Accordingly, RP&T Division is collecting the monthly status report from all REMCs regularly.

### **2.10.4 Core Group for more precise weather data collection and forecasting for improving Renewable Energy (RE) forecast.**

A Core Group had been constituted in February, 2023 by Central Electricity Authority under the Chairmanship of Sh. H. S. Sawhney, Scientist-E from India Meteorological Department (IMD) comprising other Members from Government Organizations/ CPSUs, Indian Wind Power Association (TWPA) and Solar Power Developers Association (SPDA). This Group has been given a task to devise a methodology for more precise weather data collection and forecasting for improving Renewable Energy (RE) forecast. Subsequently, Members from IITM, Pune, NISE, NIWE and one member from CEA has been incorporated in the group.

Five meetings and one special meetings including two chaired by Chairperson, CEA of this group have already taken place during this year. NCMRWF has been entrusted the task of developing a model for accurate forecasting of all solar and wind generators. NCMRWF is being facilitated by CEA by providing requisite real time and historical weather parameters through NLDC/RLDC/generators over FTP/API for more accurate forecast. .

### **2.11 Works related to Clean Energy, Energy Transition and International Matters**

CE&ET Division was formed in CEA keeping in view of the increasing importance of promotion of **Clean Energy and Energy transition from fossil fuel to non-fossil fuel** based

Power.

In this pursuit, the reports published by CE&ET division are as follows: -

- i. Annual CO<sub>2</sub> baseline data-base for FY 2023-24.
- ii. Monthly power consumption details of Electric Vehicle- Public Charging Stations (PCS).

Brief details of these reports are given below:

**2.11.1 CO<sub>2</sub> baseline data base for FY 2023-24:**

CEA has been compiling and publishing database containing data on CO<sub>2</sub> emissions for all grid-connected power stations in India since 2006.

Purpose of CO<sub>2</sub> baseline database:

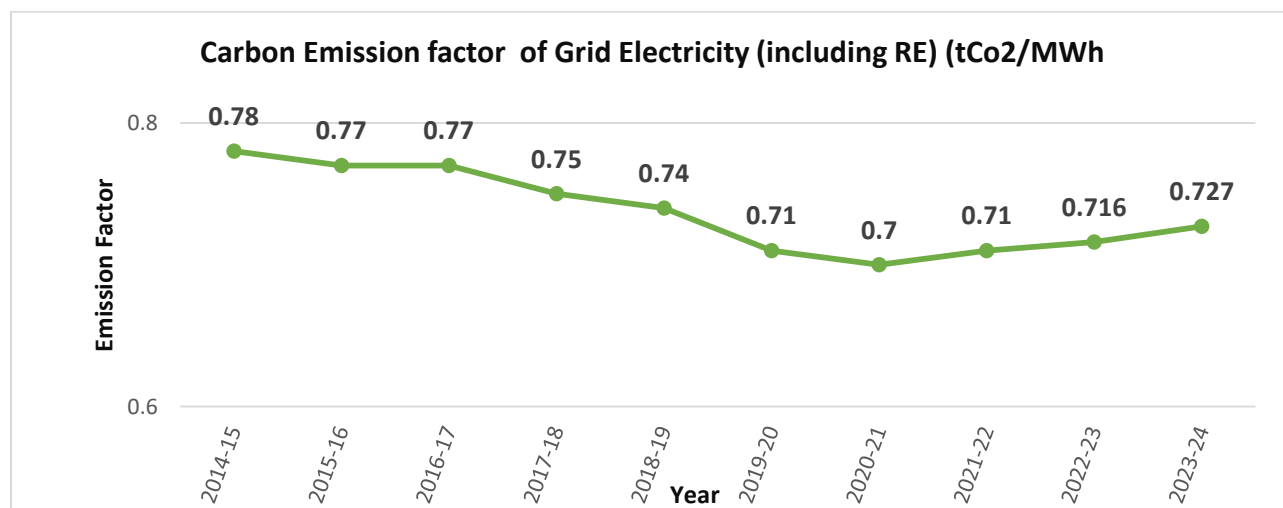
- i. Projects involving CO<sub>2</sub> displacement or CO<sub>2</sub> saving relating to grid electricity must calculate their emission reduction based on a grid emission factor, which needs to be determined in accordance with the rules set by CDM Executive Board.
- ii. Emission reductions from CDM projects in the power sector are

calculated based on the net electricity generated by the project, and the difference between the emissions factors (in tCO<sub>2</sub>/MWh) of the baseline and the project activity.

- iii. The purpose of the database is to establish authentic and consistent quantification of the CO<sub>2</sub> emission baseline which can be readily used by CDM project developers in the Indian power sector. This would enhance the acceptability of Indian projects and would also expedite the clearance/approval process.

Key points from CO<sub>2</sub> baseline database for FY 2023-24:

**Emission Intensity Reduction:** - There is a gradual increase in total electricity generation (including RE generation) as well as total CO<sub>2</sub> emission from 2014-15 to 2023-24 i.e. around 60 % increase in net generation and 49.6 % increase in total CO<sub>2</sub> emission but carbon emission factor of grid including Renewable energy has been reduced by around 7 % (i.e. from 0.78 in 2014-15 to 0.727 in 2023-24) during the same period.



**2.11.2 Collection of monthly power consumption details of Electric Vehicles- Public Charging Stations (PCS) and publication of Monthly Report.**

Million-units (MUs).

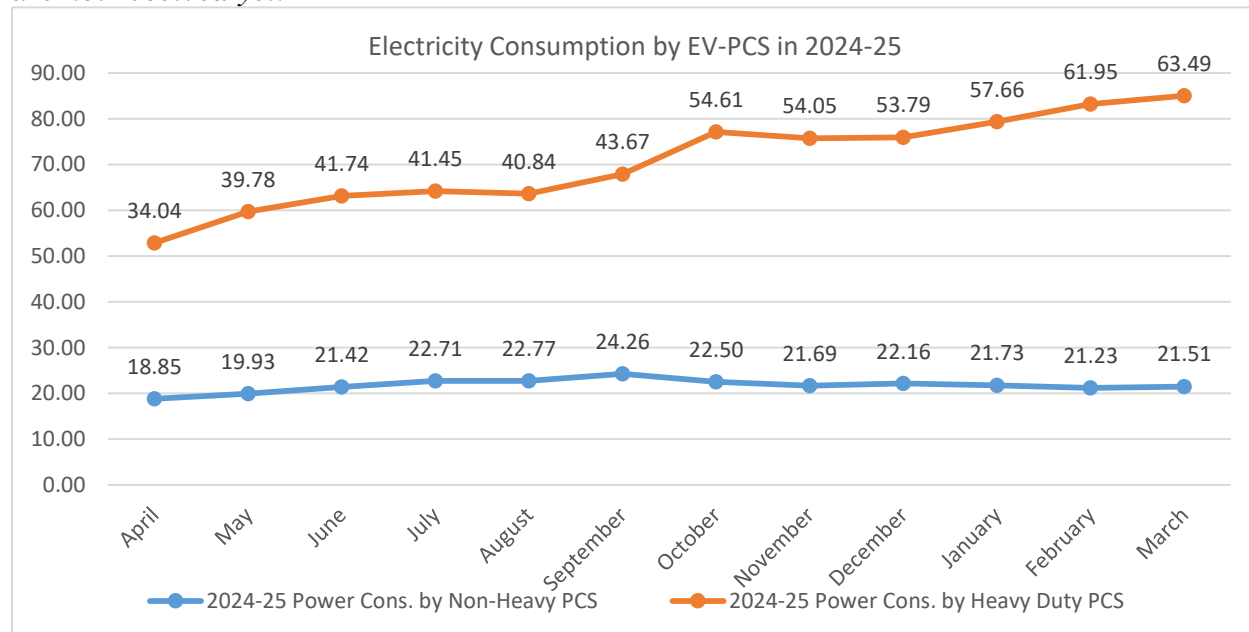
Month-wise power consumption details are tabulated below: -

The data of energy consumption in the EV charging stations is important for the load forecasting, distribution system planning and integrated resource planning in the country. Hence, CEA is collecting data from all DISCOMs regarding monthly power consumption details of Public Charging Stations (PCS) under their area of supply. Currently, EV Power Consumption report covers data received from 33 major DISCOMS and the follow up with the remaining is in progress.

As per information received so far, total power consumed by PCS of various DISCOMs during the period from 01.04.2024 to 31.03.2025 is 847.81

Month	Total Electricity Consumption (in MU)
Apr-24	52.88
May-24	59.72
Jun-24	63.16
Jul-24	64.16
Aug-24	63.61
Sep-24	67.93
Oct-24	77.10
Nov-24	75.74
Dec-24	75.94
Jan-25	79.39
Feb-25	83.18
Mar-25	85.00
<b>Total*</b>	<b>847.81</b>

*\*The actual consumption is more than the given figure as consumption details of few utilities are not received yet.*



### 2.11.3 Details of other Activities/ Reports:

#### i. Monthly Environmental Emission data of all Coal/Lignite/Gas/Diesel/Naptha Based Thermal Power Plant

CEA has notified “Central Electricity Authority (Furnishing of Statistics, Returns and Information) Regulations, 2007” on 19th April, 2007 under Section 74 and Sub-Section (3) of Section 177 of Electricity Act, 2003 to collect and record the data concerning generation, transmission, trading, distribution and utilization of electricity and to carry out studies relating to environmental issues and competitiveness and such like matters.

CEA, in fulfillment of its statutory obligations, collects the monthly environment emission data from thermal power plants as per FORMAT-60 and from June 2022 onwards have started publishing the Monthly Environmental Stack Emission Status Report of Indian Power Sector giving summary along with plant wise details of PM, SO<sub>2</sub>, NO<sub>x</sub> emissions and Specific Water consumption.

The purpose of this report is to analyze the quantum of emission of Pollutant such as PM, SO<sub>x</sub>, NO<sub>x</sub>, Hg and Specific water consumption from various units of Indian Thermal Power Stations, while ensuring the compliance of the norms specified by MoEF&CC vide notification dated 07.12.2015 under Environment (Protection) Act, 1986 is the domain of CPCB/SPCB.

Such analysis will help in identification of major pollution emitter units so that concerned

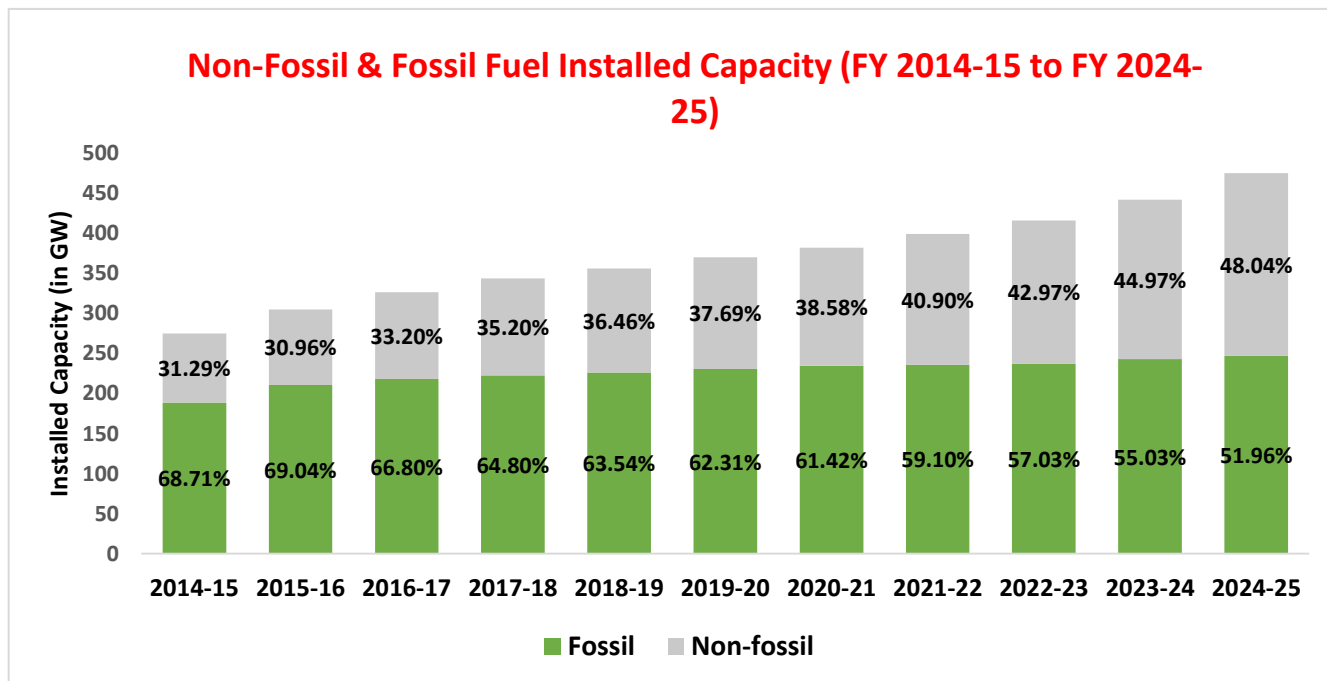
power producers can be sensitized to take immediate corrective and necessary action to reduce the emission within the norms. Thus it helps in achieving the broader objective of ensuring clean & healthy environment and reducing global warming.

#### ii. Energy Transition from Fossil fuel to Non-Fossil:

- 1) At COP-21, as part of its intended Nationally Determined Contributions (NDCs), India had committed to achieve 40% of its installed electricity capacity from non-fossil energy sources by 2030. However, India has overachieved this commitment almost nine years ahead of its commitment in Nov-2021. The share of solar and wind in India’s energy mix have grown phenomenally. As on 31.03.2025, the non-fossil fuel installed capacity is about 48.04 % (228.27 GW out of total 475.21 GW)
- 2) India communicated its updated NDC to UNFCCC in August 2022, which includes-
  - ‘LIFE’– Lifestyle for Environment
  - Reduction in Emissions Intensity of its GDP by 45 percent by 2030, from 2005 level.
  - To achieve about 50 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030, with the help of transfer of technology and

low-cost international finance including from Green Climate Fund (GCF).

3) A depiction chart of Year-wise % share of Non-Fossil based Power is tabulated below: -



**iii. Monitoring and monthly reporting of Biomass co-firing status as per policy formulated by CAQM to abate air pollution in Delhi NCR**

Every year, farm-stubble burning is one of the important factors of air pollution across the country especially in Delhi-NCR. Ministry of Power vide order dated 08.10.2021 has issued revised policy on Bio-mass Utilization for Power Generation through Co-firing in Coal based Power Plants to use 5-10% blend of biomass pellets made, primarily of agro-residue along with coal after assessing the technical feasibility viz. safety aspect etc. Further, revised policy on 16.06.2023, for the use of agro

residue-based biomass and mandated usage of minimum 5% biomass co-fired along with coal for thermal power plants w.e.f. F.Y. 2024-25.

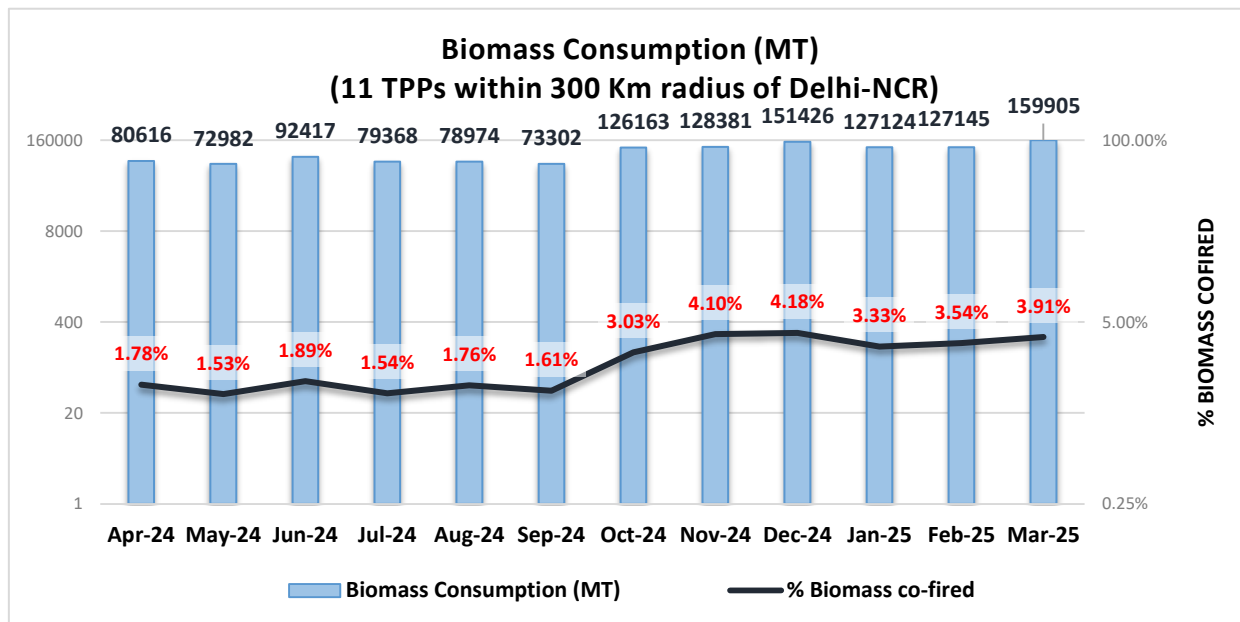
In order to address the issue of air pollution and to reduce carbon footprints of thermal power generation, CEA under MoP has monitored and furnished monthly progress report of 11 TPPs within 300 km of Delhi-NCR on compliances of Biomass cofiring direction for onward submission to CAQM.

According to data collected for the period from 01.04.2024 to 31.03.2025, cumulative 1297802 MT biomass has been co-fired in 11 TPPs (within 300 km

of Delhi-NCR).

As per the details furnished by National Biomass Mission, % biomass co-fired in

11 TPPs near Delhi-NCR in FY 2024-25 is shown below:



**iv. International and Bilateral Co-operation for development of affordable, reliable & sustainable Power Sector by way of promoting Clean Energy and Energy Transition in the country.**

1. Inputs were provided to MoEF&CC regarding COP-29 presidential action agenda, draft Pledges on **Green Energy Pledge: Green Energy Zones and Corridors; Green Energy Storage and Grids** and various Declarations/Initiatives, which lay out India’s vision and approaches towards reaching net-zero by 2070. CEA led the group on technology development and transfer of Indian Delegation and Inputs on other matters on MWP, JTWP, Response Measures and GST were provided to the Indian delegation at COP-29. CEA submitted a note on establishing a process for Technology Transfer and

Development under UNFCCC Technical Mechanism to MoEF&CC.

2. Inputs/suggestions were furnished to MoP & MoEF&CC regarding matters on bilateral/multilateral co-operation viz. Shanghai Cooperation Organization (SCO), BRICS, G20 Brazil, IEA report on global staketake-2024, “Power and Energy Efficiency” pillar under India – US Strategic Clean Energy Partnership (SCEP), Technical Note on Assessing Climate-Related Financial Risks in India prepared by IMF and WB under Financial Sector Assessment program, Directorate General for Climate Action, European Commission,

3. Moreover, inputs on India’s successive Nationally Determined Contribution (NDC) due in first quarter of the year 2025 and inputs/comments for India's 4th BUR were furnished to Nodal Ministry.

v. **Participation in International Co-operation on Energy Transition**

Chief Engineer, CE&ET Division, CEA participated in Baku, Azerbaijan Climate Change Conference (COP 29) in November 2024 and Director, CE&ET participated in Bonn Climate Change Conference in June 2024.

With the efforts made by the Indian negotiation team in COP29 held in Baku, India expressed its big disappointment on decision of “*Tripling of finance to developing countries, from the previous goal of USD 100 billion annually, to USD 300 billion annually by 2035*”. India highlighted that as grant-based concessional Climate Finance is the most critical enabler to formulate and implement the new NDCs, action will get severely impacted in the absence of adequate means of implementation. **The NCQG document needs to be specific on the structure, quantum, quality, timeframe, access, transparency, and review.** The goal for mobilisation needs to be USD 1.3 trillion, with USD 600 billion of this coming through grants and grants equivalent resources.

CEA representative participated in the discussions on Global Stock Take, Technology Development and Transfer, Mitigation Work Programme, Response Measures and Just Transition.

CE&ET Division representative also participated in the Coordination Meeting of the Indian Delegation to 62nd Session of the IPCC on Feb 7, 2025 at Hangzhou, China.

**2.12 Energy Storage System:**

India has committed to reducing the Emissions Intensity of its GDP by 45 percent by 2030 from the 2005 level. Additionally, it aims to achieve approximately 50 percent of its cumulative installed capacity from non-fossil fuel-based energy resources by 2030. The significant portion of non-fossil fuel-based energy comes from sources like Solar and Wind, which are intermittent and variable. This variability and intermittency contribute to voltage and frequency fluctuations. The Energy Storage System (ESS) help to integrate the variable and intermittent RE sources by storing excess energy during surplus RE generation and providing backup power during periods of deficient RE generation.

**2.12.1: Status of Energy Storage Systems (except PSP) in India**

The status of Battery Energy Storage System (BESS) projects ( $\geq 1$  MWh) as well as Major operational BESS projects ( $\geq 1$  MWh capacity) in the country is **attached as Annexure-III**

**2.12.2: Measures taken/proposed to promote and develop Energy Storage System (ESS) in the country:**

Following measures have been taken/proposed to promote and develop Energy Storage System (ESS) in the country:

- i. **VGF for Development of BESS:** Ministry of Power has given the

Viability Gap Funding (VGF) support for development of 13200 MWh Battery Energy Storage Systems (BESS) capacity under the following three components:

**A. Market Component:**

- Tranche-I: - 1000 MWh BESS capacity implemented by NVVN Ltd.
- Tranche-II: - 1200 MWh BESS capacity implemented by SECI Ltd.

**B. CPSU Component:**

BESS capacity of 5000 MWh to be developed by NVVN, NHPC and SJVN

**C. State Component:**

BESS capacity of 6000 MWh under State component to eight (8) states viz Rajasthan, Tamil Nadu, Karnataka, Gujarat, Maharashtra, Telangana, Bihar

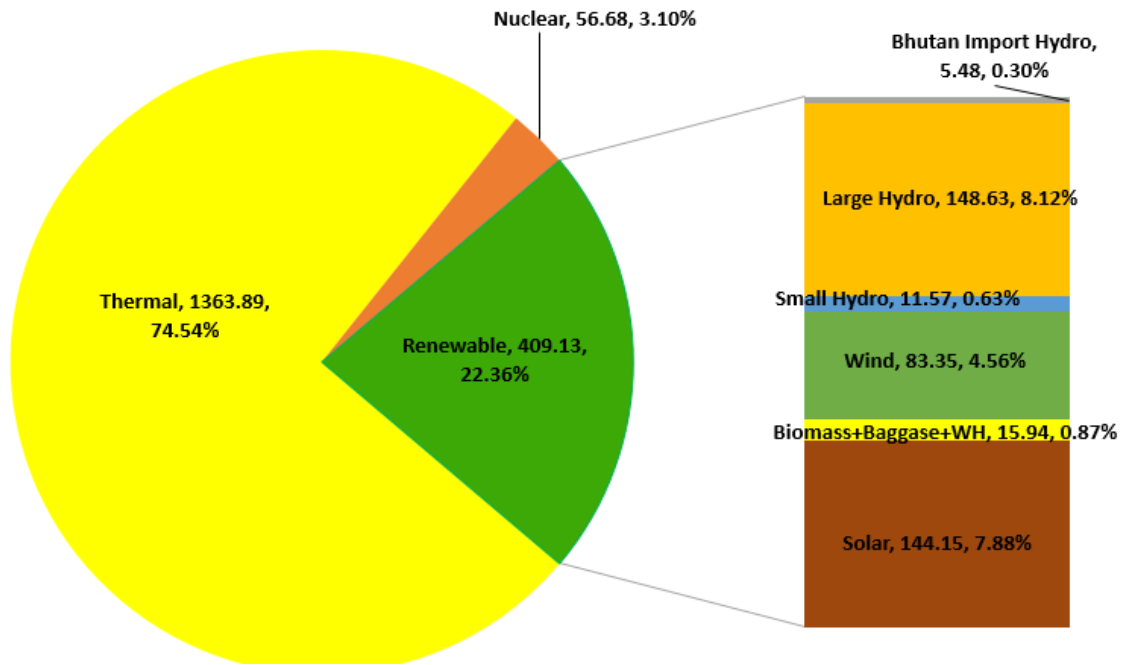
and Kerala.

- ii. Waiver of ISTS Charges:** The waiver of ISTS charges provided for a period of 12 years or for a period subsequently notified for future projects by the Central Government, from the date of commissioning of BESS projects.

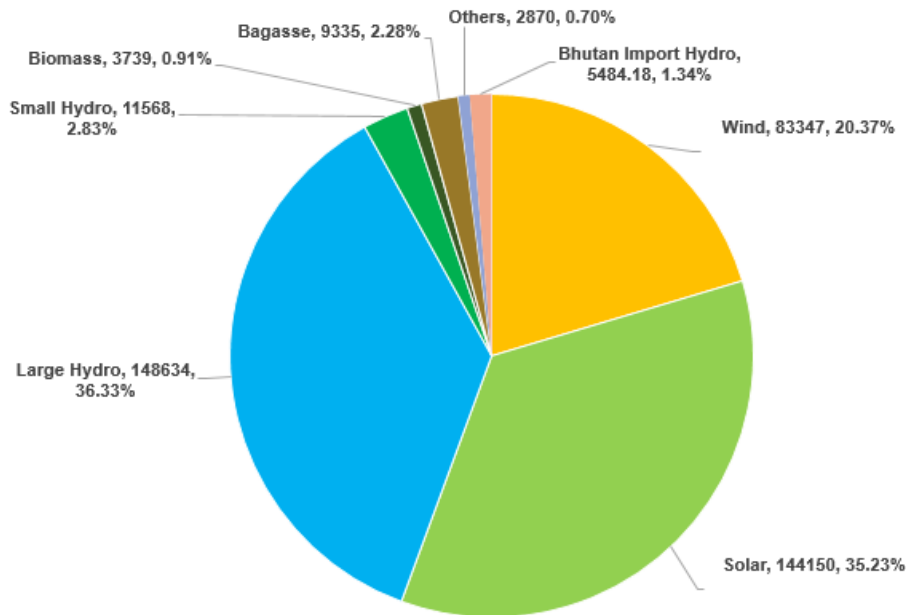
**iii. Electricity (Rights of Consumers) Amendment Rules, 2022 on replacing DG sets with Renewable Energy with Battery Storage:** The ESS Division conducted a techno commercial study for replacement of DG set installed at the Sewa Bhawan building with RTS and BESS, in association with IIT Roorkee, CPWD, BRPL and Industry representatives. The recommendations for replacement of the DG set with RTS and BESS have been submitted to CPWD.

**Annexure-I**

**All India Cumulative Energy Generation (1829.70 BU) April 2024 -March 2025**



**Source wise breakup of cumulative RE Generation for April 2024 to March 2025 (409127.35 MU)**



## Annexure-II

Name of State/UT	Wind	Solar	Biomass	Bagasse	Small Hydro	Others	Total Renewable Energy
Chandigarh	0.00	8.79	0.00	0.00	0.00	0.00	8.79
Delhi	0.00	206.53	0.00	0.00	0.00	542.41	748.95
Haryana	0.00	1470.02	359.23	44.60	314.64	49.13	2237.62
Himachal Pradesh	0.00	107.24	0.00	0.00	3040.90	0.00	3148.14
Jammu & Kashmir	0.00	0.00	0.00	0.00	395.17	0.00	395.17
Ladakh	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Punjab	0.00	1372.73	692.06	348.11	734.01	0.00	3146.91
Rajasthan	6941.26	49101.62	400.85	0.00	4.15	0.00	56447.88
Uttar Pradesh	0.00	4966.06	76.48	2457.35	179.00	29.88	7708.76
Uttarakhand	0.00	331.80	0.00	248.52	353.40	0.00	933.72
<b><u>Northern Region</u></b>	<b>6941.26</b>	<b>57564.79</b>	<b>1528.62</b>	<b>3098.58</b>	<b>5021.27</b>	<b>621.42</b>	<b>74775.94</b>
Chhattisgarh	0.00	1523.27	1543.26	20.05	139.34	0.00	3225.93
Gujarat	25440.90	20219.48	107.62	0.00	205.98	0.00	45973.98
Madhya Pradesh	4712.84	7123.73	61.95	121.55	482.19	65.06	12567.32
Maharashtra	7659.71	7725.20	259.41	3001.04	855.48	90.35	19591.19
Dadra and Nagar Haveli & Daman and Diu	0.00	15.87	12.76	0.00	0.00	0.00	28.63
Goa	0.00	57.11	0.00	0.00	0.00	8.14	65.24
<b><u>Western Region</u></b>	<b>37813.45</b>	<b>36664.67</b>	<b>1984.99</b>	<b>3142.65</b>	<b>1683.00</b>	<b>163.54</b>	<b>81452.29</b>
Andhra Pradesh	7235.04	7993.48	19.61	52.34	294.36	307.40	15902.23
Telangana	290.60	6941.75	12.61	64.28	74.48	257.96	7641.70
Karnataka	13620.33	15699.63	32.15	2474.25	2259.49	0.00	34085.85
Kerala	119.85	1711.83	0.00	20.53	814.29	56.64	2723.14
Tamil Nadu	17326.66	15739.30	106.90	377.99	256.60	0.00	33807.45
Lakshadweep	0.00	0.09	0.00	0.00	0.00	0.00	0.09
Puducherry	0.00	12.24	0.00	0.00	0.00	0.00	12.24
<b><u>Southern Region</u></b>	<b>38592.48</b>	<b>48098.33</b>	<b>171.27</b>	<b>2989.39</b>	<b>3699.22</b>	<b>622.01</b>	<b>94172.69</b>
Andaman & Nicobar Islands	0.00	24.59	0.00	0.00	14.40	0.00	39.00
Bihar	0.00	325.86	0.00	104.70	14.54	0.00	445.10

<b>Jharkhand</b>	0.00	17.64	0.00	0.00	6.25	0.00	23.89
<b>Odisha</b>	0.00	786.75	53.80	0.00	457.20	0.00	1297.75
<b>Sikkim</b>	0.00	0.00	0.00	0.00	12.35	0.00	12.35
<b>West Bengal</b>	0.00	320.75	0.00	0.00	183.30	1462.46	1966.51
<b><u>Eastern Region</u></b>	<b>0.00</b>	<b>1475.60</b>	<b>53.80</b>	<b>104.70</b>	<b>688.04</b>	<b>1462.46</b>	<b>3784.60</b>
<b>Arunachal Pradesh</b>	0.00	1.30	0.00	0.00	0.58	0.00	1.88
<b>Assam</b>	0.00	305.52	0.00	0.00	208.55	0.30	514.36
<b>Manipur</b>	0.00	8.68	0.00	0.00	0.00	0.00	8.68
<b>Meghalaya</b>	0.00	0.00	0.00	0.00	116.65	0.00	116.65
<b>Mizoram</b>	0.00	25.38	0.00	0.00	52.11	0.00	77.49
<b>Nagaland</b>	0.00	0.00	0.00	0.00	98.62	0.00	98.62
<b>Tripura</b>	0.00	5.97	0.00	0.00	0.00	0.00	5.97
<b><u>North Eastern Region</u></b>	<b>0.00</b>	<b>346.85</b>	<b>0.00</b>	<b>0.00</b>	<b>476.51</b>	<b>0.30</b>	<b>823.66</b>
<b>All India Total</b>	<b>83347.19</b>	<b>144150.23</b>	<b>3738.67</b>	<b>9335.32</b>	<b>11568.04</b>	<b>2869.73</b>	<b>255009.19</b>

**Annexure-III**

The status of Battery Energy Storage System (BESS) projects ( $\geq 1$  MWh) as on 31.03.2025 is as under:

<b>Status of BESS in India (<math>\geq 1</math> MWh)</b>				
<b>S.No.</b>	<b>Category of Project</b>	<b>Number of Projects</b>	<b>Capacity (MW &amp; MWh)</b>	
			<b>MW</b>	<b>MWh</b>
1	In Operation	9	204.5	505.6
2	Under Construction	13	1,670.00	5,042.50
3	In Tender Stage#	45	18,152.39	55,954.12
4	Total (1+2+3)	67	20,026.89	61,502.22

# also includes FDRE projects whose storage capacity is yet to be known.

Major operational BESS projects ( $\geq 1$  MWh capacity) in the country as on 31.03.2025, with a cumulative installed capacity of around 204 MW/506 MWh, are as under:

<b>S.No</b>	<b>Name and Description of the Project</b>	<b>State</b>	<b>Capacity</b>		<b>Organization name</b>
			<b>MW</b>	<b>MWh</b>	
1	10MW/10MWh BESS project with Lithium ion Battery-NMC at Tata Power-DDL's sub-station in Rohini	Delhi	10	10	Tata Power DDL - AES and Mitsubishi
2	20MW solar power project integrated with an 16MW/8MWh BESS at Dollygunj and Attam Pahad in South Andaman	Andaman & Nicobar	16	8	NLC
3	Modhera Sun Temple Solar with BESS (6 MW SPV with 6MW/19.2 MWh BESS installed at Village Sujapur & 50 kW SPV with 150 kWh BESS installed at the Sun Temple	Gujarat	6	19.2	GPCL

4	1.7 MW Solar PV Power Plant (300 kW at Agatii & 1400 kW at Kavaratti) with 0.5 MW/ 1.4 MWh BESS (at Kavaratti) at Lakshadweep	Lakshadweep	0.5	1.4	SECI
5	BESS project at Rajnandgaon, Chhattisgarh - 100 MW(AC)Solar PV Project with 40 MW/120 MWh Battery Energy Storage System	Chhattisgarh	40	120	SECI
6	GSECL Gujarat Solar plus Storage Hybrid - 35MW Solar PV with 57 MWh BESSLocation: Kutch Lignite Thermal Power Station (KLTPS)	Gujarat	12	57	GSECL
7	SECI Peak Power 1200 MW with 75 MW/ 150 MWh	Karnataka	75	150	SECI
8	SECI RTC 400 MW with 25MW/100MWh BESS	Rajasthan	25	100	SECI
9	20 MW/ 40 MWh BESS in Delhi under Tariff-Based Competitive Bidding	Delhi	20	40	BSES-BRPL

## CHAPTER – 3

### POWER SYSTEM PLANNING AND DEVELOPMENT

#### 3.1 Transmission Planning

All issues relating to planning and development of Transmission System in the country are dealt in the Power System Wing of CEA. This includes evolving long term and short term transmission plans in coordination with central, state transmission utilities and generating companies. The network expansion plans are optimized based on power system studies. This also involves formulation of specific schemes, evolving a phased implementation plan in coordination with the Central and State transmission utilities and their implementation, issues pertaining to development and strengthening of national power grid in the country. Transmission planning studies are being conducted to identify power evacuation system from generation projects and to strengthen the transmission system in various regions.

In addition to this, Member (Power System) has been appointed as Designated Authority for facilitating the process of approval and laying down the procedure for import/ export of electricity under the guidelines for Import/Export (Cross Border) of Electricity, 2018. Designated Authority (DA) has been entrusted the role to coordinate with the respective authorities of the neighbouring countries for all purposes as stated in the Guidelines which, inter alia, include, planning, monitoring and commissioning of transmission lines for import/export of electricity as well as the grid security, safety and operation; accord approval to the participating entity(ies) proposing to import/export electricity from/ to India [including through Indian power exchange(s)]; and accord approval to an Indian generating station, supplying electricity exclusively to neighbouring country and proposing to build a dedicated transmission line for connecting to the transmission system of the neighbouring country.

The Electricity (Transmission System Planning, Development and Recovery of Inter State Transmission Charges) Rules, 2021, notified by Ministry of Power on 01<sup>st</sup> October, 2021, inter alia provides that;

*“3(1) The Central Electricity Authority shall draw up short term plan every year on rolling*

*basis for upto next five years and perspective plan every alternate year on rolling basis for next ten years for development of the electricity system and co-ordinate the activities of the planning agencies for the optimal utilisation of resources to sub serve the interests of the national economy and to provide reliable and affordable electricity in accordance with section 73 of the Act.*

*3(2) The Central Electricity Authority shall also draw up the perspective plan for development of transmission system after consultation with all the relevant stakeholders such as Central Transmission Utility, State Transmission Utilities, System Operators, generating and distribution companies, industry associations and the State Governments, etc., and after assessing the rate of growth in demand as well as the growth of generation in different areas of country.”*

#### 3.2 Manual on Transmission Planning Criteria, 2023

The manual on Transmission Planning Criteria was first brought out by CEA in 1985, which was revised in 1994 and 2013. Considering large-scale renewable energy integration, growth of load, increasing fault level, right of way issues, technical advancements, notification of Transmission Rules, etc. CEA had issued a Manual on Transmission Planning Criteria, 2023 which is effective from 1<sup>st</sup> April, 2023.

The Manual is quite useful in planning the Interstate transmission system as well as the Intra-state transmission system. The manual covers planning philosophy, information required from various entities, permissible limits of parameters, reliability criteria, broad scope of system studies, modelling and analysis etc. and provides guidelines for transmission planning.

In order to cover the planning procedure, a new chapter (Chapter-7) has been added to the Manual. Further, parameters of certain conductors has been updated. The Manual on Transmission Planning Criteria (with amendment-I) was issued on 8th January 2025.

### **3.3 Inter-regional transmission system in India – National Grid.**

The national grid in the country has been developed in a phased manner. All the regional grids have been inter-connected synchronously to form One Nation-One grid -One frequency. Inter-regional transmission capacity by the end of the 9<sup>th</sup> plan was 5,750 MW which increased to 13,450 MW by the end of the 10<sup>th</sup> plan and to 27,150 MW and 75,050 MW by the end of the 11<sup>th</sup> and 12<sup>th</sup> plan respectively. Interregional transmission capacity added during the period 2017-22 (up to 31<sup>st</sup> March 2022) was 37,200 MW. Interregional transmission capacity added during FY 2023-24 is 6490 MW. As on 31.03.2025, inter-regional transmission capacity in the country was 118,740 MW. Details of inter-regional transmission lines are given at **Annexure-3A**. The increase in inter-regional transmission capacity would further facilitate the smooth flow of power from surplus to deficit regions.

### **3.4 Transmission planning related works carried out in 2024-25:**

#### **3.4.1 Intra State Transmission System Strengthening requirement of North Eastern States and Sikkim by the year 2031-32**

A report on "Transmission System Requirement of North Eastern States and Sikkim by the Year 2031-32" was submitted to MoP in October 2024.

#### **3.4.2 Examination of proposals for intra-state transmission planning**

Various schemes of intra-state transmission system submitted by States/Union Territories (UTs) seeking funding under Schemes of Govt. of India/ Assistance/Multilateral organisation were examined.

#### **3.4.3 Intra State Transmission System Strengthening requirement of North Eastern States and Sikkim by the year 2030**

MoP vide letter dated 16.02.2022 had requested CEA to ascertain further requirements of North

Eastern States to augment their transmission systems.

Accordingly, CEA had submitted a Report on "Intra state transmission system strengthening requirement of North Eastern States and Sikkim by the year 2030" to MoP vide letter dated 25.02.2023.

Subsequently, in the meeting held on 17.01.2024 under the chairmanship of Secretary (Power), it was directed to revise the NER 2030 report considering resource adequacy plan, evacuation plans of small hydro plants, plotting of existing as well as planned network on PM Gati Shakti (PMGS) portal National Master Plan, separate plan for required distribution network (downstream) and other requirements.

Accordingly, CEA is in the process of updating the Report.

#### **3.4.4 Examination of proposals for intra-state transmission planning**

Various schemes of intra-state transmission system submitted by States/Union Territories (UTs) seeking funding under Schemes of Govt. of India/ Assistance/Multilateral organisation were examined.

### **3.5 Private sector participation in transmission sector**

#### **3.5.1 Brief Introduction**

- I. In compliance with provisions laid down in Tariff Policy dated 6<sup>th</sup> January, 2006, MoP issued an OM on 9<sup>th</sup> December, 2010, which provides that since 6<sup>th</sup> January, 2011, all the ISTS transmission projects are to be implemented through Tariff Based Competitive Bidding (TBCB) route, except some specific category of projects of strategic importance, technical upgradation works, required to be done to cater to an urgent situation on a case to case basis etc.
- II. The Revised Tariff Policy issued by Ministry of Power on 28<sup>th</sup> January, 2016 states the following: -

Clause 5.3: “The tariff of all new generation and transmission projects of company owned or controlled by the Central Government shall continue to be determined on the basis of competitive bidding as per the Tariff Policy notified on 6<sup>th</sup> January, 2006 unless otherwise specified by the Central Government on case to case basis.

Further, intra-state transmission projects shall be developed by State Government through competitive bidding process for projects costing above a threshold limit which shall be decided by the SERCs.”

Clause 7.1(7): “While all future inter-state transmission projects shall, ordinarily, be developed through competitive bidding process, the Central Government may give exemption from competitive bidding for (a) specific category of projects of strategic importance, technical upgradation etc. or (b) works required to be done to cater to an urgent situation on a case to case basis”.

III. MoP has constituted National Committee on Transmission (NCT). The terms of reference of NCT inter alia is the recommendation of ISTS scheme to MoP for approval. To further streamline the process of planning and approval of ISTS schemes, MoP vide its office order dated 28.10.2021 has revised the Terms of Reference of the NCT, delegating powers for approval of ISTS system costing between Rs 100 to Rs 500 crores to NCT and for ISTS schemes costing up to Rs 100 crores to Central Transmission Utility. The ISTS schemes costing above Rs 500 crores would require approval of MoP.

IV. MoP vide OM dated 18.02.2025 amended the composition of National Committee on Transmission.

### 3.5.2 Status of the Transmission schemes notified through TBCB:

As far as Inter-State transmission system is concerned, till 31st March, 2025, one hundred fifty one schemes have been awarded through

Tariff Based Competitive Bidding. The status of the transmission schemes, as on 31.03.2025, is as below:

<b>Projects under TBCB</b>	<b>151</b>
Projects commissioned	62
Projects under implementation	85
Stalled projects	04

<b>Stalled projects</b>	<b>04</b>
Project cancelled by CERC	01
Projects not taken up & CERC cancelled license	01
Projects under litigation	02

The name of schemes notified through TBCB are at **Annexure-3B**.

### 3.5.3 Meetings of the National Committee on Transmission (NCT) held during 2024-25:

In the year 2024-25, ten Nos. of meeting of National Committee on Transmission were held which is given below:

Sl. No.	National Committee on Transmission (NCT) Meeting No.	Date on which meeting was held
1.	19 <sup>th</sup>	29.04.2024
2.	20 <sup>th</sup>	25.06.2024
3.	21 <sup>st</sup>	06.08.2024
4.	22 <sup>nd</sup>	23.08.2024
5.	23 <sup>rd</sup>	02.09.2024
6.	24 <sup>th</sup>	23.10.2024
7.	25 <sup>th</sup>	28.11.2024
8.	26 <sup>th</sup>	06.01.2025
9.	27 <sup>th</sup>	06.02.2025
10.	28 <sup>th</sup>	06.03.2025

The transmission schemes and relevant issues taken up in these meeting are given at **Annexure -3C**.

### 3.6 Examination of Detailed Project Reports (DPRs) / Feasibility Reports (FRs) of Hydro Electric Projects / Pump Storage Projects for processing of concurrence by CEA:

48 Nos. DPRs/FRs of hydropower projects/pumped storage projects were examined

for processing of concurrence by CEA.

### **3.7 Examination of DPR of Transmission Works for processing of clearance by CEA**

09 Nos. of proposals/DPR pertaining to transmission works were examined for processing of clearance by CEA.

### **3.8 Grant of prior approval of Government to transmission proposals under Section 68(1) of the Electricity Act, 2003 during 2024-25**

As per Section 68(1) of the Electricity Act 2003, an overhead line shall be installed or kept installed above ground with prior approval of the Appropriate Government. During the FY 2024-25, total of 235 Nos. of transmission schemes were recommended for grant of approval under Section 68 (1) of the Electricity Act, 2003.

### **3.9 Grant of authorization to transmission proposals under Section 164 of Electricity Act, 2003 during 2024-25**

During the FY 2024-25, 64 applications were recommended to MoP for grant of authorization under Section 164 of the Electricity Act, 2003.

## **3.10 Cross-Border power exchange**

### **3.10.1 Guidelines for Import/Export (Cross Border) of Electricity**

- Guidelines for Import/Export (Cross Border) of Electricity were issued by the Ministry of Power on 18.12.2018 to facilitate import/export of electricity between India and neighboring countries.
- Procedure for approval and facilitating Import/Export (Cross Border) of Electricity by the Designated Authority was issued on 26.02.2021.
- Verification Mechanism for export of power from eligible fuel by generating stations under Import/Export (Cross Border) of Electricity-Guidelines 2018 were issued by the Ministry of Power on 5<sup>th</sup> March, 2021.
- Amendment-1 to the Procedure for approval and facilitating Import/Export (Cross Border) of Electricity by the Designated

Authority was issued on 31<sup>st</sup> July, 2023. The trading in Indian power exchange by Indian power trader on behalf of entity of neighboring country has been allowed in RTM (Real time Market) by this amendment.

### **3.10.2 Indo-Bangladesh Cross-Border Interconnection and Power Trade**

Bangladesh is connected with both Eastern and North Eastern Region of India with power transfer capacity of 1160 MW from India to Bangladesh through following links:

- 1,000 MW through Baharampur (India) to Bheramara (Bangladesh) 400 kV 2x D/c line with 2x500 MW HVDC back-to-back station at Bheramara, and
- 160 MW through Surajmaninagar (India) to North Comilla (Bangladesh) – South Comilla (Bangladesh) 400 kV D/c link (presently operated at 132 kV).

Implementation of the 765 kV D/c Katihar (India) – Parbotipur (Bangladesh) – Bornagar (India) cross border link has been agreed and modalities of its implementation were finalized in July 2024.

- **Import/Export**

In the financial year 2024-25 about 8.084 BU energy was exported to Bangladesh.

### **3.10.3 Indo-Bhutan Cross Border Interconnections and Power Trade**

India and Bhutan have MoU on cooperation for exchange of power between the two countries. Bulk power generated at Hydro Electric Projects at Tala HEP (1020 MW), Chukha HEP (336 MW), Kurichu HEP (60 MW) and Mangdechu HEP (720 MW) in Bhutan is being exported to India through 400 kV, 220 kV and 132 kV lines.

Presently, about 2070 MW power from the existing hydro projects in Bhutan is being imported by India from Bhutan. The associated cross-border transmission system for evacuation and transfer of power from these HEPs is being operated in synchronism with the Indian Grid. Further, associated transmission line works have been completed for Punatsangchu-II (1020 MW) (2 units of which has been commissioned in December 2024) and Punatsangchu-I (1200 MW)

HEPs.

Modalities for implementation of Deviation Settlement Mechanism (DSM) between India and Bhutan were agreed in the 4<sup>th</sup> meeting of India-Bhutan Joint Technical Team (JTT) meeting held on 25.04.2024. The modalities have been made effective w.e.f. 01.05.2024.

### **Import/Export**

In the financial year 2024-25 about 6.281 BU energy was imported from Bhutan and about 1.764 BU energy was exported to Bhutan.

### **3.10.4 Indo-Nepal Cross Border interconnection and Power Trade**

- Presently, power is being exported to Nepal through 11 kV, 33 kV, 132 kV voltage level transmission lines and Dhalkebar (Nepal) – Muzaffarpur (India) 400 kV D/C line.
- For evacuating power from Arun-3 (900MW) HEP in Nepal and other hydro projects in vicinity in future, Arun-3 HEP (Nepal) – Dhalkebar (Nepal) – Sitamarhi (India) 400 kV D/c (Quad) line is under implementation.
- 400 kV Gorakhpur – New Butwal D/c (Quad) line to facilitate increased transfer of power between the two countries is also under implementation.
- Further, Inaruwa (Nepal) - Purnea New (India) 400 kV D/c (Quad Moose) line and Dododhara (Nepal) - Bareilly (India) 400 kV D/c (Quad Moose) line are also agreed for implementation.
- Further Chameliya (Nepal) – Jauljivi ( India) 220 kV D/c (Twin Moose) line, Motihari (India)- Nijgad/Harniya (Nepal) 400 kV D/c (Quad Moose) line and Lucknow (India) – Kohalpur (Nepal) 400 kV D/c (Quad Moose) line have been identified till 2035.

### **Cross border links with Nepal from State Grids**

Nepal is also connected with the Indian State Grid of Bihar, Uttar Pradesh (UP) and Uttarakhand. Bihar, UP and Uttarakhand exports power to Nepal upto 350 MW, 10 MW and less than 1 MW respectively. The electricity export from Indian states of UP/Bihar/Uttarakhand to Nepal is taking place through links from State Grids within the Power Exchange Committee (PEC) Mechanism. Methodology for electricity transaction with

Nepal through State links were agreed between CEA and Nepal Electricity Authority (NEA) in a meeting held on 19.09.2023. The methodology charts out the activities to be carried out for bringing the transactions through the 132 kV and below voltage level state transmission lines with Nepal under the ambit of Import/Export (Cross Border) Guidelines-2018 of India and Regulations/Procedures framed there under.

Recently, 16<sup>th</sup> meeting of Indo-Nepal Power Exchange Committee (PEC) was held on 12<sup>th</sup> February 2025 in CEA, New Delhi where tariff upto the Financial Year 2025-26 was decided for export of electricity from the states of Bihar, Uttar Pradesh and Uttarakhand.

### **Import/Export**

In the financial year 2024-25 about 2.150 BU energy was imported from Nepal and about 1.686 BU energy was exported to Nepal.

### **3.10.5 Indo-Myanmar Cross Border Interconnections and Power Trade**

- India is providing about 2-3 MW of power (Since 5<sup>th</sup> April 2016) from Manipur (India) to Myanmar through 11 kV transmission line from Moreh in Manipur (India) to Tamu town in Myanmar.
- Further, brief scope of works for India – Myanmar high capacity electricity transmission interconnection through Imphal - Tamu 400 kV D/C cross-border interconnection between India and Myanmar with 500 MW HVDC back-to-back terminal at Tamu for drawl of power by Myanmar has been agreed.

### **3.10.6 India – Sri Lanka Cross Border Interconnections and Power Trade**

- DPR for Cross border interconnecton from Madurai New (India) – Mannar (Sri Lanka) ±320 kV HVDC VSC Bipole HVDC Based Link (Phase-I: 500 MW) is being reviewed.

### **3.10.7 India – UAE Cross Border Interconnections and Power Trade**

- Memorandum of Understanding (MoU) between Ministry of Power, Government of the Republic of India and the Ministry of Energy and Infrastructure of the United Arab Emirates (UAE), on cooperation in the field

of Electricity Interconnection & Trade was signed on 13th February, 2024.

- A Joint Technical Team (JTT) has been constituted to look into the feasibility of electrical interconnection between the two countries. From Indian side, the JTT comprises of members from CEA and POWERGRID.

Indian and UAE side has agreed to carry out the feasibility study for the proposed electrical interconnection through a consultant selected through bidding process.

### **3.10.8 India – Saudi Arabia Cross Border Interconnections and Power Trade**

- MoU between the Govt. of the Republic of India and Govt. of Kingdom of Saudi Arabia in the fields of Electrical Interconnection, Green/Clean Hydrogen and Supply Chains was signed on 08.10.2023.
- Feasibility Study Agreement for assessing the feasibility of proposed electrical interconnection between India and Saudi Arabia has been signed between the two countries on 28.10.2024.
- Feasibility study of the proposed electrical interconnection through sub-sea cable is to be carried out by a consultant selected through International Competitive Bidding (ICB) route. Tender for appointment of consultant for carrying out the feasibility study including the assessment of technical and economic aspects has been floated on 10.03.2025.

### **3.10.9 Approvals granted by Designated Authority for Import/Export (Cross Border) of Electricity during 2024-25.**

- Approval of Designated Authority (DA) on 22.04.2024 to PTCIL for export of upto 450 MW power through Bihar-Nepal 132 kV transmission lines and for export of upto 150 MW power through New Nautanwa (U.P.)-Mainahiya (Nepal) 132 kV D/c transmission line to Nepal Electricity Authority (NEA), Nepal, from Indian Power Exchange(s) – {Both Day Ahead Market (DAM) and Real Time Market (RTM)} for a period from 21.04.2024 to 15.06.2024
- Approval of Designated Authority (DA) on 19.08.2024 for import of up to 24.25 MW of power from Kabeli B-1 Hydro Power Project (Nepal) for a period from 01.10.2024 to 30.09.2025, for import of up to 19.4 MW of power from Lower Modi Hydro Power Project (Nepal) for a period from 01.10.2024 to 30.09.2025 and for import of up to 24.25 MW of power from Upper Dordi ‘A’ Hydro Power Project (Nepal) for a period from 01.09.2024 to 31.08.2025 respectively through NNVN in Indian Power Exchange(s) - Day Ahead Market and Real time Market through Muzaffarpur - Dhalkebar 400 kV D/c line.
- Approval of Designated Authority (DA) on 19.08.2024 for import of up to 75 MW of power from Likhu-1 Hydro Power Project (Nepal), to Haryana Discom(s) through NNVN through Muzaffarpur - Dhalkebar 400 kV D/c line for a period from 19.08.2024- 31.10.2024, 01.06.2025-31.10.2025, 01.06.2026- 31.10.2026 and 01.06.2027- 31.10.2027.
- Approval of Designated Authority (DA) on 19.08.2024 for import of up to 50.89 MW of power from Likhu-2 Hydro Power Project (Nepal), to Haryana Discom(s) through NNVN through Muzaffarpur - Dhalkebar 400 kV D/c line for a period from 19.08.2024- 30.09.2024.
- Approval of Designated Authority (DA) on 03.05.2024 for import of up to 37.3 MW of power from Upper Kalangagad Hydro Power Project (Nepal) and for import of up to 38.8 MW of power from Upper Chameliya Hydro Power Project, Nepal through NNVN in Indian Power Exchange(s) - Day Ahead Market and Real time Market through Tanakpur-Mahendranagar 132 kV S/c line for a period from 01.06.2024 to 30.04.2025.
- Approval of Designated Authority (DA) on 19.08.2024 for import of upto 125.044 MW of power from 10 Nos. of Hydro Power Project, Nepal to Bihar (bilateral mode through trader) through Bihar – Nepal 132 kV transmission lines, through PTCIL for a period from 19.08.2024- 31.10.2024, 15.06.2025- 31.10.2025, 15.06.2026-31.10.2026.

- Approval of Designated Authority (DA) on 08.05.2024 to PTC India Limited (PTCIL) for import of upto 37.24 MW of power from Nikachhu Hydro Power Plant, Bhutan and for import of upto 62 MW of power from Basochhu Hydro Power Plant, Bhutan through PTCIL in Indian Power Exchange(s) (PX) — (Both Day Ahead Market (DAM) and Real Time Market (RTM)) for a period from 08.05.2024 – 31.10.2024.
- Approval of Designated Authority (DA) on 01.05.2024 to PTCIL for export of upto 450 MW power to DGPC, Bhutan from Indian Power Exchange(s) – {Both Day Ahead Market (DAM) and Real Time Market (RTM)} for a period from 01.05.2024 to 31.05.2024.
- Approval of Designated Authority (DA) on 19.11.2024 for import of up to 26.19 MW of power from Dordi Khola Hydro Power Project (Nepal), upto 34.92 MW of power from Upper Balephi A Hydro Power Project (Nepal), and for import of up to 83.42 MW of power from Solu Khola Hydro Power Project (Nepal) respectively through NNVN in Indian Power Exchange(s) - Day Ahead Market and Real time Market through Muzaffarpur - Dhalkebar 400 kV D/c line for a period from 19.11.2024 to 31.05.2025.
- Approval of Designated Authority (DA) on 01.05.2024 for import of up to 140 MW of power from Kaligandaki A Hydro Power Project (Nepal) for a period from 01.06.2024 to 30.04.2025, for import of up to 21.44 MW of power from Chilime Hydro Power Project (Nepal) for a period from 01.05.2024 to 30.04.2025, for import of up to 51 MW of power from Likhu IV Hydro Power Project (Nepal) for a period from 01.06.2024 to 30.04.2025, for import of up to 67 MW of power from Marsyangdi Hydro Power Project (Nepal) for a period from 01.06.2024 to 30.04.2025, for import of up to 68 MW of power from Middle Marsyangdi Hydro Power Project (Nepal) for a period from 01.06.2024 to 30.04.2025, and for import of up to 22.8 MW of power from Solu Hydro Power Project (Nepal) for a period from 01.05.2024 to 30.04.2025 respectively through NNVN in Indian Power Exchange(s) - Day Ahead Market and Real time Market through Muzaffarpur - Dhalkebar 400 kV D/c line.
- Approval of Designated Authority (DA) on 03.01.2025 to Tata Power Trading Company Limited (TPTCL) for export of upto 50 MW of power by Juniper Green Cosmic Private Limited (JGCPL), India to Druk Green Power Corporation limited (DGPC), Bhutan from 03.01.2025- 30.04.2025, 01.11.2025-30.04.2026, and 01.11.2026- 30.04.2027.
- Approval of Designated Authority (DA) on 29.12.2024 to PTCIL for export of upto 300 MW power through Bihar-Nepal 132 kV transmission lines and for export of upto 50 MW power through New Nautanwa (U.P.)-Mainahiya (Nepal) 132 kV D/c transmission line to Nepal Electricity Authority (NEA), Nepal, from Indian Power Exchange(s) – {Both Day Ahead Market (DAM) and Real Time Market (RTM)} for a period from 29.12.2024 to 30.06.2025.
- Approval of Designated Authority (DA) on 04.11.2024 to PTCIL for export of upto 1100 MW power to DGPC, Bhutan from Indian Power Exchange(s) – {Both Day Ahead Market (DAM) and Real Time Market (RTM)} for a period from 04.11.2024 to 31.05.2025.
- Approval of Designated Authority (DA) on 19.11.2024 to NNVN for export of upto 500 MW power to NEA, Nepal from Indian Power Exchange(s) – {Both Day Ahead Market (DAM) and Real Time Market (RTM)} through Muzaffarpur - Dhalkebar 400 kV D/c line for a period from 19.11.2024 to 30.06.2025.
- Approval of Designated Authority (DA) on 19.11.2024 to NNVN for export of upto 54 MW power to NEA, Nepal from Indian Power Exchange(s) – {Both Day Ahead Market (DAM) and Real Time Market (RTM)} through Tanakpur-Mahendranagar 132 kV S/c line for a period from 19.11.2024 to 30.06.2025.
- Approval of Designated Authority (DA) on 14.11.2024 to NNVN for cross border trade of upto 40 MW of power from Trishuli Hydro Power Project (18.60 MW) and Chilime Hydro Power Project (21.40 MW)

in Nepal to Bangladesh using Indian Grid for the period from 14.11.2024 - 15.11.2024, 15.06 - 15.11 (every year 2025-2028), and 15.06.2029- 02.10.2029.

### 3.11 Regional Cooperation

#### 3.11.1 BIMSTEC Energy Centre

Memorandum of Association (MoA) among the BIMSTEC Member States (The BIMSTEC is a regional organization comprising seven Member States: five deriving from South Asia, including Bangladesh, Bhutan, India, Nepal, Sri Lanka and two from Southeast Asia, including Myanmar and Thailand ) for the Establishment of BIMSTEC Energy Centre (BEC) was signed on 22<sup>nd</sup> January 2011. According to the MoA, the **BIMSTEC Energy Centre (BEC)** has to be set up in India.

The first meeting of the Governing Board of the BIMSTEC Energy Centre (BEC) was held in Bengaluru on 27.02.2023 wherein Sh Ghanshyam Prasad, Chairperson CEA, Ministry of Power, Govt. of India has been appointed as the first Executive Director of the BIMSTEC Energy Centre.

#### Special Meeting of the Governing Board of the BIMSTEC Energy Centre (GB-BEC)

The Special Meeting of the Governing Board of BIMSTEC Energy Centre was held virtually in Dhaka, Bangladesh on 29 October 2024. Mr. Ghanshyam Prasad, Chairperson (CEA) participated in the meeting. The outcome of the meeting are as below:

- i) Draft text of the Rules of Procedure for BIMSTEC Energy Centre was finalized and recommended to the next Meeting of the BIMSTEC Permanent Working Committee for consideration.
- ii) BEC website and BIMSTEC Regional Energy Database was launched in the meeting.

#### 3.11.2 BIMSTEC Grid Interconnection Coordination Committee (BGICC)

A Memorandum of Understanding (MoU) for establishment of the BIMSTEC grid

interconnection was signed between Member States on 31<sup>st</sup> August, 2018.

Article 3.2 of MoU provides the need for BIMSTEC Grid Interconnection Coordination Committee (BGICC), to actively coordinate, for the successful implementation of grid interconnections and trade in electricity. The First meeting of BGICC was held on 30<sup>th</sup> June 2021 (in virtual mode).

The second meeting of the BIMSTEC Grid Interconnection Coordination Committee (BGICC) was held in Bengaluru on 27.02.2023 and was chaired by Sh Ghanshyam Prasad, Chairperson CEA. The Meeting considered India's presentation as a discussion paper for the preparation of the draft "BIMSTEC Policy for Transmission of Electricity" and "BIMSTEC Policy for Trade, Exchange of Electricity and Tariff Mechanism".

### 3.12 Miscellaneous works

#### 3.12.1 Green Energy Corridor

##### a) Transmission Works under Green Energy Corridors-I

The report on Green Energy Corridor had been prepared by PGCIL as a comprehensive scheme for evacuation & integration of the renewable energy (RE) capacity addition of 32,713 MW during 12<sup>th</sup> Plan Period. Total fund requirement of Rs 34,141 Crore was initially assessed for the development of the transmission system and control infrastructure for the addition of RE capacity in the renewable rich States of Andhra Pradesh, Gujarat, Himachal Pradesh, Jammu and Kashmir, Karnataka, Maharashtra, Rajasthan, Madhya Pradesh and Tamil Nadu.

Intra State transmission schemes are to be funded as 20% equity of the State Govt., 40% grant from National Clean Energy Fund (NCEF) and 40% soft loan, whereas, the Inter State transmission schemes are to be funded as 30% equity by PGCIL and 70% soft loan.

For the funding of green energy corridors in both intra and inter State transmission projects, under

the framework of cooperation between Govt. of India and Govt. of Germany, KfW Germany is providing soft loan to the tune of Euro 1 Billion. For Inter-state transmission projects pertaining to Part A, B and C of Green Energy Corridor, Loan agreement for financial assistance of Euro 500 million from KfW, Germany has been signed by PGCIL. For implementation of transmission schemes under Green Energy Corridor-Part D, POWERGRID has taken loan from ADB.

In Green Energy Corridor-I (GEC-I) scheme, under ISTS, around 17,000 MVA substation capacity and 3,200 ckm of transmission lines were planned and the same has been commissioned.

The InSTS GEC scheme with total target of 9700 ckm intra-state transmission lines and 22600 MVA sub-stations was approved by the Cabinet Committee on Economic Affairs (CCEA) in 2015. The InSTS GEC scheme is currently under implementation by the State Transmission Utilities (STUs) of 8 RE rich States, i.e. Andhra Pradesh, Gujarat, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan & Tamil Nadu. The projects are being set up for evacuation of approx. 24 GW of RE power in the above 8 States. Out of the 8 States, 4 states have completed all the projects, viz. Rajasthan, Madhya Pradesh, Karnataka and Tamil Nadu. The remaining 4 states had requested for further extension up to June 2025.

#### **b) Transmission Works under Green Energy Corridors-II**

Intra- state transmission schemes for power evacuation and grid integration of RE generation projects in seven States (Kerala, Uttar Pradesh, Tamil Nadu, Gujarat, Himachal Pradesh, Karnataka and Rajasthan) have been approved by the Government with an estimated cost of Rs 12,031 Crore with Central Financial Assistance (CFA) @33% of project cost to the States. The scheme includes setting up of 7,919 ckm of transmission lines and 24,488 MVA transformation capacity of substations. About 20 GW RE capacity is planned to be integrated in to the intra-state system under Green Energy Corridor-II (GEC-II) schemes. The states are in process of award of packages for implementation of intra-state transmission

schemes under GEC-II Scheme.

#### **3.12.2 Study, analysis and formulation of policies on specific issues relating to transmission**

##### **a) National Electricity Plan (Volume II: Transmission)**

As per Section 3(4) of the Electricity Act, 2003, Central Electricity Authority has been mandated to prepare a National Electricity Plan (NEP) in accordance with the National Electricity Policy and notify such plan once in five years. The National Electricity Plan (Vol-I: Generation) has already been published, based on which the draft National Electricity Plan (Vol-II: Transmission) was prepared and submitted to Ministry.

After approval by the Ministry, the Draft National Electricity Plan (Vol-II: Transmission) was published on CEA's website for a period of 60 days (extended for 20 more days) for inviting comments from various stakeholders. Accordingly, the final National Electricity Plan (Vol-II: Transmission) was prepared considering the inputs received from stakeholders and subsequently the final plan was approved by Ministry. The National Electricity Plan (Volume-II: Transmission) was released by Hon'ble Minister of Power in October, 2024. The Plan has been notified through Gazette of India.



*Launch of NEP (Transmission) by Hon'ble Minister of Power and Housing and Urban Affairs*

The plan covers the review of transmission system addition during the period 2017-22,

detailed planning for the period 2022-27 and perspective plan for the period 2027-32. The National Electricity Plan provides the details of transmission system required to be added in the country during the period 2023 to 2032, commensurate with the generation capacity addition and growth of electricity demand in the country. As per NEP, transmission system (both ISTS and intra-state) has been planned for about 600 GW generation capacity likely to be added during 2022-23 to 2031-32 to meet a peak demand of 388 GW by the year 2032. Transmission system has been planned for integration of over 500 GW of Renewable Energy installed capacity by the year 2030 and over 600 GW of Renewable Energy installed capacity by the year 2032, including transmission system for integration of 10 GW of offshore wind farms. Further, transmission system has also been planned for delivery of power to the Green Hydrogen/Green Ammonia Manufacturing hubs in the country.

As per the NEP- Transmission, about 1.91 lakh ckm of transmission lines and 1274 GVA of transformation capacity is planned to be added during the ten year period (2023 to 2032). In addition, 33.25 GW of HVDC links are also planned to be added. The Plan gives the transmission system requirement at 220 kV and above level, both for ISTS and Intra-State network. The Plan also highlights Cross border interconnections, new technology options in transmission and Skill Development in transmission sector. As per the National Electricity Plan (Transmission), estimated expenditure of about Rs. 9,16,000 Crore would be required for implementation of additional transmission system in the country (transmission lines, sub-stations, reactive compensation etc.) during the period 2022-23 to 2031-32.

#### **b) Resource Adequacy (Intra-state Transmission System) Plan**

Resource Adequacy plan for Delhi was prepared in consultation with the respective STU, CTUIL, Grid India and state Discoms- BRPL, BYPL and Tata Power. The plan involves system studies and covers, in detail, the requirement of both ISTS and Intra-state transmission system for the respective state with 2027-28, 2029-30 and 2033-34 timeframe.

#### **c) Transmission plan to meet the electricity demand of Noida Power Company Limited**

A report on the transmission plan to meet the electricity demand of Noida Power Company Limited till the year 2033-34 was prepared as a part of consultancy services by the Central Electricity Authority (CEA).

### **3.13 Formulation/ review of Regulations, Guidelines and audit**

- a. The Operation and Maintenance (O&M) Guidelines between New TSP and Existing TSP were extended to the generating station switchyards and non-TBCB based transmission projects in ISTS substation with some modifications vide CEA's letter dated 04.06.2024.
- b. Report of the Committee for calculation of reduction of Right-of-Way (RoW) width through technological options were issued vide CEA's letter dated 24.09.2024.
- c. Revised Standard Operating Procedure for shifting of Transmission line for other infrastructure projects was issued vide CEA's letter 14.01.2025.
- d. The "Guidelines on Unified Philosophy for Placement of Phasor Measurement Unit (PMU) in Indian Grid" were issued vide CEA's letter dated 19.03.2025.

### **3.14 Representation/ Nomination in the Committees**

- a. Chief Engineer PSPA-I is leader of Indian side of Joint Technical Team (JTT) for electrical interconnection between India and UAE.
- b. Chief Engineer PSPA-I is leader of Indian side of Joint Technical Team (JTT) for electrical interconnection between India and Saudi Arabia.
- c. Chief Engineer (PSE&TD), CEA is Chairman and Director (PSE&TD), CEA is Member Secretary of the Standing Committee of Experts on failure of EHV transmission towers to investigate the failure of 220 kV and above voltage class transmission line towers and recommend remedial measures to avert failures in future.

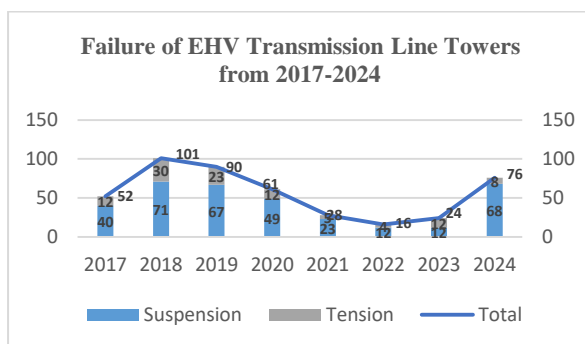
- d. Chief Engineer (PSE&TD), CEA is Chairman and Director (PSE&TD), CEA is Member Secretary of the Standing Committee of Experts to investigate the failure of equipment at 220 kV & above sub-stations.
- e. Chief Engineer (PSE&TD), CEA is Chairman and Director (PSE&TD) is Member Convener of the Committee for calculation of reduction of Right-of-Way (RoW) width through technological options.
- f. Chief Engineer (PSE&TD), CEA is Chairman and Director (PSE&TD) is Member Convener of the Committee to address the technical challenges in upgrading the Existing Wardha-Aurangabad line from 400 kV to 1200 kV and developing 1200 kV terminal stations at both ends.
- g. Chief Engineer (PSE&TD), CEA is Chairman and Director (PSE&TD) is Member Convener of the Bid evaluation committee for evaluation of bids for appointment of Consultant for preparation of feasibility Report and Techno-commercial Analysis for Domestic Manufacturing, Safe Laying and Maintenance of Sub-sea Cables.
- h. Chief Engineer (PSE&TD), CEA is Chairman and Director (PSE&TD) is Member Convener of the Committee for calculation of RoW width for laying of the underground cables of different types/ voltage levels as per different Standards.
- i. Director (PSE&TD), CEA is Member of the Committee in CEA to suo moto scrutinize tenders floated for Public Procurement having value Rs. 500 crores and above.
- j. Director (PSE&TD), CEA is Member of Sub group for Techno- Economic appraisal of DPRs for system improvement under PSDF funding.
- k. Chief Engineer (PSE&TD), CEA is Member of Technical Committee on Transmission Research for Review, recommendation and monitoring of R&D proposals under IHRD, RSOP, NPP schemes of MoP, Govt. of India.
- l. Chief Engineer (PSE&TD), CEA is Chairman and Director (PSE&TD) is Member Convener of the Cost Committee for estimating the cost of various transmission schemes coming through TBCB route.
- m. Director (PSE&TD), CEA is Member of Bid Evaluation Committee (BEC) for projects being awarded through Tariff Based Competitive Bidding (TBCB).
- n. Director (PSE&TD), CEA is Member Convener of the Committee under the Chairmanship of Member (power Systems), CEA to address the technical challenges in implementation of Micro Substation.
- o. Director (PSE&TD), CEA is Member Convener of the Committee under the Chairmanship of Member (Power Systems), CEA to examine the various guidelines currently in force for the PMU installation and to suggest the ways to harmonize the requirements into one single guidelines.
- p. Chief Engineer (PSE&TD), CEA is Chairman and Director (PSE&TD) is Member Convener of the Committee regarding use of Green GIS technology in the Indian Grid.
- q. Chief Engineer (PSE&TD), CEA is Member Convener of the Committee under the Chairmanship of Member (Power Systems), CEA to examine various technical issues raised by Stakeholders on Standard Specification and Technical Parameters for Transformers and Reactors (66 kV and above voltage class).
- r. Chief Engineer (PSE&TD), CEA is Chairman and Director (PSE&TD) is Member Convener of the Committee to review the specifications of STATCOM i.e., fully dynamic VSC vis-a-vis combination of VSC with MSC and MSR in future schemes.
- s. Director (PSE&TD), CEA is principle member and Deputy Directors (PSE&TD), CEA are alternate members of various Technical Committees of BIS pertaining to EHV transmission lines (Conductor, Earthwire, insulator & hardware and transmission line towers) and substations (Surge Arrestor, Switchgear, Transformer, Instrument Transformers, Power System relays, HVDC, Power Capacitors, high voltage engineering, Ultra high Voltage Transmission System etc.).
- t. Chairperson, CEA is member of Indian side Joint Steering Committee (JSC) with Nepal, Bhutan, Bangladesh, and Myanmar.
- u. Member (Power Systems) is Chairman of the Electro Technical Division Council (ETDC) of Bureau of Indian Standards (BIS).

- v. CEA is member of Joint Working Group (JWG) with Nepal, Bangladesh, Myanmar and Bhutan
- w. Chief Engineer PSPA-II is leader of Indian side Joint Technical Team (JTT) with Nepal, Bangladesh, Myanmar and Sri Lanka
- x. Chief Engineer PSPA-I is leader of Indian side Joint Technical Team (JTT) with UAE and Saudi Arabia
- y. Chief Engineer (PSPA-II) is leader of Indian side Joint Operation Committee (JOC) team with Nepal, Bangladesh and Myanmar.
- z. Chief Engineer (PSPA-II) is member of SASEC Energy Working Group (EWG).
- aa. Nomination in BIMSTEC Grid Interconnection Coordination Committee (BGICC)
- bb. Representation in OSOWOG Task Force.

**3.15 Standing Committee for analysis of failure of transmission line towers and substation equipment**

**a) Transmission Line Towers:**

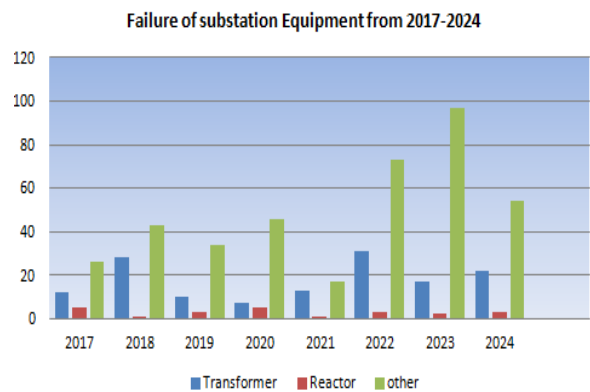
A Standing Committee of Experts in the field of design & operation of EHV Transmission lines was constituted by Central Electricity Authority in 1999 as per the Electricity (Supply) Act No. 54 of 1948 and was re-composed in 2012 with representative from CEA, CPRI, DTU, RPCs and representative from Power Utilities, to carry out investigation of failure of transmission line towers of Power utilities (220 kV & above). As part of this, the Committee members visited failure sites, investigate the failure and based on these, a report is published. The trend of failures as per the report published from 2017 to 2024 is given below.



**b) Substation Equipment failures:**

A Standing Committee of Experts in the field of design and operation of EHV Substations was

constituted in 01.01.2013 by Central Electricity Authority under Section 73, Clause (I) of the Electricity Act, 2003 (with representative from CEA, CPRI, IIT Delhi, RPCs and Power Utilities). As a part of this, the Committee member’s visits failure sites and investigation carries out, and based on these, would publish a Report detailing various recommendations for averting such incidents. For the failure events that occurred during July 2023 to December 2024, was conducted on 24-25 March, 2025, and report of Standing Committee was issued vide CEA’s letter dated 01.05.2025. The trend of failures from 2017 to 2024 of major equipment as per published report is given below.



**3.16 Inputs on various Transmission schemes based on Tariff based competitive bidding**

National Committee on Transmission (NCT) recommends the mode of implementation of Transmission Schemes put up before the committee i.e. Tariff Based Competitive Bidding (TBCB)/ Regulated Tariff Mechanism (RTM). For the Transmission schemes implemented under the TBCB mode, Specific Technical Requirements for transmission lines and substations for Request for Proposal (RfP) documents are reviewed. Clarification to bidders on various technical queries is provided and participation in bid evaluation committee is carried out. Cost committee has been convened by Director (PSE&TD), CEA under the Chairmanship of Chief Engineer (PSE&TD), CEA to estimate the cost of the Schemes under TBCB. The work pertaining to technical specification/cost estimation/ bidder’s queries/participation in bid evaluation was carried out for the following 51 transmission schemes under TBCB in the FY 2024-25:

S. No.	Name of the Transmission Schemes under TBCB in the FY 2024-25
1.	Transmission System for Evacuation of Power from Luhri Stage-I HEP
2.	Transmission System for Evacuation of Power from Shongtong Karcham HEP (450 MW) and Tidong HEP (150 MW)
3.	Transmission Scheme for Evacuation of Power from Ratle HEP (850 MW) & Kiru HEP (624 MW): Part-A
4.	Transmission System for Evacuation of Power from Rajasthan REZ Ph-IV (Part-2: 5.5 GW)(Jaisalmer/Barmer Complex): Part B
5.	Transmission System for Evacuation of power from Rajasthan REZ Ph-IV (Part-2: 5.5 GW) (Jaisalmer/Barmer Complex): Part D
6.	Transmission System for Evacuation of Power from Rajasthan REZ Ph-IV (Part-2: 5.5 GW) (Jaisalmer/Barmer Complex): Part F (By clubbing Part F1 & F2)
7.	Transmission System for Evacuation of Power from Rajasthan REZ Ph-IV (Part-2: 5.5 GW) (Jaisalmer/Barmer Complex): Part H1
8.	Transmission System for Evacuation of Power from Rajasthan REZ Ph-IV (Part-3: 6GW) [Bikaner complex]: Part-A
9.	Transmission System for Evacuation of Power from Rajasthan REZ Ph-IV (Part-3: 6GW) [Bikaner complex]: Part-B
10.	Transmission System for Evacuation of Power from Rajasthan REZ Ph-IV (Part-4: 3.5GW): Part-A
11.	Transmission System for Evacuation of Power from Rajasthan REZ Ph-IV (Part-4: 3.5GW): Part-B
12.	Transmission System Strengthening

S. No.	Name of the Transmission Schemes under TBCB in the FY 2024-25
	for Interconnections of Bhadla-III and Bikaner-III Complex”
13.	Transmission System Strengthening to Facilitate Evacuation of Power from Bhadla/Bikaner Complex
14.	Transmission System for Evacuation of Power from Bhadla-III PS as Part of Rajasthan REZ Phase-III Scheme (20 GW)
15.	Additional Transmission System for Evacuation of Power from Bhadla-III PS as part of Rajasthan REZ Phase III scheme (20GW)
16.	Augmentation at Fatehgarh-II PS, Fatehgarh-IV PS (Section-II) and Barmer-I PS
17.	Transmission System for Evacuation of Power from Rajasthan REZ Ph-V (Part-1: 4 GW) [Sirohi/Nagaur] Complex
18.	Transmission System for Evacuation of Power from Potential Renewable Energy Zone in Khavda Area of Gujarat under Phase-IV (7 GW): Part A
19.	Transmission System for Evacuation of Power from Potential Renewable Energy Zone in Khavda Area of Gujarat under Phase-IV (7 GW): Part B
20.	Transmission System for Evacuation of Power from Potential Renewable Energy Zone in Khavda Area of Gujarat under Phase-IV (7 GW): Part C
21.	Transmission System for Evacuation of Power from Potential Renewable Energy Zone in Khavda Area of Gujarat under Phase-IV (7 GW): Part D
22.	Transmission System for Evacuation of Power from Potential Renewable Energy Zone in Khavda Area of Gujarat under Phase-IV (7 GW): Part E2
23.	Transmission System for Evacuation of Power from Potential Renewable Energy Zone in Khavda Area of Gujarat under Phase-V (8

S. No.	Name of the Transmission Schemes under TBCB in the FY 2024-25
	GW): Part A
24.	Transmission System for Evacuation of Power from Potential Renewable Energy Zone in Khavda Area of Gujarat under Phase-V (8 GW): Part C
25.	Augmentation of Transformation Capacity at KPS1 (GIS) and KPS2 (GIS) (Phase-V Part B1 and Part B2 scheme)
26.	Provision for Dynamic Reactive Compensation at KPS1 and KPS3
27.	Network Expansion Scheme in Gujarat for Drawl of about 3.6 GW Load under Phase-I in Jamnagar Area
28.	Augmentation of Transformation Capacity at Jam Khambhaliya PS (GIS)
29.	Augmentation of Transformation Capacity at Bhuj-II PS (GIS)
30.	Provision of ICT Augmentation and Bus Reactor at Bhuj-II PS
31.	Network Expansion Scheme in Navinal (Mundra) Area of Gujarat for Drawl of power in the area
32.	Transmission Scheme for Evacuation of RE Power from Raghnesda Area of Gujarat – 3 GW under Phase-I
33.	Augmentation of Transformation Capacity at Banaskantha (Raghnesda) PS (GIS)
34.	Transmission System for Augmentation of Transformation Capacity at 765/400 kV Lakadia S/s (WRSS XXI(A) TRANSCO LTD) in Gujarat – Part B
35.	Transmission System for Supply of Power to Green Hydrogen/ Ammonia Manufacturing Potential in Mundra Area of Gujarat under Phase-I: Part B1 scheme (3 GW at Navinal S/s)
36.	Transmission System for Supply of Power to Green Hydrogen/ Ammonia Manufacturing Potential in Kandla Area of Gujarat (Phase-I: 3 GW)

S. No.	Name of the Transmission Schemes under TBCB in the FY 2024-25
37.	Network Expansion Scheme in Western Region to Cater to Pumped Storage Potential near Talegaon (Pune)
38.	Transmission System for Evacuation of Power from Mahan Energen Limited Generating Station in Madhya Pradesh
39.	Augmentation of Transformation Capacity by 3x500 MVA, 400/220 kV ICTs (6th - 8th) and 1x1500 MVA, 765/400 kV ICT (4th) at Bidar PS
40.	Transmission Scheme for Integration of Tumkur-II REZ in Karnataka
41.	Transmission Scheme for Integration of Bijapur REZ in Karnataka
42.	Transmission Scheme for Integration of Davanagere/ Chitradurga and Bellary REZ in Karnataka
43.	Transmission System under ISTS for Evacuation of Power from Kudankulam Unit - 3 & 4 (2x1000 MW)
44.	System Strengthening at Koppal-II and Gadag-II for Integration of RE Generation Projects
45.	Transmission System Strengthening at Kurnool-III PS for Integration of Additional RE Generation Projects
46.	Transmission System for Integration of Kurnool-IV REZ - Phase-I (for 4.5 GW)
47.	Transmission System for Integration of Anantapur-II REZ - Phase-I (for 4.5 GW)
48.	Eastern Region Generation Scheme-I (ERGS-I)
49.	Eastern Region Expansion Scheme-XXXIX (ERES-XXXIX)
50.	North Eastern Region Generation Scheme – I (NERGS-I)
51.	North Eastern Region Expansion Scheme-XXV (NERES-XXV) Part-A

### 3.17 Technical advice/inputs on Transmission lines and Substation

- a) Technical assistance/ advice relating to transmission system in the Country provided from time to time to MoP/ Power Utilities/State Utilities/Other Ministries/ BIS/ CPRI etc.
- b) Technical advice to transmission utilities regarding re-routing/shifting of transmission lines and examination of re-routing/shifting proposal for MoP approval.
- c) Examination of Cost Escalation aspect of PMRP-2004 Scheme.
- d) Technical inputs for preparation of RfP/RfQ document for TBCB projects and participated in pre-bid clarification meeting.
- e) The technical specifications of the state of the art LCC and VSC technology based HVDC projects which are being awarded under the TBCB based scheme has been prepared in association with CTUIL.
- f) DPRs submitted by utilities for funding under PSDF Scheme were examined and participated as member of techno-economic sub-group.
- g) Examination of Intra State Transmission System proposals of TANTRANSCO regarding 400 kV overhead and Underground Transmission Systems.
- h) Review of the cost estimate of transmission system works (up to pooling station) for the Power Evacuation system of Indira Sagar-Omkareshwar Pumped Storage Project of 640 MW (8X80 MW) in Khandwa, Madhya Pradesh by NHPC/NHDC Limited.

#### Other Initiative taken in respect of technical aspect of Power System

- a) To reduce Right of Way width a Committee has been constituted under the Chairmanship of Chief Engineer (PSE&TD), CEA and Director (PSE&TD) as Member Convener for calculation of reduction of Right-of-Way (RoW) width through technological options available like Insulated Cross Arms, Monopole Towers, and High Tension Low Sag (HTLS) conductor.
- b) A committee has been constituted under the chairmanship of the Chief Engineer

- (PSE&TD), CEA and Director (PSE&TD), CEA as Member Convener to address the technical challenges in upgrading the Existing Wardha-Aurangabad line from 400 kV to 1200 kV and developing 1200 kV terminal stations at both ends.
- c) To examine various technical issues raised by stakeholders on Standard specification and technical parameters for transformers and reactors (66 kV and above voltage class), a committee has been constituted under the chairmanship of Member (Power System), CEA and Chief Engineer (PSE&TD), CEA as Member Convener.
- d) A committee has been constituted under the Chairmanship of Chief Engineer, (PSE&TD), CEA and Director (PSE&TD), CEA as Member Convener for calculation/assessment of width of Right of Way (RoW) for laying of the underground (UG) cables of different types/voltage levels.
- e) Integration of renewable energy is leading to the requirement of dynamic reactive Power in the Indian Grid. To analyse the option i.e., fully dynamic VSC vis-a-vis combination of VSC with MSC and MSR, for the future scheme, a committee has been constituted under the chairmanship of Chief Engineer (PSE&TD), CEA and Director (PSE&TD), CEA as Member Convener.
- f) As per the recommendation of National Committee on Transmission (NCT), a committee has been constituted under the chairmanship of Chief Engineer (PSE&TD), CEA and Director (PSE&TD), CEA as Member Convener for exploring the use of Green GIS in Indian Grid.
- g) To address the technical challenges in implementation of Micro Substation, a committee has been constituted under the chairmanship of Member (Power System), CEA and Director (PSE&TD), CEA as Member Convener.
- i) A standing committee under the Chairmanship of Director (PSE&TD), CEA has been constituted to resolve the bidders queries related with various transmission schemes coming through TBCB route.

### 3.18 Construction Monitoring of Transmission Projects

The monitoring of construction of transmission lines and sub-station (220 kV & above) covered under various transmission projects under central/state/private sector is being carried out with a view to achieve timely completion of transmission projects to ensure evacuation of power from new Generation Projects as well as strengthening of existing transmission network required for transmission of power to load centers.

The delay in execution of transmission projects are primarily due to ROW, compensation & forest issues, contractual issues, poor financial condition of the executing agencies, land acquisition for substation, delay in getting statutory approval from various agencies like Railways & State / National Highway Authority etc. and law & order problem.

In respect of transmission lines, 15,253 ckm was targeted for FY 2024-25 as per the details given below;

Voltage Level (kV)	±800 kV HVDC	±500 kV HVDC	765	400	230/220	Total
Transmission Line length (ckm)	0	0	4703	4352	6198	15,253

Against the above target of 15,253 ckm, total 8,830 ckm has been commissioned, during FY 2024-25 as per the details given below:

Voltage Level (kV)	±800 kV HVDC	±500 kV HVDC	765	400	230/220	Total
Transmission Line length (ckm)	0	0	2158	2954	3718	8,830

Thus, overall achievement in respect of Transmission line is 57.89%. Details of transmission lines commissioned /completed during FY 2024-25 (as on 31st March 2025) are given in **Annexure-3D**.

Similarly, in respect of substations, 112,435 MVA of transformation capacity was targeted for

FY 2024-25 as per the details given below:

Voltage Level (kV)	±800 kV HVDC	±500 kV HVDC	±320 kV HVDC	765	400	230/220	Total
Sub-Station transformation capacity (MVA)	0	0	0	48,000	39,795	24,640	112,435

Against the above target of 112,435 MVA, total 86,433 MVA transformation capacity has been commissioned during FY 2024-25 as per the details given below:

Voltage Level (kV)	±800 kV HVD C	±500 kV HVD C	±320 kV HVD C	765	400	230/220	Total
Sub-Station transformation capacity (MVA)	0	0	0	21,000	40,540	24,893	86,433

Thus, overall achievement in respect of Transformation capacity in Sub-stations is 76.87%. Details of substations commissioned / completed during FY 2024-25 (as on 31st March 2025) are given in **Annexure-3E**.

Voltage-wise/Sector-wise program vs achievement for the financial year 2024-25 in respect of transmission lines and sub stations (220 kV and above voltage level) are given in **Charts I to X**.

Total 8,830 ckm of transmission lines and 86,433 MVA of transformation capacity in substations (220 kV and above voltage levels) have been added during the financial year 2024-25 resulting in all India transmission network of 494,374 ckm of transmission lines and 13,37,513 MVA of the transformation capacity (220 kV and above voltage level) as on 31<sup>st</sup> March 2025.

Growth of Transmission lines (in ckm) and Transformation capacity in substations (in MVA) since 2014-15 to FY 2024-25 is as under:

Year	Transmission Lines (in ckm)	Transformation Capacity (in MVA)
2014-15	313437	596100
2015-16	341551	658949
2016-17	367851	740765
2017-18	390970	826958
2018-19	413407	899663
2019-20	425071	967893
2020-21	441821	1025468
2021-22	456716	1104450
2022-23	471341	1180352
2023-24	485544	1251080
2024-25	<b>494374</b>	<b>1337513</b>

For the FY 2025-26, Program for Transmission Lines and Transformation Capacity in Substations (220 kV & above voltage level) is as under.

#### Annual Target for FY 2025-26:

Transmission line (CKM)	24,400
Substation (MVA)	197,617

### 3.19 Inspection of Electrical Installation:

The Chief Electrical Inspector and Electrical Inspectors appointed by the Central Government under section 162 of the Electricity Act, 2003 discharge the functions described in “The Qualifications, Powers and Functions of Chief Electrical Inspector and Electrical Inspectors Rules, 2006”. These rules stipulate the statutory inspection of electrical installations as per Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations, 2023. The Chief Engineer of Chief Electrical Inspectorate Division is appointed as Chief Electrical Inspector to the Government of India and is assisted by the Electrical Inspectors and the officers from five Regional Inspectorial Organizations (RIOs) in discharging the various responsibilities, briefly described as under:

(a) Periodic inspection of electrical installations for compliance under Regulation 32 of Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations, 2023.

(b) Inspection of new electrical installations under Regulations 45 of Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations, 2023 for according approval for first time charging of electrical installation of voltage exceeding notified voltage.

(c) Amendment of Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2023 as and when necessitated.

(d) Inquiry of fatal and non-fatal electrical accidents.

(e) Collection of Statistics, Return & information relating to electrical accidents in Format-19 & 20 under “Furnishing of Statistics, Returns & Information rules 2007”.

(f) Advising stakeholders in the matter related to the electrical safety.

(g) Conducting electrical safety awareness workshops/seminars.

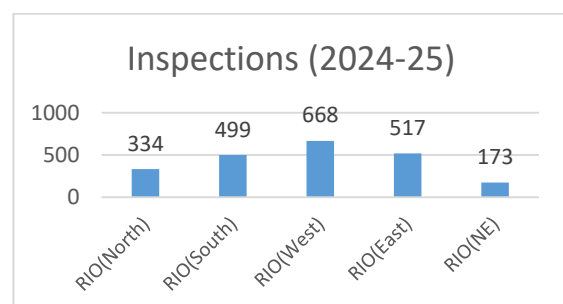
### 3.20 Review of Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010:

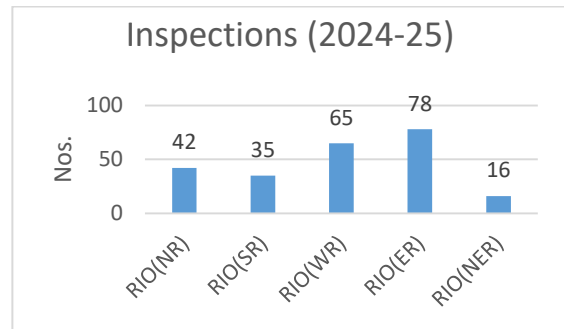
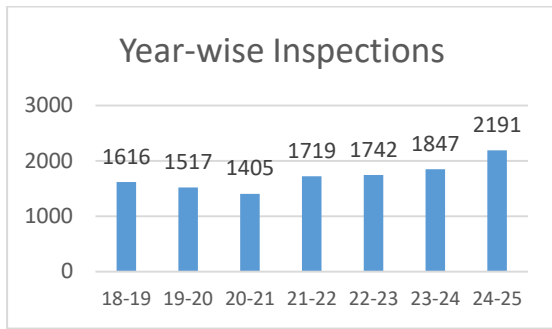
Comprehensive review of the above mentioned regulations was performed and the Regulations were notified on 8th June 2023 as Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2023.

### 3.21 Major achievement in terms of Inspections during the year 2024-25:

#### 3.21.1 New electrical installations/ apparatus inspected under Regulation 45 of Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations, 2023:

A. The region wise summary of total inspections carried out during 2024-25 is given below: -

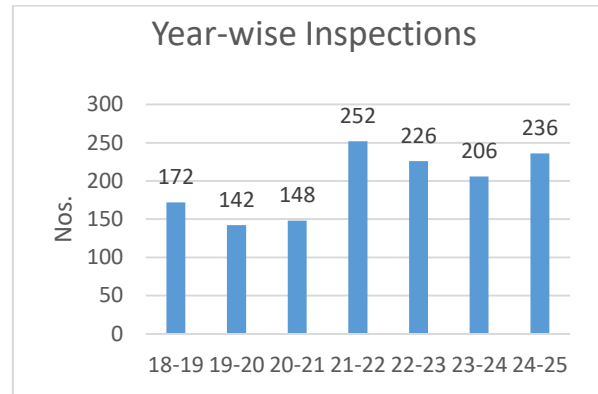




**B. Major Power System Elements inspected:**

**1) Substations:**

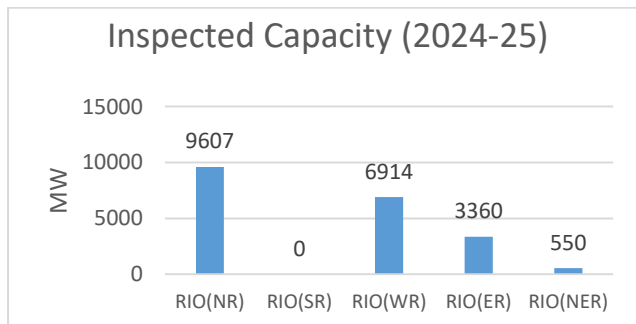
- Substations of the capacity 765 kV, 400 kV, 220 kV, 132 kV and HVDC are being inspected by the Electrical Inspector. Power System elements such as Transformers, Reactors, Capacitors, Bus, Bays STATCOM etc are inspected.



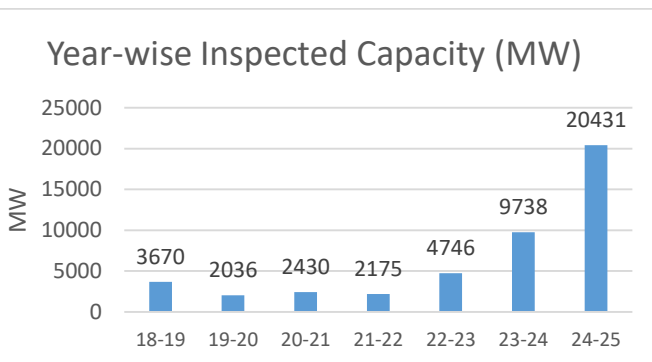
**2) Inspected Capacity:**

- The region wise summary of inspections carried out is given below: -

- Circuit kilometers of transmission lines inspected at different voltage levels in 2024-25 (in ckm): -



RIOs	NR	SR	WR	ER	NER
<b>765 kV</b>	1711.9	116	436	NIL	NIL
<b>400 kV</b>	1856.2	308	1597	392.2	128.4
<b>220 kV</b>	359.3	291	768	77.33	NIL
<b>132 kV</b>	NIL	NIL	42	69	285.5
<b>110 kV</b>	NIL	NIL	NIL	NIL	NIL
<b>66 kV</b>	NIL	NIL	NIL	NIL	NIL
<b>33 kV</b>	NIL	1800	160	11.3	NIL
<b>11 kV</b>	4. NIL	NIL	NIL	3.5	NIL
<b>800/500 kV HVDC</b>	NIL	1.3	NIL	NIL	NIL



**3) Transmission Lines:**

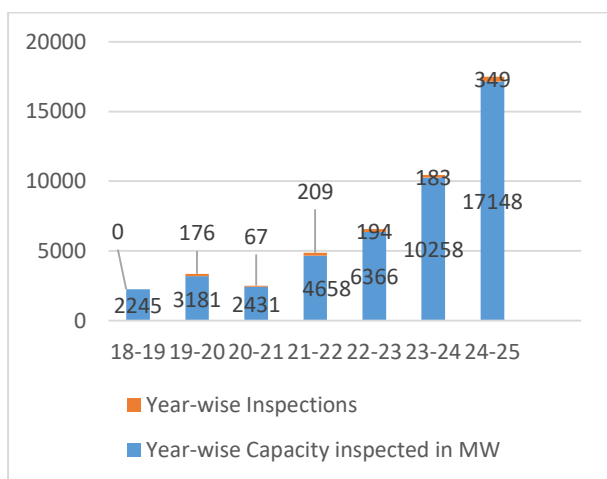
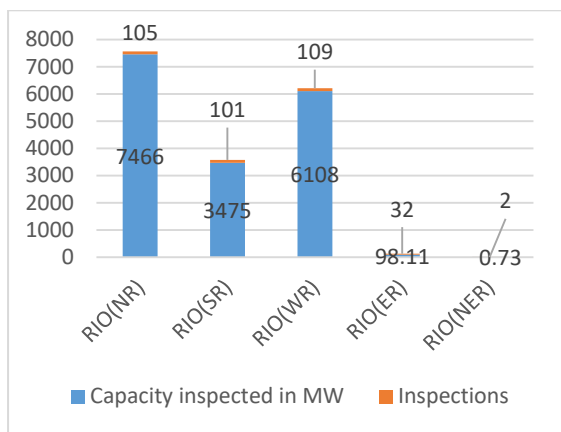
- Transmission Lines of the capacity of 765 kV, 400 kV, 220 kV, 132 kV and HVDC are being inspected by the Electrical Inspector.
- The region wise summary of inspections carried out is given below: -

The data above are based on the cumulative inspections carried out by all RIOs

**C. Inspections done for Renewables:**

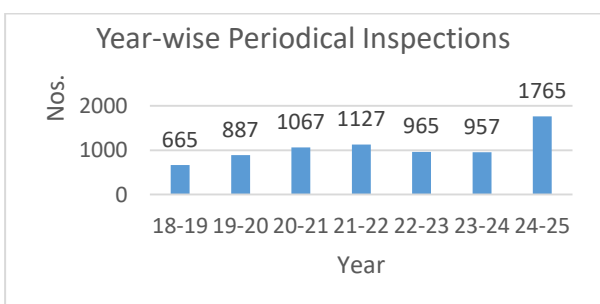
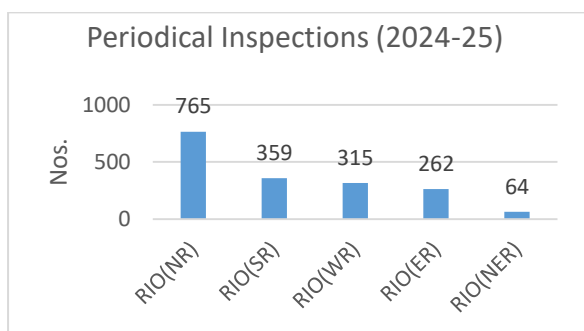
The region wise summary of inspections carried

out during 2024-25 is given below:-



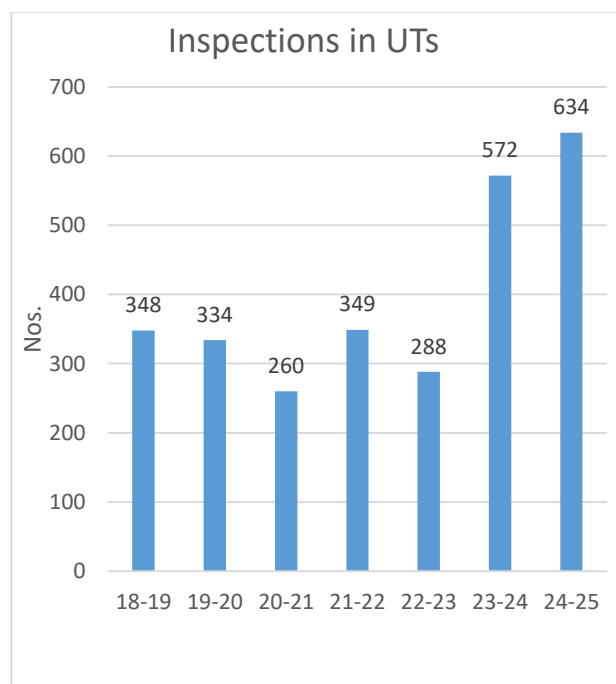
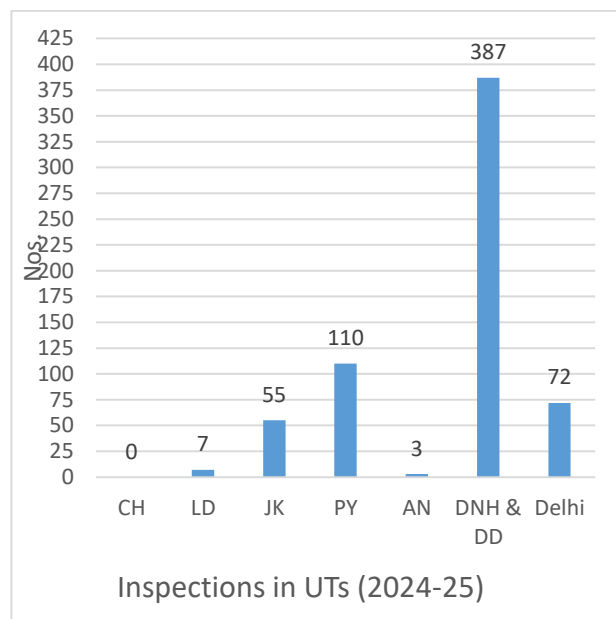
**3.21.2 Periodic Inspections under Regulation 32 of Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations, 2023**

Summary of Periodic Inspections carried out during the year 2024-25 is given below:



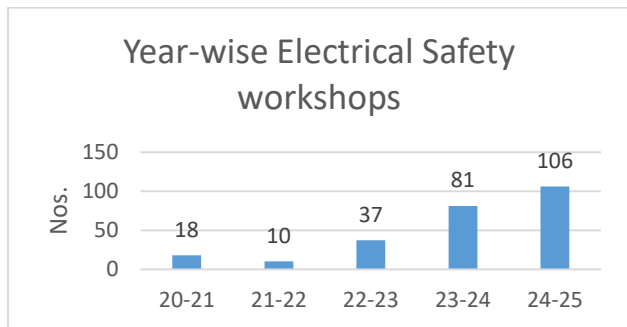
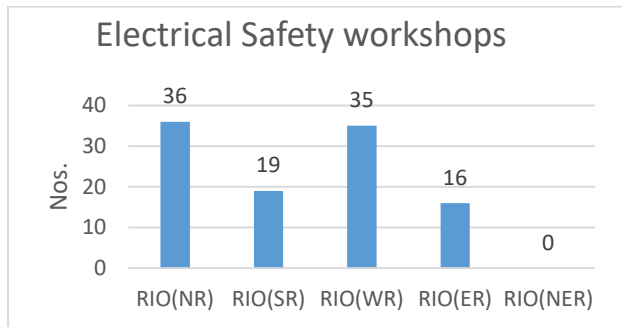
**3.21.3 Inspections done in Union Territories**

Summary of Inspections done in Union Territories during the year 2024-25 is given below:



**3.21.4 Electrical safety awareness workshops/seminars**

Summary of Electrical safety awareness programs and Electrical safety workshops conducted by RIO (west) in schools and other RIOs in various utilities during the year 2024-25 to educate and raise awareness among young students are provided below:



(The above data are compiled based on the cumulative inputs by all RIOs)

### 3.22 Power & Telecommunication Co-ordination Committee (PTCC)

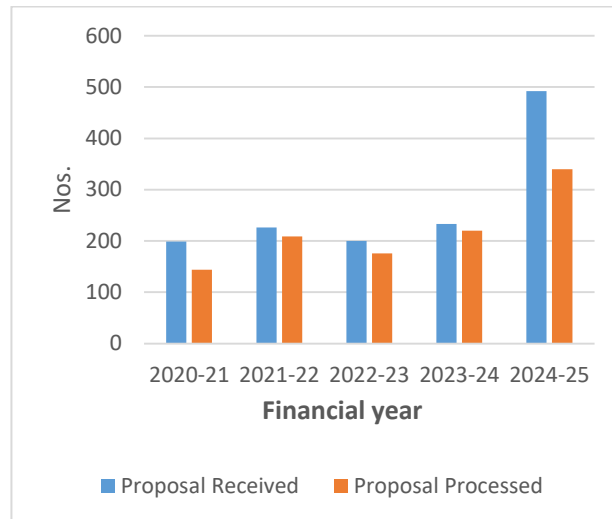
#### Power & Telecommunication Co-ordination Committee (PTCC)

Section 160 of the Electricity Act, 2003 mandates that all reasonable precautions must be taken by the operator while laying and installing electric lines or electrical plants, to ensure that the operation of telecommunication and electric signaling lines is not adversely affected by induction.

To facilitate the safe co-existence of power and telecommunication systems, the Central Level Power and Telecommunication Coordination Committee (CLPTCC) has been constituted.

During the financial year 2024–25, a total of 492 new cases including Inter-State Transmission System (ISTS) power lines, were received for processing. Induced Voltage Calculations were completed for 340 cases to facilitate PTCC (Power and Telecommunication Coordination Committee) route approval.

A bar chart showing the number of cases received and processed for PTCC route approval during the financial years 2020-21 to 2024–25 is presented below:

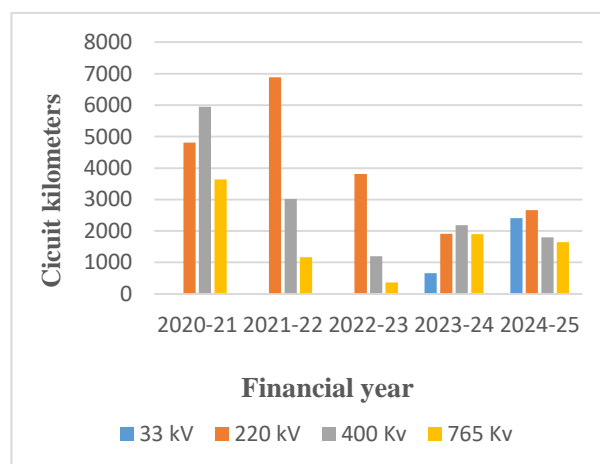


During the financial year 2024–25, Induced Voltage Calculations were carried out for the following transmission lines:

- 2405.92 circuit kilometers of 33 kV lines
- 321.16 circuit kilometers of 132 kV lines
- 2660.81 circuit kilometers of 220 kV lines
- 1801.01 circuit kilometers of 400 kV lines
- 1649.25 circuit kilometers of 765 kV lines

It is noteworthy that throughout the year, special attention was given to prioritize and process PTCC cases for transmission lines scheduled for urgent commissioning. As a result of this proactive approach, no transmission line charging was delayed due to the non-availability of PTCC approval.

A bar chart showing the circuit kilometers of 33 kV, 220 kV, 400 kV, and 765 kV transmission lines for which Induced Voltage Calculations were completed during the financial years 2020-21 to 2024–25 is presented below:



The Power Systems Communication Development Division has continued its focused efforts to ensure the timely computation of induced voltages for facilitating PTCC clearance of Extra High Voltage (EHV) transmission lines of 220 kV and above, including Inter-State Transmission System (ISTS) lines.

The Division has maintained regular coordination with relevant authorities such as Bharat Sanchar Nigam Ltd. (BSNL), Indian Railways, Defense, and various State Electricity Boards (SEBs)/Power Utilities to expedite the clearance process.

In addition, the Division extended technical support to State Power Utilities in resolving PTCC cases pertaining to transmission lines of 132 kV and below, thereby ensuring smooth implementation of transmission projects at all voltage levels.

### **3.23 Providing technical advice for Reliable Communication System in Power Sector**

The Power Communication Development (PSCD) Division plays a crucial role in providing technical advisory services related to the development and upgradation of communication systems in the power sector.

The Division is actively involved in the review and vetting of proposals submitted by transmission licensees, finalization of Request for Proposals (RfPs), and evaluation of the feasibility of various communication technologies for their suitability in power system applications.

Through these efforts, the PSCD Division contributes to the development of a reliable, modern, and secure communication infrastructure that supports efficient grid operation, protection, and control.

During the year 2024-25, finalization of following RfPs has been done:

1. Transmission system for evacuation of power from Pumped Storage Projects in Sonbhadra District, Uttar Pradesh
2. Transmission system for proposed Green Hydrogen / Green Ammonia projects in

- Tuticorin area
3. Evacuation of Power from RE Projects in Neemuch (1000 MW) SEZ in Madhya Pradesh-Phase II
4. Transmission system for Evacuation of Power from RE Projects in Rajgarh (1500 MW) SEZ in Madhya Pradesh-Phase III
5. Transmission system for Evacuation of Power from RE Projects in Morena SEZ in Madhya Pradesh-Phase I (2500MW)
6. Transmission system for proposed Green Hydrogen (GH) / Green Ammonia (GA) projects in Kakinada area
7. Transmission System for evacuation of RE power from Raghnesda area of Gujarat – 3GW under Phase-I
8. Augmentation of transformation capacity & Implementation of line bays at Mandsaur S/s for RE Interconnection
9. Inter-regional (NR-WR) Transmission System strengthening to relieve the loading of 765kV Vindhyachal-Varanasi D/C line
10. Transmission System for Green Hydrogen / Green Ammonia Projects in Mundra area (Phase-I: Part B1, 3 GW at Navinal S/s)
11. Transmission System for Integration of Kurnool-IV REZ - Phase-I (4.5 GW)
12. Transmission System for Integration of Anantapur-II REZ - Phase-I (4.5 GW)
13. Transmission System for Green Hydrogen / Ammonia Projects in Kandla area (Phase-I: 3 GW)
14. Augmentation of transformation capacity by 3×500 MVA, 400/220 kV ICTs and 1×1500 MVA, 765/400 kV ICT at Bidar PS
15. Augmentation of transformation capacity at KPS1 (GIS) and KPS2 (GIS) (Phase-V Part B1 and B2)
16. Augmentation of transformation capacity at Banaskantha (Radhanesda) PS (GIS)
17. Augmentation at Fatehgarh-II PS, Fatehgarh-IV PS and Barmer-I PS
18. Evacuation of power from Ratle HEP (850 MW) & Kiru HEP (624 MW): Part-A
19. Transmission system strengthening at Kurnool-III PS for additional RE generation projects
20. Evacuation of power from Rajasthan REZ Ph-V (Part-1: 4 GW) [Sirohi/Nagaur] Complex
21. North-Eastern Region Expansion

- Scheme-XXV (NERES-XXV) Part-A
22. Evacuation of power from Mahan Energen Limited Generating Station in Madhya Pradesh
  23. Network Expansion Scheme in Western Region for Pumped Storage potential near Talegaon (Pune)
  24. Provision of ICT Augmentation and Bus Reactor at Bhuj-II PS
  25. Augmentation of transformation capacity at 765/400 kV Lakadia S/s (WRSS XXI(A)) in Gujarat – Part B
  26. Evacuation of power from Rajasthan REZ Ph-IV (Part-4: 3.5 GW)
  27. System strengthening at Koppal-II and Gadag-II for RE generation projects
  28. Evacuation of power from Khavda REZ in Gujarat under Phase-V (8 GW): Part C

### 3.24 Guidelines for Usage and Sharing of Optical Fiber in Power Systems

During the financial year 2024-25, the Power Systems Communication Development (PSCD) Division published a set of comprehensive guidelines for the usage and sharing of fiber cores of Optical Ground Wire (OPGW) and Underground Fiber Optic Cable (UGFO) for power system applications.

These guidelines aim to establish uniform principles for the allocation and utilization of fiber cores, thereby enabling various entities across the power sector — including Central Transmission Utility (CTU), State Transmission Utilities (STUs), State Load Dispatch Centres (SLDCs), and Regional Load Dispatch Centres (RLDCs) — to develop and maintain a consistent, efficient, and robust communication infrastructure.

The framework strikes a balance between the commercial potential of fiber utilization and the critical need for secure, reliable, and scalable grid operations. By promoting standardized practices, the guidelines support enhanced coordination for grid protection, operation, and commercial functions, ensuring long-term sustainability and interoperability across the power communication network.

### 3.25 Frequency Allocation Co-ordination for Power Line Carrier Communication (PLCC)

PCD Division coordinates and follows up with Wireless Planning and Coordination (WPC) Wing of Department of Telecommunications (DoT) to achieve timely frequency allocation for PLCC links of new power transmission lines of power utilities in the country.

### 3.26 Research & Development in Power Sector

#### 3.26.1 R&D activities in Power Sector:

The Central Electricity Authority (CEA) under Section 73(k) of the Electricity Act, 2003 is vested with the function to promote research in the matters affecting the generation, transmission, distribution and trading of electricity.

Thus, Research and Development (R&D) for the Indian Power Sector is promoted and coordinated by CEA. Research & Development Schemes of the MoP are implemented by Central Power Research Institute (CPRI) in coordination with CEA.

**Standing Committee on R&D (SCRD) in Power Sector:** The SCRD, under the Chairmanship of Chairperson, Central Electricity Authority, identifies and prioritize important strategic areas of research and development, which are to be implemented under various research schemes of Ministry of Power. The SCRD identifies leading Researchers and Domain Experts in diverse areas of Power Sector and engage them in the Research Schemes.

The Technical Committees in specific fields of power, namely, Thermal Generation, Hydro Generation, Transmission and 'Grid, Distribution & Energy Conservation' constituted to assist the SCRD in evaluation of new research proposals as well as in monitoring of the on-going research projects till their completion. The committees have representation from Academia, Industry, Utilities and Policy making bodies as well as experts from CEA.

Further, research projects from eminent Institutions across India like IIT Madras, IIT Bombay, IISc Bangalore, CPRI, etc. have been supported on various thrust areas pertaining to

Generation, Transmission, Distribution, Clean Energy and Renewables.

CEA oversees and promotes the activities of research and development in the Power Sector through coordination with multiple agencies involved in research and development activities.

Currently, following are the “Research Schemes of Ministry of Power being implemented through CPRI” for power sector development that are being facilitated by CEA through the SCRD:

- I. **National Perspective Plan (NPP)** aimed at improving design of an individual plant component, evolving cost-efficient overall process in the plant, improving control & monitoring for system performance parameters, etc.
- II. **Research Scheme on Power (RSoP)** for need based research in power sector including solving of operational problems encountered in the power system.
- III. **In-house Research and Development (IHRD)** scheme for Central Power Research Institute (CPRI).

### **3.26.2 Action taken for implementation of R&D for power sector:**

Twelve (12) meetings of the Technical Committees were held during the FY 2024-25 for monitoring of the on-going research projects as well as for evaluation of new research proposals. Further, two meetings of the Cost Committee were held for formulation of a guideline for cost justification and with review of the costs for the proposals to be placed before SCRD. Also, two (2) meetings of SCRD were held during the FY 2024-25 wherein the research proposals cleared by the respective Technical Committees were further reviewed. A total of 27 research proposals with an outlay of Rs 27.64 crores were approved (2 under NPP Scheme, 24 under RSoP and 1 under IHRD) by the SCRD. These includes projects on some of the priority areas of research in Power Sector like Cybersecurity, Energy Storage, and Recycling of Li-Ion Battery etc. of the Technical Committees were held during the FY 2023-24 for monitoring of the on-going research projects as well as for evaluation of new research proposals. Also, one (1) meeting of the

SCRD was held during the FY 2023-24 wherein the research proposals cleared by the respective Technical Committees were further reviewed. A total of thirteen (13) research proposals with an outlay of Rs 11.16 crores were approved (one under NPP Scheme, eleven under RSoP and one under IHRD) by the SCRD. These includes projects on some of the priority areas of research in Power Sector like Clean Energy, Robotics, Hydrogen fuel cell, Nano-materials, Recycling of Solar cells, Artificial Intelligence (AI)/ Machine Learning (ML) etc. The projects have been initiated by the Project implementing organizations.

### **3.26.3 Updation of thrust areas for R&D in power sector and identification of high priority areas of power sector:**

The thrust areas for R&D in power sector are updated and high priority areas are identified/updated for dissemination to the power sector organizations under the Central /State/Private Sector.

In this context, the details of new areas related to power sector where R&D is needed are sought from concerned stakeholders of the power sector.

### **3.26.4 Other R&D initiatives in CEA (MoU with IIT, Delhi):**

CEA, being an apex technical organization for the development of power sector, its human resources need to be developed inter-alia through enhancing their technical knowledge and exposure to R&D activities.

In this regard, Central Electricity Authority (CEA) has in place a Memorandum of Understanding (MoU) with Indian Institute of Technology, Delhi (IITD) for the development of CEA’s Human Resources by virtue of enhancing their technical education/ knowledge and R&D exposure.

Under the provisions of MoU, one Chair Professorship for CEA has been instituted at IIT Delhi. Part time - M. Tech/MBA/Ph.D programmes are being made available to the officers of Ministry of Power (MoP), Central Electricity Authority and National Power Training Institute (NPTI) & Central Power

Research Institute (CPRI) on the recommendation of CEA/MoP as per rules of the Institute. The fees and charges for the courses are borne by the respective organization. Presently, total six (6) Officers are pursuing part time M.Tech/PhD/MBA programmes at IIT Delhi.

### 3.27 Standardization activities

#### 3.27.1 Standardization activities and efforts to enhance the implementation of standards in the field of Power Sector:

- I. Under the initiative of Government of India through the Indian National Strategy for Standardization (INSS) for establishment of robust 'Quality Ecosystem' in the country, a Standardization Cell with respect to Power Sector has been established in CEA under the Chairmanship of Chief Engineer (ET&I), CEA, under the aegis of Ministry of Power.
- II. The Standardization Cell is envisaged to act as a channel of communication among the Government, Industry and BIS to facilitate the identification of new subjects and relevant experts for standardization and enhance implementation of Indian standards.
- III. The Standardization Cell headed by Chief Engineer (ET&I), CEA, have members from state/private sector utilities along with members from respective divisions of CEA. The following work has been done related to Standardization:
- IV. Regular follow ups with BIS regarding formulation/ revision of standards is also been carried out.
- V. Participating and contributing in the meetings being organized by BIS under INSS (like Preparation of Annual Programme for Standardization (APS) and regular update on APS.
- VI. Proposal for inclusion of HiB grade of Cold Rolled Grain Oriented (CRGO) Electrical Steel of thickness 0.18 mm and

0.20 mm in the IS 3024.

- VII. Prepared list of New Standards or updates/ Review of existing BIS Standards required due to various technological/ introduction of new products/ items and forwarded to BIS. A total of 41 new standards were proposed for formulation, and 5 existing BIS standards were proposed for review/modification during the reporting year.

### 3.28 Make in India (MII) and Aatma Nirbhar Bharat Abhiyan (ANBA) initiatives:

- I. CEA is the nodal point for implementation of policy initiatives of Government of India (GoI) under Make in India (MII) & Atma Nirbhar Bharat Abhiyaan (ANBA) in power sector.
- II. The Chief Engineer (ET&I), CEA is the Nodal Officer in this regard. He is acting as an interface between the Ministry of Power and Department for Promotion of Industry and Internal Trade (DPIIT)/PSUs/ Organizations/ Autonomous Bodies under the administrative control of the Ministry of Power as well as the Industry Associations. Dealing with the implementation of MII Orders of M/o Power and Government of India. It includes handling of grievance against non-compliance of MII provisions, recommendations on registration of bidders from land border sharing countries, relaxation/exemption in minimum local content (MLC)/Global Tender Inquiry (GTE) in public procurements.

#### 3.28.1 Major activities undertaken by CEA in relation to the implementation of the provisions of Public Procurement (Preference to Make in India), Order 2017 (PPP-MII) Order, 2017

Some of the major activities undertaken in this regard are given as under:

- I. Dissemination of information: In line with the MII initiatives MoP/ CEA create awareness by circulating various Orders/Guidelines/instructions/SoPs issued by DoE/DPIIT/MoP so as to ensure compliance of MII provisions by all concerned procuring entities of power sector under MoP.
- II. To further promote indigenisation and development of domestic manufacturing continuous efforts are being made to include more items/equipment/product in to the list of sufficiency and competition i.e. Annexure-I of the MoP Order dated 16.11.2021. These items listed in Annexure-I of MoP Order are to be procured from Class-I local supplier only.
- III. Department for Promotion of Industry and Internal Trade (DPIIT) vide its Order dated 19.07.2024 has revised the "Public Procurement (Preference to Make in India), Order 2017". In compliance to this, M/o Power is in the process of revising its PPP-MII Order dated 16.11.2021. In this regard, inputs/suggestions of concerned stakeholders and consultations have been done so as to review and revise the PPP-MII MoP Order dated 16.11.2021.
- IV. The Grievances received from various companies against non-compliance of MII provisions in the tenders floated by Central and State sector power Utilities are being addressed (Under the Make in India initiatives, being done as a continuous activity).

Detailed examination/scrutiny in case of each grievance was carried out by the CEA in consultation with respective power sector procuring entities and other concerned stakeholders/ State Governments, Industry Associations, etc. The comments/views in this regard were furnished to the Ministry. A total of 21 nos. of grievances were received during

2024-25 which were appropriately addressed in consonance with the PPP-MII provisions.

- V. **Registration of bidders/ vendors/ suppliers/ contractors:** Prior registration of bidder companies from countries sharing land border with India is mandatory with DPIIT, Government of India in terms of Department of Expenditure Order (Public Procurement No. 4) issued vide No. F.No.7/10/2021-PPD dated 23.02.2023 under Rule 144 (xi) GFR, 2017 to be eligible to participate in the bids for public procurements. The applications of such companies are analysed with regard to the demand supply scenario (sufficiency and competition) for the item for which registration is sought and recommendations to this effect are being provided to the MoP from time to time. 8 numbers of application for registration were processed during the year 2024-25.
- VI. **Global Tender Enquiry (GTE) permission:** DoE OM No F.12/17/2019-PPD dated 15.05.2020 regarding amendment in Rule 161(iv) of General Financial Rules (GFRs) 2017 stipulates that no Global Tender Enquiry (GTE) shall be invited for tenders upto Rs.200 crore, subject to the prior approval for relaxation from the competent authority.  
  
The cases from procuring entities under Ministry of Power seeking such permission received during 2024-25 were examined and analyzed as per Standard Operating Procedure (SOP) prescribed by the DPIIT in this regard and accordingly recommendations were forwarded to the Ministry of Power.
- VII. Also, references received seeking relaxation/exemption from Minimum Local Content (MLC) criteria (procuring entities not getting Class -I local supplier for the listed items or otherwise are seeking relaxation) were dealt in terms of Para 14 of the DPIIT Order No. P-

45021/2/2017-PP (BE-II)-Part (4) Vol.II  
dated 19.07.2024.

**3.28.2 Inputs/comments on various other references/ issues concerning Make in India and Aatma Nirbhar Bharat initiatives of Government of India were taken up from time to time are:**

- I. Proposal of M/s NHPC for exemption from Global Tender Enquiry (GTE) for purchase of one number forged, bolted and HP- HVOF coated Francis Turbine Runner for Rangit Power Station (Sikkim) under Research and Development (R&D) Pilot Project.
- II. GTE proposal of M/s Tehri Hydro Development Corporation India Ltd. (THDCIL) for procurement of proprietary software 'Rocscience Slide-2 and RS 2' for analysis and study on slope stabilization.
- III. M/s Powergrid request for Global Competitive Bidding (GCB) for 4x 1250 MW;  $\pm$  350 kV HVDC terminals based on VSC technology each at Pang (Leh) and Kaithal for evacuation of RE Power from Ladakh region.
- IV. Registration sought by M/s Yangzhou Chengde Steel Pipe Co. Ltd., a manufacturer of Seamless Steel Pipe with size from 8" upto 60", application for registration in respect of DoE Order dated 23-02-2023 was examined and recommendations forwarded to MoP.
- V. Registration sought by M/s ZTT India Pvt. Ltd., owned by Chinese Company, application for registration in respect of DoE Order dated 23-02-2023 for manufacturing and supply of (i) Composite Long Rod Insulators and (ii) Optical Ground Wire/ Fibre (OPGW) was examined and recommendations forwarded to MoP.
- VI. Registration sought by M/s Apraava Energy Pvt. Ltd. application for registration in respect of DoE Order dated

23-02-2023 as service provider in generation, transmission and distribution, Energy Storage and Energy transition business was examined and recommendations forwarded to MoP.

- VII. Registration sought by M/s Jiangsu Chengde Steel Tube Share Co. Ltd. application for registration in respect of DoE Order dated 23-02-2023 as manufacturer and supplier of Carbon Steel and Alloy Steel Seamless tubes/ Pipes was examined and comments provided to MoP.
- VIII. Registration sought by M/s TLT- Turbo India Pvt. Ltd. application for registration in respect of DoE Order dated 23-02-2023 as manufacturer of Axial and Centrifugal fans for thermal power plants was examined and recommendations forwarded to MoP.
- IX. Registration sought by M/s V- Flo Pumps Systems Co. Ltd. application for registration in respect of DoE Order dated 23-02-2023 as manufacturer and supplier of Boiler Circulating Water Pumps was examined and recommendations forwarded to MoP.

**3.28.3 The following references were also dealt with:**

- I. VIP reference from Hon'ble Minister for Technical Education and Industrial Training, Govt of Himachal Pradesh forwarding proposal on E-Vehicle charging Stations in selected Technical Institutions.
- II. Matter raised by Hon'ble Member of Parliament (Smt. Sudha Murthy) regarding sufficiency of production and distribution of electricity for the charging points.
- III. Inputs on the points of Record of Discussions under Shri Tarun Kapoor, Advisor to Hon'ble Prime Minister regarding issuance of necessary clarifications on the need for LT/ HT lines for Discoms.
- IV. Inputs for Standing Committee on Energy - List of Points in connection with examination of Demands for Grants (2025-26) of the Ministry of Power regarding adoption of Electric Vehicles.

Chart-I

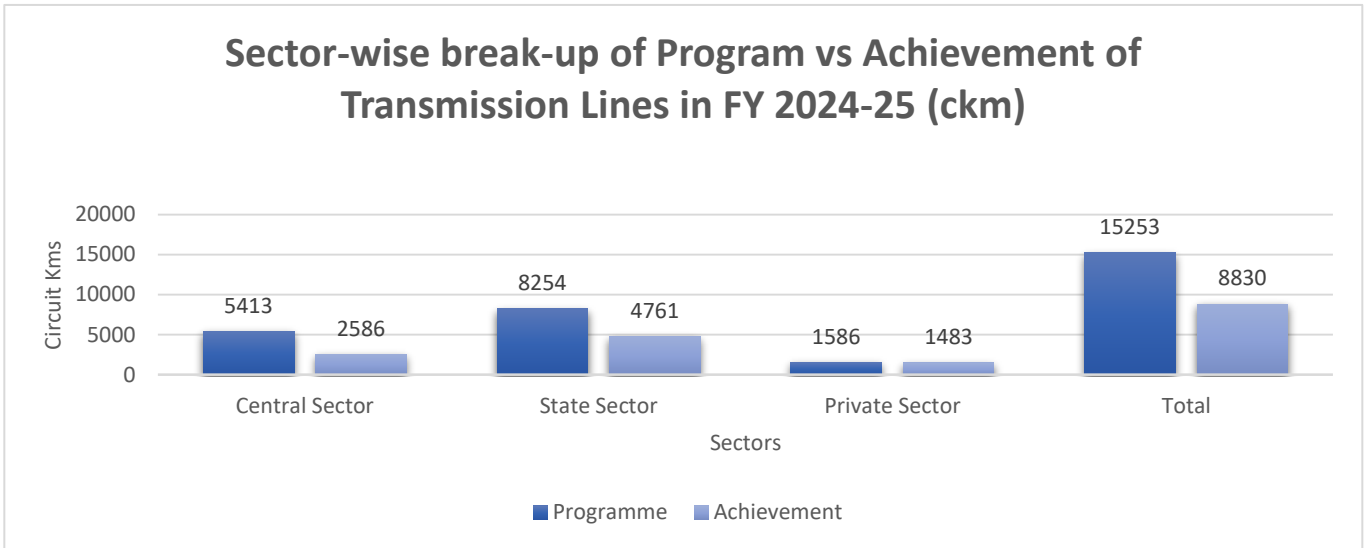
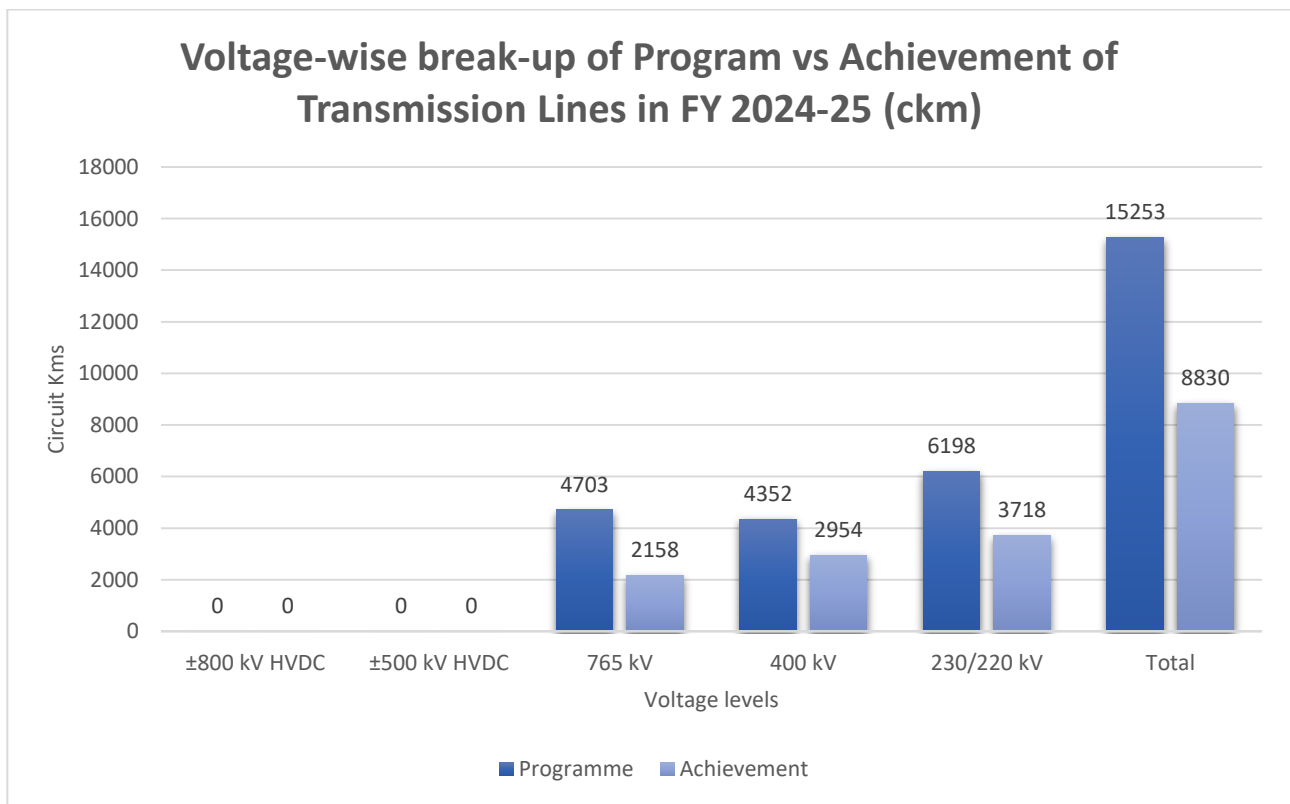
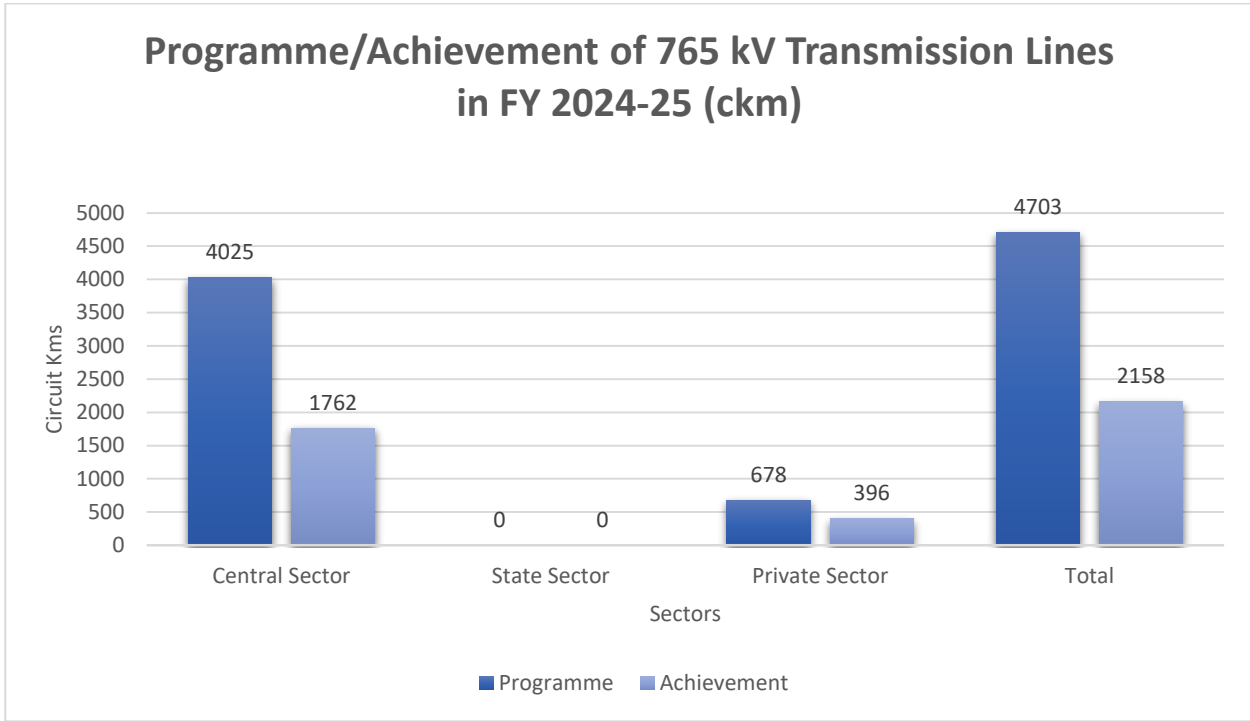


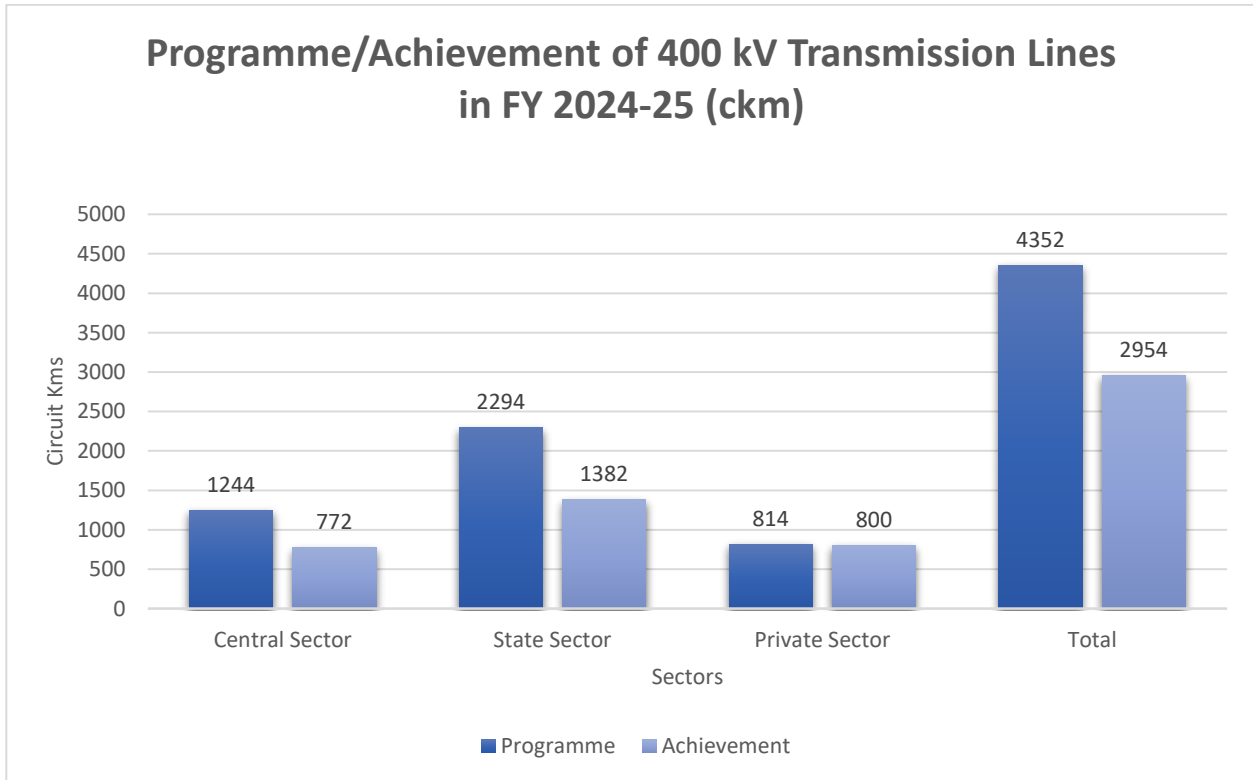
Chart-II



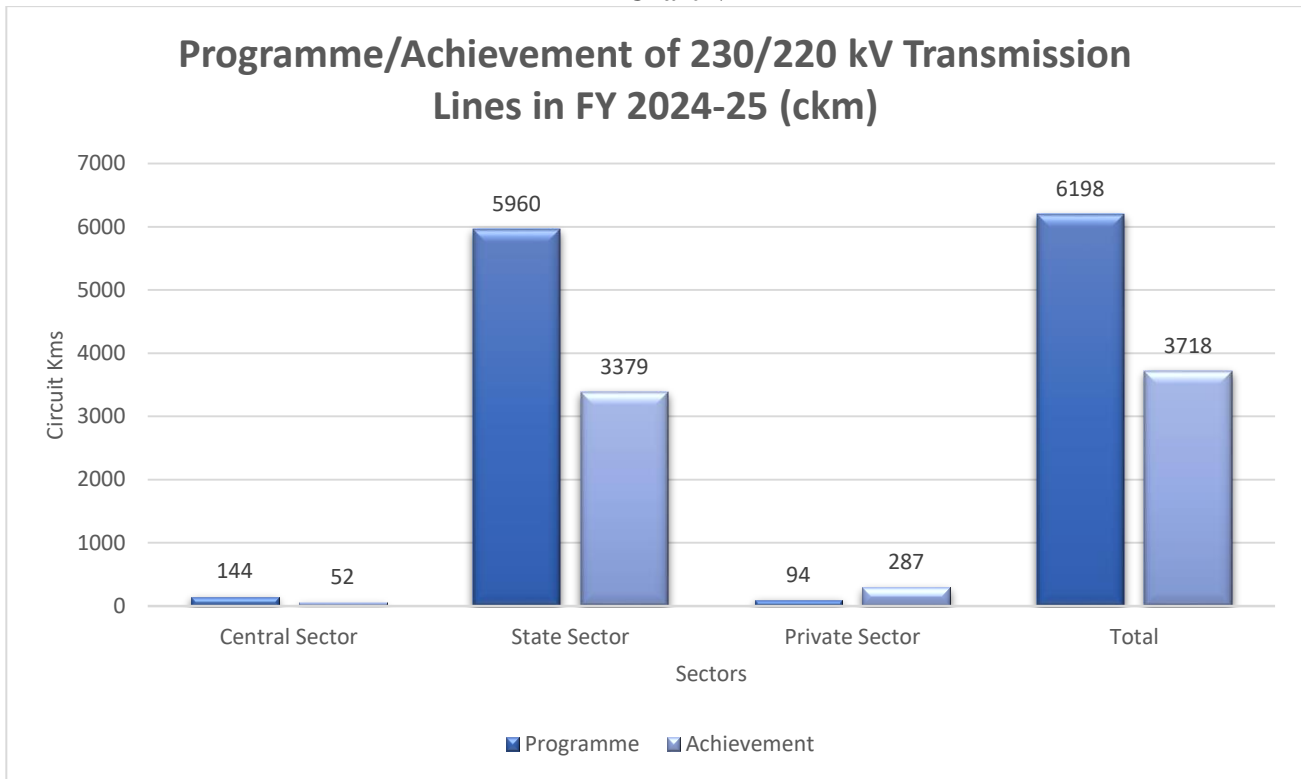
**Chart-III**



**Chart-IV**



**Chart-V**



**Chart-VI**

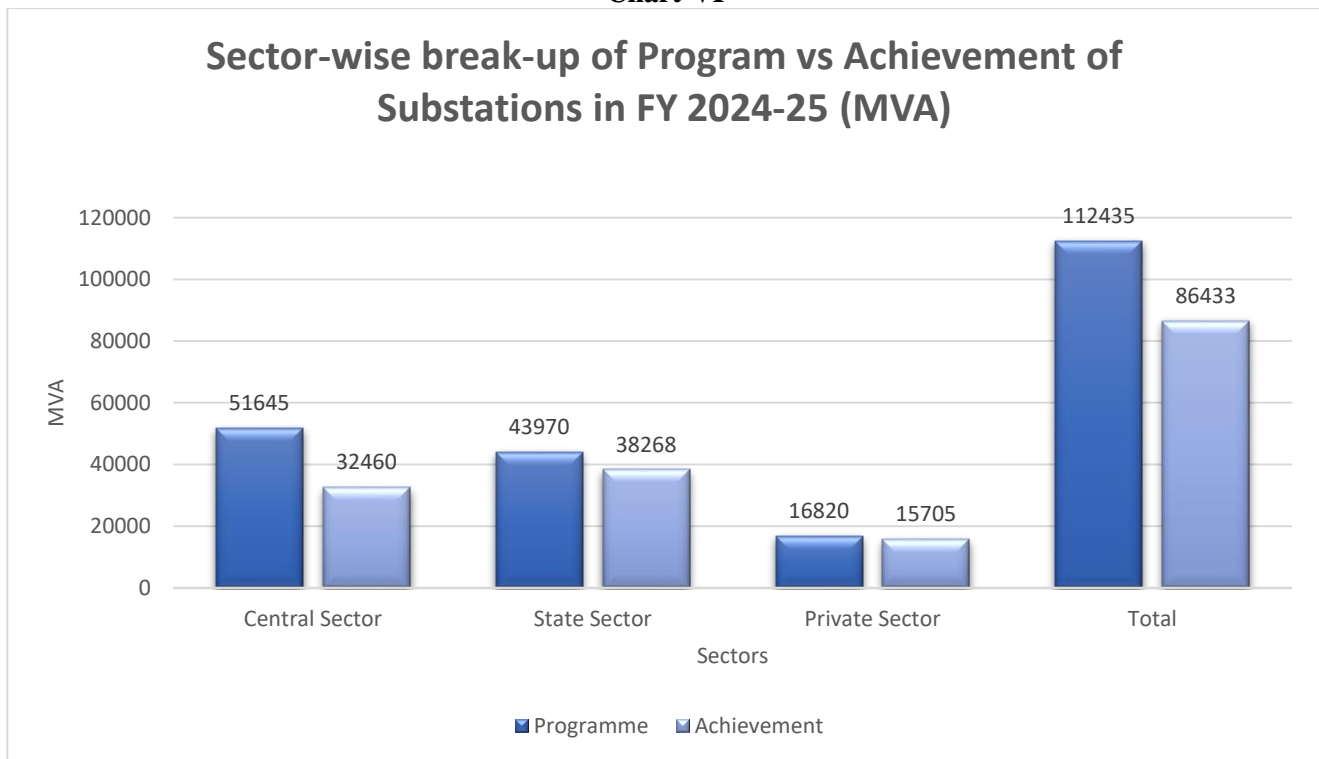


Chart-VII

Voltage-wise break-up of Program vs Achievement of Substations in FY 2024-25 (MVA)

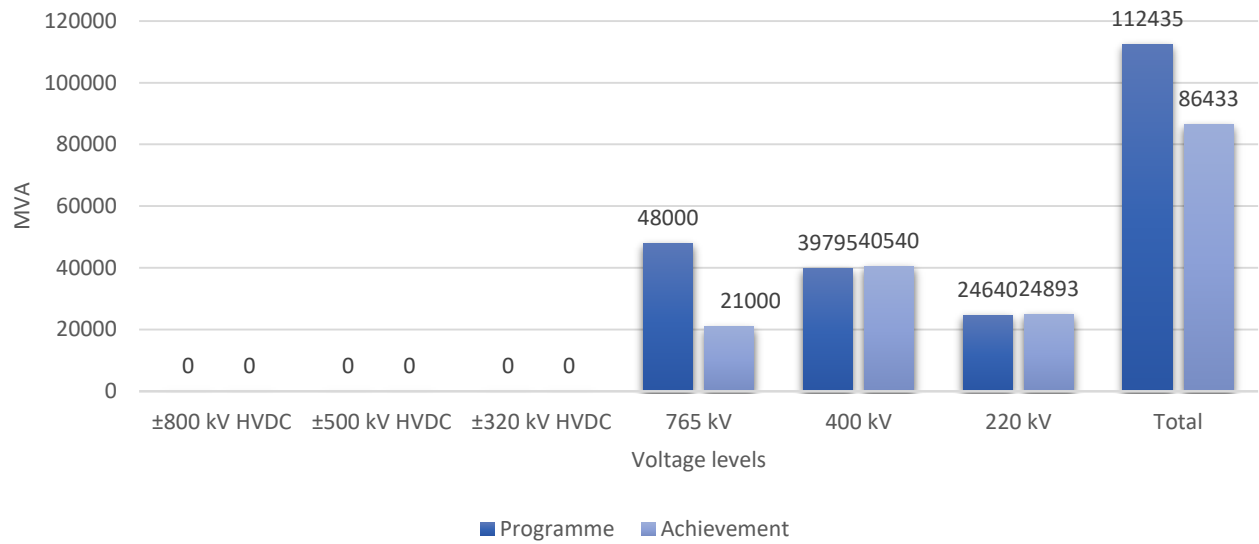


Chart-VIII

Programme/Achievement of 765 kV Substations in FY 2024-25 (MVA)

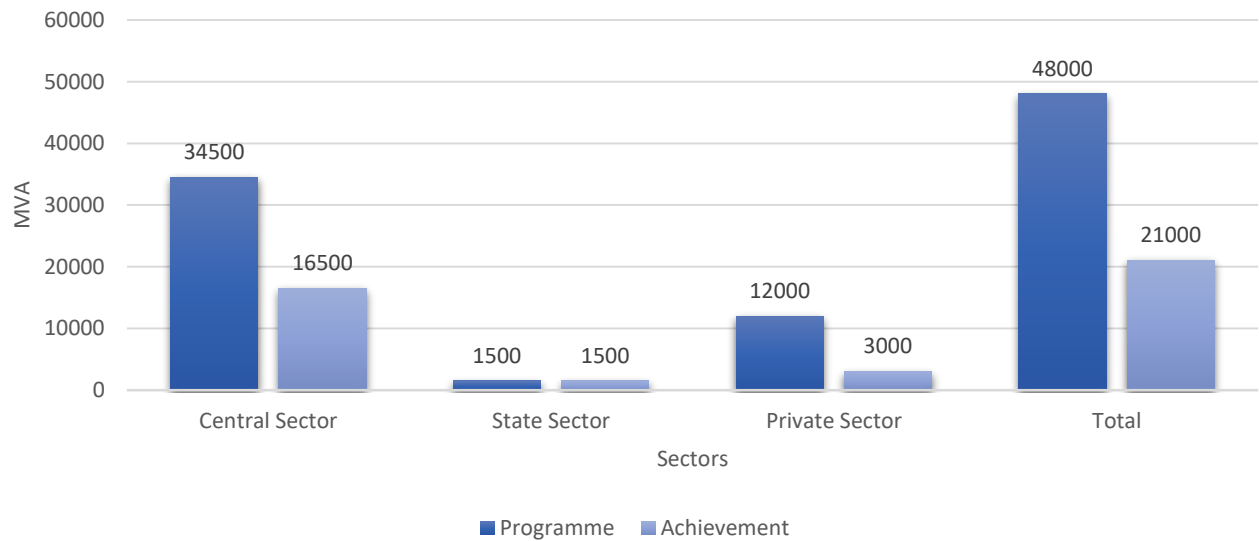


Chart-IX

Programme/Achievement of 400 kV Substations in FY 2024-25 (MVA)

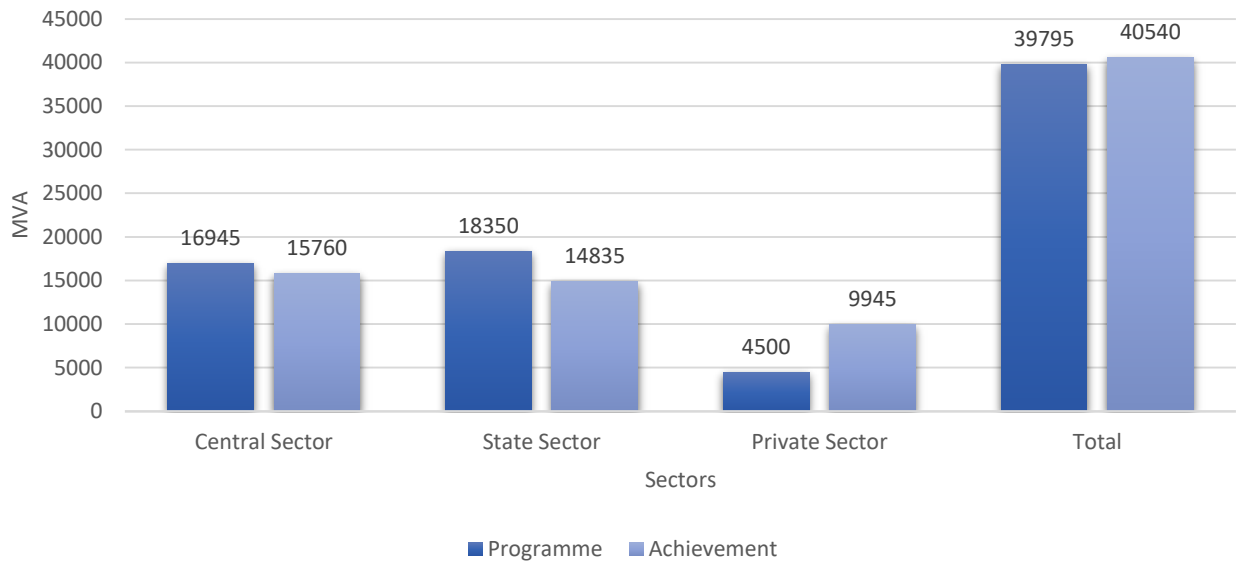
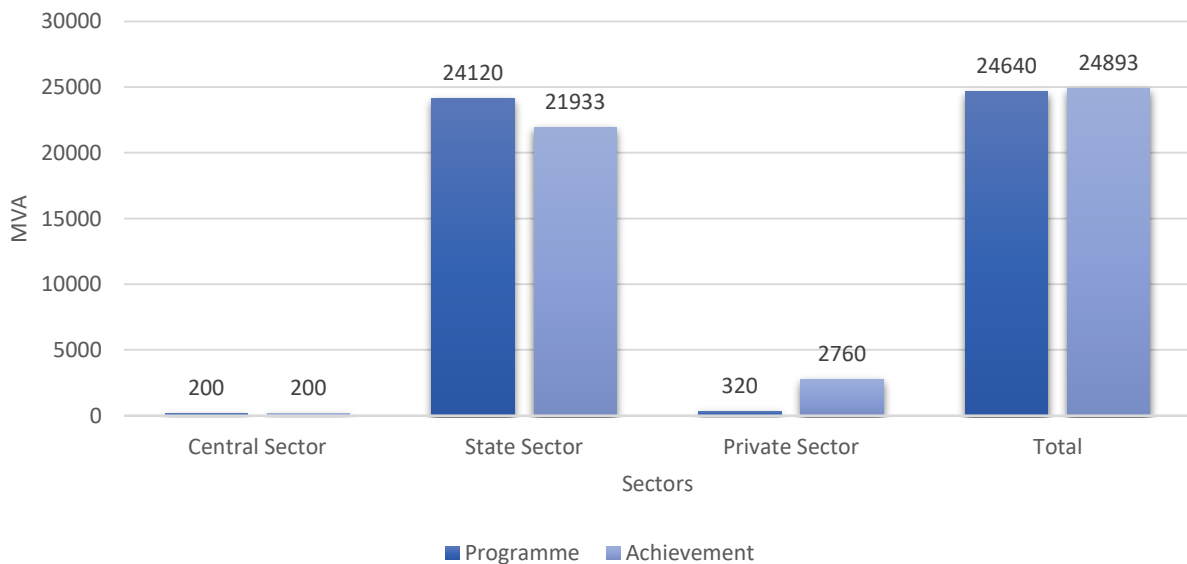


Chart-X

Programme/Achievement of 230/220 kV Substations in FY 2024-25 (MVA)



## CHAPTER – 4

# GRID OPERATION AND MANAGEMENT

### 4.1 Organizational Structure in Grid Operation and Management

The Central Government has established Regional Power Committee (RPC) in each region in accordance with the provisions of Electricity Act, 2003 to facilitate integrated operation of the power system in that region. The real time operation of the power system is looked after by the Regional Load Dispatch Centres (RLDCs) set up in the five Regions and at the national level by National Load Dispatch Centre (NLDC). The Regional Power Committee is a conglomerate of all the players partaking in grid operation, i.e. Regional Load Dispatch Centre, generating companies, transmission utilities, distribution utilities, power traders, etc. Its Secretariat is manned by the officers of Central Electricity Authority (CEA).

The Regional Power Committee (RPC) operates through a number of Sub-Committees, viz. Operation Sub-Committee, Commercial Sub-Committee, Protection Sub-Committee, System Studies Sub-Committee, Technical Coordination Committee and TeST Sub-Committee. The Operation Sub-Committee meets every month to review the grid operation in the previous month and plan grid operation for the next month. The Commercial Sub-Committee discusses commercial issues viz. energy accounting related matters, matters pertaining to Special Energy Meters (SEMs), settlement of dues, etc. The Protection Sub-Committee discusses and analyses the various trippings which took place since its last meeting and recommends/ monitors the corrective actions to avoid recurrence of such trippings. It also finalizes the various protection schemes including protection coordination. The System Studies Sub-Committee meets periodically for the purpose of system studies related to assessment of network elements for reactive

compensation, operational load flow, transient stability studies etc. The Technical Coordination (TCC) meets before the Regional Power Committee for deliberating on the various technical, operational and commercial issues and the decisions are placed forth for final resolution in the Regional Power Committee. The RPCs play an important role in planning grid operation, since they are responsible for protection coordination, outage planning of generating units and transmission system, planning reactive compensation etc. The TeST Sub-Committee discusses the issues viz. Telecommunication, SCADA & Telemetry etc. Member (Grid Operation & Distribution), CEA is also a Member of the Regional Power Committees and guides the Committees to arrive at amicable solutions with uniformity of approach through unbiased decisions. Apart from RPCs, the Ministry of Power (MoP) had vide Order dated 25th March, 2013, established the National Power Committee (NPC) to evolve a common approach to issues related to reliability and security of the grid.

CEA monitors the power supply position in the country, prepares the All-India monthly power supply position report, harmonizes all matters of grid operation and management between the five Regions, coordinates enquiry of grid disturbances, recommends to the Ministry of Power the quantum of allocation from Central Generating Stations and also facilitates the implementation of the allocation through the Regional Power Committees. The anticipated Power Supply Position for the next year known as Load Generation Balance Report (LGBR), is also prepared every year.

### 4.2 Power Supply Position

The Central Electricity Authority brings out the All India Power Supply Position on a monthly basis, both

in terms of Energy and Peak, giving the Energy Requirement, Energy Supplied in Million Units (MUs) and Energy not Supplied in Million Units (MUs) as well as in percentage and the Peak Demand, Peak Met in Mega Watt (MW) and Demand not Met in Mega Watt (MW) as well as in percentage. The total Energy Requirement in the country during the year 2024-25 was 16,93,959 MUs as against 16,26,132 MUs during the previous year 2023-24, registering an increase of 4.2%. The total Energy Supplied in the country during the year 2024-25 was 16,92,369 MUs as against 1,622,020 MUs during the previous year 2023-24, registering an increase of 4.3%. The Energy not Supplied during the year 2024-25 was 1,590 (0.1%) against 4,112 MUs (0.3%) during the previous the year 2023-24. The Peak Demand during the year 2024-25 was 2,49,856 MW

as against 2,43,271 MW during the previous year 2023-24, registering an increase of 2.7%. The Peak Met during the year 2024-25 was 2,49,854 MW as against 2,39,931 MW during the previous year 2023-24, registering an increase of 4.1%. The Demand not Met during the year 2024-25 was 2 MW (0.0%) as against 3,340 MW (1.4%) during the previous year 2023-24.

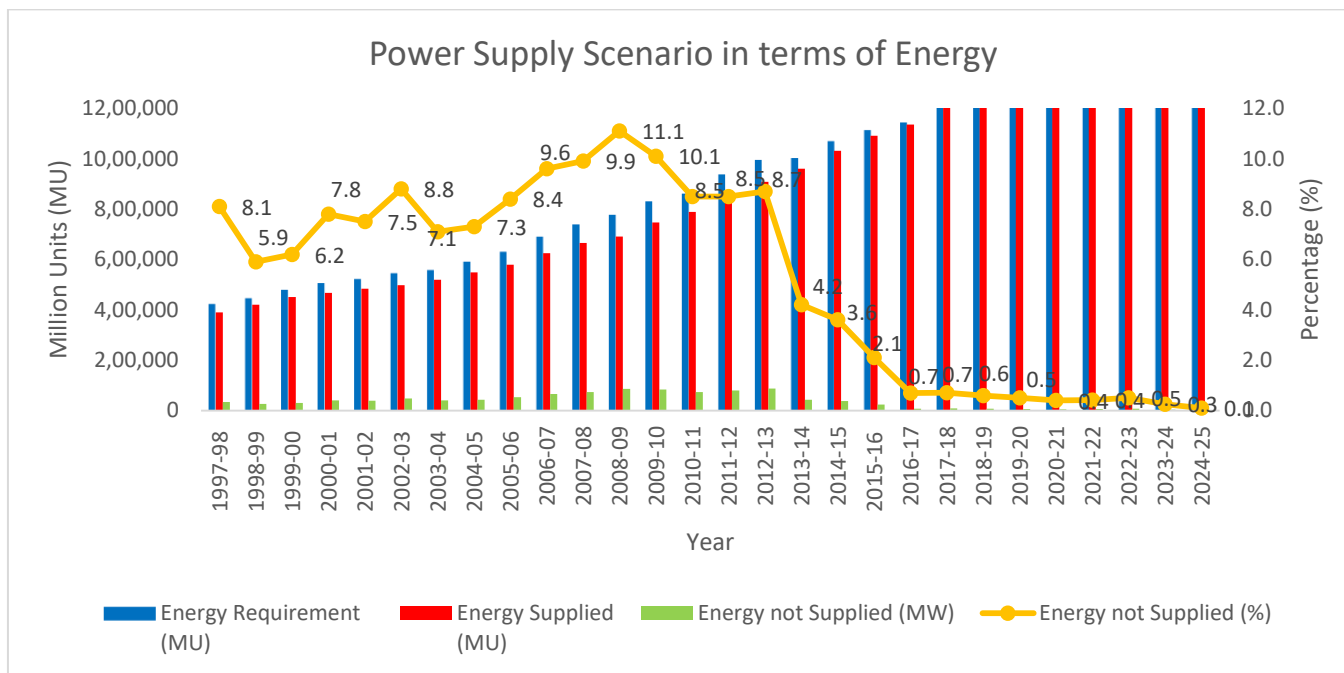
In the context of power supply, it may be mentioned that there is adequate availability of electricity in the country. The marginal gap between demand and supply of electricity is generally on account of factors other than inadequacy of power availability in the country e.g. constraints in distribution network, financial constraints, commercial reasons, forced outage of generating units etc.

The Power supply position since beginning of 9<sup>th</sup> Plan is as under:

**ENERGY:**

Year	Energy Requirement (MU)	Energy Supplied (MU)	Energy not Supplied (MW)	Energy not Supplied (%)
1997-98	4,24,505	3,90,330	34,175	8.1
1998-99	4,46,584	4,20,235	26,349	5.9
1999-00	4,80,430	4,50,594	29,836	6.2
2000-01	5,07,216	4,67,400	39,816	7.8
2001-02	5,22,537	4,83,350	39,187	7.5
2002-03	5,45,983	4,97,890	48,093	8.8
2003-04	5,59,264	5,19,398	39,866	7.1
2004-05	5,91,373	5,48,115	43,258	7.3
2005-06	6,31,554	5,78,819	52,735	8.4
2006-07	6,90,587	6,24,495	66,092	9.6
2007-08	7,39,343	6,66,007	73,336	9.9
2008-09	7,77,039	6,91,038	86,001	11.1
2009-10	8,30,594	7,46,644	83,950	10.1
2010-11	8,61,591	7,88,355	73,236	8.5
2011-12	9,37,199	8,57,886	79,313	8.5
2012-13	9,95,557	9,08,652	86,905	8.7
2013-14	10,02,257	9,59,829	42,428	4.2
2014-15	10,68,923	10,30,785	38,138	3.6
2015-16	11,14,408	10,90,850	23,558	2.1
2016-17	11,42,928	11,35,332	7,596	0.7
2017-18	12,13,326	12,04,697	8,629	0.7
2018-19	12,74,595	12,67,526	7,070	0.6
2019-20	12,91,010	12,84,444	6,566	0.5

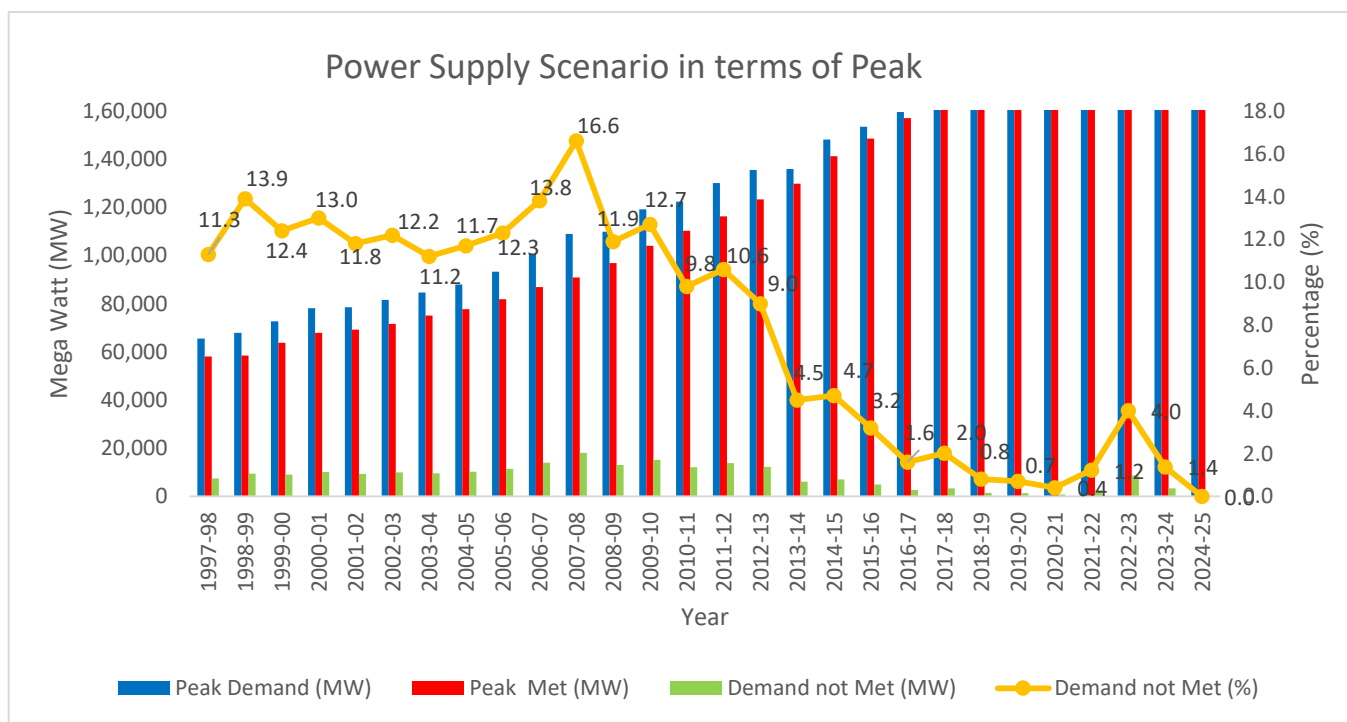
2020-21	12,75,534	12,70,663	4,871	0.4
2021-22	13,79,812	13,74,024	5,787	0.4
2022-23	15,13,497	15,05,914	7,583	0.5
2023-24	16,26,132	16,22,020	4,112	0.3
2024-25	16,93,959	16,92,369	1,590	0.1



**PEAK:**

Year	Peak Demand (MW)	Peak Met (MW)	Demand not Met (MW)	Demand not Met (%)
			(MW)	(%)
1997-98	65,435	58,042	7,393	11.3
1998-99	67,905	58,445	9,460	13.9
1999-00	72,669	63,691	8,978	12.4
2000-01	78,037	67,880	10,157	13.0
2001-02	78,441	69,189	9,252	11.8
2002-03	81,492	71,547	9,945	12.2
2003-04	84,574	75,066	9,508	11.2
2004-05	87,906	77,652	10,254	11.7
2005-06	93,255	81,792	11,463	12.3
2006-07	1,00,715	86,818	13,897	13.8
2007-08	1,08,866	90,793	18,073	16.6

2008-09	1,09,809	96,785	13,024	11.9
2009-10	1,19,166	1,04,009	15,157	12.7
2010-11	1,22,287	1,10,256	12,031	9.8
2011-12	1,30,006	1,16,191	13,815	10.6
2012-13	1,35,453	1,23,294	12,159	9.0
2013-14	1,35,918	1,29,815	6,103	4.5
2014-15	1,48,166	1,41,160	7,006	4.7
2015-16	1,53,366	1,48,463	4,903	3.2
2016-17	1,59,542	1,56,934	2,608	1.6
2017-18	1,64,066	1,60,752	3,314	2.0
2018-19	1,77,022	1,75,528	1,494	0.8
2019-20	1,83,804	1,82,533	1,271	0.7
2020-21	1,90,198	1,89,395	802	0.4
2021-22	2,03,014	2,00,539	2,475	1.2
2022-23	2,15,888	2,07,231	8,657	4.0
2023-24	2,43,271	2,39,931	3,340	1.4
2024-25	2,49,856	2,49,854	2	0.0



The State/UT/Region-wise Power Supply Position in terms of Energy and Peak during the year 2024-25 is enclosed at **Annexure-4A**.

The details of the State/UT-wise allocation from Conventional Central Generating Stations in the country as on 31.03.2025, is enclosed at **Annexure-4B**.

### 4.3 System Operation in the Regions

**4.3.1 Northern Region:** The gap between Energy Requirement and Energy Supplied was 0.2% in the region during the year 2024-25 as compared to 0.4% during the year 2023-24 and a gap of 0.9% between Peak Demand and Peak Met during the year 2024-25 as compared to 0.5% during the year 2023-24.

The maximum demand met in the Northern Region during 2024-25 was 90,747 MW. This represents a growth of 10,199 MW or 12.7% compared to the maximum demand met in 2023-24.

Further, the comparison between Power Supply Position in terms of Energy and Peak during the year 2024-25 and the year 2023-24 is outlined below:

#### Energy:

State / UT	April,2024 -March,2025		April,2023 - March,2024		% Change	
	Energy Requirement	Energy Supplied	Energy Requirement	Energy Supplied	Energy Requirement	Energy Supplied
	( MU )	( MU )	( MU )	( MU )	( % )	( % )
Chandigarh	1,952	1,952	1,789	1,789	9.1	9.1
Delhi	38,255	38,243	35,501	35,496	7.8	7.7
Haryana	70,149	70,120	63,983	63,636	9.6	10.2
Himachal Pradesh	13,566	13,526	12,805	12,767	5.9	5.9
UT of J&K and Ladakh	20,374	20,283	20,040	19,763	1.7	2.6
Punjab	77,423	77,423	69,533	69,528	11.3	11.4
Rajasthan	1,13,833	1,13,529	1,07,422	1,06,806	6.0	6.3
Uttar Pradesh	1,65,090	1,64,786	1,48,791	1,48,287	11.0	11.1
Uttarakhand	16,770	16,727	15,644	15,532	7.2	7.7
<b>Northern Region</b>	<b>5,18,869</b>	<b>5,17,917</b>	<b>4,76,852</b>	<b>4,74,946</b>	<b>8.8</b>	<b>9.0</b>

#### Peak:

State / UT	April,2024 -March,2025		April,2023 - March,2024		% Change	
	Peak Demand	Peak Met	Peak Demand	Peak Met	Peak Demand	Peak Met
	( MW )	( MW )	( MW )	( MW )	( % )	( % )
Chandigarh	449	449	411	411	9.2	9.2
Delhi	8,656	8,656	7,437	7,437	16.4	16.4
Haryana	14,662	14,662	13,088	12,844	12.0	14.2
Himachal Pradesh	2,273	2,273	2,181	2,181	4.2	4.2
UT of J&K and Ladakh	3,236	2,836	3,181	3,133	1.7	(-) 9.5
Punjab	16,058	16,058	15,293	15,293	5.0	5.0
Rajasthan	19,165	19,165	18,128	18,128	5.7	5.7
Uttar Pradesh	30,618	30,618	28,704	28,284	6.7	8.3
Uttarakhand	2,863	2,863	2,635	2,405	8.7	19.0
<b>Northern Region</b>	<b>91,592</b>	<b>90,747</b>	<b>80,980</b>	<b>80,548</b>	<b>13.1</b>	<b>12.7</b>

**4.3.2 Western Region:** The Western Region was able to meet its Energy Requirement completely during the year 2024-25 as compared to gap of 0.1% during the year 2023-24 and a gap of 0.4% between Peak Demand and Peak Met during the year 2024-25 as compared to 4.6% during the year 2023-24.

The maximum demand met in the Western Region during 2024-25 was 80,523 MW. This represents a growth of 7,967 MW or 11% compared to the maximum demand met in 2023-24.

Further, the comparison between Power Supply Position in terms of Energy and Peak during the year 2024-25 and the year 2023-24 is outlined below:

### Energy:

State / UT	April,2024 -March,2025		April,2023 - March,2024		% Change	
	Energy Requirement	Energy Supplied	Energy Requirement	Energy Supplied	Energy Requirement	Energy Supplied
	( MU )	( MU )	( MU )	( MU )	( % )	( % )
Chhattisgarh	43,208	43,180	39,930	39,872	8.2	8.3
Gujarat	1,51,878	1,51,875	1,45,768	1,45,740	4.2	4.2
Madhya Pradesh	1,04,445	1,04,312	99,301	99,150	5.2	5.2
Maharashtra	2,01,816	2,01,757	2,07,108	2,06,931	(-) 2.6	(-) 2.5
Dadra & Nagar Haveli and Daman & Diu	10,852	10,852	10,164	10,164	6.8	6.8
Goa	5,411	5,411	5,111	5,111	5.9	5.9
<b>Western Region</b>	<b>5,28,924</b>	<b>5,28,701</b>	<b>5,17,714</b>	<b>5,17,301</b>	<b>2.2</b>	<b>2.2</b>

### Peak:

State / UT	April,2024 -March,2025		April,2023 - March,2024		% Change	
	Peak Demand	Peak Met	Peak Demand	Peak Met	Peak Demand	Peak Met
	( MW )	( MW )	( MW )	( MW )	( % )	( % )
Chhattisgarh	6,511	6,511	6,148	6,148	5.9	5.9
Gujarat	25,588	25,588	24,829	24,544	3.1	4.3
Madhya Pradesh	19,371	19,183	18,252	17,817	6.1	7.7
Maharashtra	30,675	30,675	31,178	27,996	(-) 1.6	9.6
Dadra & Nagar Haveli and Daman & Diu	1,390	1,390	1,327	1,327	4.7	4.7
Goa	810	810	776	776	4.4	4.4
<b>Western Region</b>	<b>80,861</b>	<b>80,523</b>	<b>76,050</b>	<b>72,556</b>	<b>6.3</b>	<b>11.0</b>

**4.3.3 Southern Region:** The Southern Region was able to meet its Energy Requirement completely during the year 2024-25 as compared to gap of 0.1% during the year 2023-24 and meet its Peak Demand completely during the year 2024-25 and the year 2023-24.

The maximum demand met in the Southern Region during 2024–25 was 69,934 MW. This represents a growth of 1,840 MW or 2.70% compared to the

maximum demand met in 2023–24. Lakshadweep is stand- alone systems, power supply position of Lakshadweep, does not form part of regional requirement and supply.

Further, the comparison between Power Supply Position in terms of Energy and Peak during the year 2024-25 and the year 2023-24 is outlined below:

#### Energy:

State / UT	April,2024 -March,2025		April,2023 - March,2024		% Change	
	Energy Requirement	Energy Supplied	Energy Requirement	Energy Supplied	Energy Requirement	Energy Supplied
	( MU )	( MU )	( MU )	( MU )	( % )	( % )
Andhra Pradesh	79,028	79,025	80,209	80,151	(-) 1.5	(-) 1.4
Telangana	88,262	88,258	84,623	84,613	4.3	4.3
Karnataka	92,450	92,446	94,088	93,934	(-) 1.7	(-) 1.6
Kerala	31,624	31,616	30,943	30,938	2.2	2.2
Tamil Nadu	1,30,413	1,30,408	1,26,163	1,26,151	3.4	3.4
Puducherry	3,549	3,549	3,456	3,455	2.7	2.7
Lakshadweep	68	68	64	64	6.0	6.0
<b>Southern Region</b>	<b>4,25,373</b>	<b>4,25,349</b>	<b>4,19,531</b>	<b>4,19,293</b>	<b>1.4</b>	<b>1.4</b>

#### Peak:

State / UT	April,2024 -March,2025		April,2023 - March,2024		% Change	
	Peak Demand	Peak Met	Peak Demand	Peak Met	Peak Demand	Peak Met
	( MW )	( MW )	( MW )	( MW )	( % )	( % )
Andhra Pradesh	13,712	13,712	13,237	13,237	3.6	3.6
Telangana	17,162	17,162	15,622	15,622	9.9	9.9
Karnataka	18,398	18,395	17,212	17,212	6.9	6.9
Kerala	5,904	5,631	5,284	5,284	11.7	6.6
Tamil Nadu	20,784	20,784	19,045	19,045	9.1	9.1
Puducherry	549	549	524	524	4.7	4.7
Lakshadweep	13	13	12	12	8.7	9.4
<b>Southern Region</b>	<b>69,938</b>	<b>69,934</b>	<b>68,094</b>	<b>68,094</b>	<b>2.7</b>	<b>2.7</b>

**4.3.4 Eastern Region:** The gap between Energy Requirement and Energy Supplied was 0.2% in the region during the year 2024-25 as compared to 0.7% during the year 2023-24 and a gap of 0.3% between Peak Demand and Peak Met during the year 2024-25 as compared to 3.2% during the year 2023-24.

The maximum demand met in the Eastern Region during 2024–25 was 31,399 MW. This represents a

growth of 2,100 MW or 7.2% compared to the maximum demand met in 2023–24. Andaman & Nicobar Islands is stand- alone systems, power supply position of Andaman & Nicobar Islands, does not form part of regional requirement and supply.

Further, the comparison between Power Supply Position in terms of Energy and Peak during the year 2024-25 and the year 2023-24 is outlined below:

#### Energy:

State / UT	April,2024 -March,2025		April,2023 - March,2024		% Change	
	Energy Requirement	Energy Supplied	Energy Requirement	Energy Supplied	Energy Requirement	Energy Supplied
	( MU )	( MU )	( MU )	( MU )	( % )	( % )
Bihar	44,393	44,217	41,514	40,918	6.9	8.1
DVC	25,891	25,888	26,560	26,552	(-) 2.5	(-) 2.5
Jharkhand	15,203	15,126	14,408	13,858	5.5	9.2
Odisha	42,882	42,858	41,358	41,333	3.7	3.7
West Bengal	71,180	71,085	67,576	67,490	5.3	5.3
Sikkim	574	574	544	543	5.5	5.6
Andaman- Nicobar	425	413	386	374	10.1	10.5
<b>Eastern Region</b>	<b>2,00,180</b>	<b>1,99,806</b>	<b>1,92,013</b>	<b>1,90,747</b>	<b>4.3</b>	<b>4.7</b>

#### Peak:

State / UT	April,2024 -March,2025		April,2023 - March,2024		% Change	
	Peak Demand	Peak Met	Peak Demand	Peak Met	Peak Demand	Peak Met
	( MW )	( MW )	( MW )	( MW )	( % )	( % )
Bihar	8,078	7,852	8,049	7,420	0.4	5.8
DVC	3,708	3,704	3,451	3,451	7.4	7.3
Jharkhand	2,295	2,292	2,193	2,020	4.7	13.5
Odisha	6,905	6,905	6,443	6,443	7.2	7.2
West Bengal	12,645	12,640	11,626	11,626	8.8	8.7
Sikkim	138	138	133	133	3.8	4.1
Andaman- Nicobar	71	64	65	60	8.8	5.8
<b>Eastern Region</b>	<b>31,488</b>	<b>31,399</b>	<b>30,256</b>	<b>29,299</b>	<b>4.1</b>	<b>7.2</b>

**4.3.5 North-Eastern Region:** The gap between Energy Requirement and Energy Supplied was 0.1% in the region during the year 2024-25 as compared to 1.4% during the year 2023-24 and a gap of 1.1% between Peak Demand and Peak Met during the year 2024-25 as compared to 0% during the year 2023-24.

Region during 2024-25 was 3,914 MW. This represents a growth of 236 MW or 6.4% compared to the maximum demand met in 2023-24.

Further, the comparison between Power Supply Position in terms of Energy and Peak during the year 2024-25 and the year 2023-24 is outlined below:

The maximum demand met in the North-Eastern

**Energy:**

State / UT	April,2024 -March,2025		April,2023 - March,2024		% Change	
	Energy Requirement	Energy Supplied	Energy Requirement	Energy Supplied	Energy Requirement	Energy Supplied
	( MU )	( MU )	( MU )	( MU )	( % )	( % )
Arunachal Pradesh	1,050	1,050	1,014	1,014	3.5	3.5
Assam	12,843	12,837	12,445	12,341	3.2	4.0
Manipur	1,079	1,068	1,023	1,008	5.5	6.0
Meghalaya	2,046	2,046	2,236	2,066	(-) 8.5	(-) 1.0
Mizoram	709	709	684	684	3.8	3.8
Nagaland	938	938	921	921	1.9	1.9
Tripura	1,939	1,939	1,691	1,691	14.6	14.6
<b>North-Eastern Region</b>	<b>20,613</b>	<b>20,596</b>	<b>20,022</b>	<b>19,733</b>	<b>2.9</b>	<b>4.4</b>

**Peak:**

State / UT	April,2024 -March,2025		April,2023 - March,2024		% Change	
	Peak Demand	Peak Met	Peak Demand	Peak Met	Peak Demand	Peak Met
	( MW )	( MW )	( MW )	( MW )	( % )	( % )
Arunachal Pradesh	218	191	186	186	17.0	2.8
Assam	2,812	2,687	2,413	2,413	16.5	11.4
Manipur	269	269	258	248	4.3	8.5
Meghalaya	409	408	405	405	0.9	0.7
Mizoram	168	168	162	162	3.6	3.6
Nagaland	189	188	174	174	8.2	8.0
Tripura	386	386	362	362	6.7	6.6
<b>North-Eastern Region</b>	<b>3,959</b>	<b>3,914</b>	<b>3,678</b>	<b>3,678</b>	<b>7.6</b>	<b>6.4</b>

#### 4.4 Frequency Profile of National Grid

The five regional grids of the country are operating as an integrated National Grid. The Indian Electricity Grid Code (IEGC) specified by the Central Electricity Regulatory Commission (CERC) mandates the operating band for frequency of grid as 49.90 Hz to 50.05 Hz. The percentage of time during which the

power system of the country operated below 49.90 Hz, between 49.90 to 50.05 Hz (IEGC Band) and above 50.05 Hz and the maximum and minimum frequencies of the National Grid along with the average frequency level during the year 2022-23, 2023-24 and 2024-25, are tabulated below:

Frequency Profile of National Grid						
Year	% of Time when Frequency was			Average Frequency (Hz)	Maximum Frequency (Hz)	Minimum Frequency (Hz)
	Below 49.90 Hz	Between 49.90-50.05 Hz (IEGC Band )	Above 50.05 Hz			
2022-23	11.15	69.70	19.14	49.99	50.55	49.41
2023-24	7.20	73.83	18.97	50.00	50.43	49.48
2024-25	5.14	77.94	16.92	50.00	50.67	49.46

It may be seen from the above that the average grid frequency during the year 2024-25 was precisely at the nominal frequency level of 50.00 Hz.

#### 4.5 National Power Committee (NPC):

**4.5.1** National Power Committee (NPC) was established by Ministry of Power vide Order dated 25<sup>th</sup> March, 2013 and amended order dated 22.11.2022, to evolve a common approach on issues related to reliability and security of the grid, at national level. Chairperson, CEA is the Chairperson of NPC. Member (GO&D), CEA, Member Secretaries and Chairpersons of RPCs, the Chairpersons of Technical Co-ordination Sub Committees (TCC) of RPCs of five regions, CMD, Grid-India and COO, CTUIL are members of NPC with Chief Engineer (NPC), CEA, as its Member Secretary.

**4.5.2** Since its formation, NPC has taken several initiatives for improving the safe and reliable operation of Indian Grid.

**4.5.3** During the year 2024-25, one (01) number of 15<sup>th</sup> meeting of the National Power Committee was

held on 14.11.2024. In this meeting, the important points related to grid operation such as Uniform Protection Protocol, National Energy Account (NEA), Unified Accounting Software (UAS) for RPCs, Five (5) min Interface Energy Meters along with AMR system for PAN India (for all Five regions), Establishment of State-of- the-Art National Unified Network Management System (NUNMS) in main & backup configuration integrating all the regional UNMSs, Firewall installation for existing ISTS substations (RTM & TBCB) , Implementation methodology for VOIP Communication system for Grid Operation for all Five Regions NR, NER, SR, WR, ER as PAN India , Mismatch between RTU-SCADA real time data and IEM data, Guidelines for locating PMU for URTDSM Phase II project, SOP for Voice over Internet Protocol (VOIP) connectivity to utilities from RLDC Exchange, Introduction of MPLS Technology in ISTS Communication, Automatic Under Frequency Load Shedding (AUFLS) Scheme and Mapping of Feeders were discussed.

**4.5.4** Pursuant to the decisions made during the 13<sup>th</sup> and 14<sup>th</sup> meetings of the National Planning Committee (NPC), the following reports and Standard Operating Procedures (SOPs) were developed:

(a) **Uniform Protection Protocol:** In the 14<sup>th</sup> NPC meeting held on 03.02.2024, it was decided that the protection subgroup of NPC may finalize a Uniform Protection Protocol for all regions in consultation with RLDCs/GRID-India. The Uniform Protection Protocol was approved in 15<sup>th</sup> NPC held on 14.11.2024.

(b) **Standard Operating Procedure (SOP) for Protection System Audit, Grid disturbance analysis, Communication outage, and communication audit for S/s:** It was decided in the 13<sup>th</sup> NPC meeting that the protection subgroup of NPC may prepare SOPs for Protection System Audit, Grid disturbance analysis, Communication outage, and communication audit for S/s and accordingly these SOPs were approved in the 14<sup>th</sup> NPC meeting held on 03.02.2024 and revised SOP were approved in the 15<sup>th</sup> NPC Meeting held on 14.11.2024.

(c) **Standard Operating Procedure (SOP) for VOIP Connectivity to utilities from RLDC Exchange:** In line with decision of 14<sup>th</sup> NPC meeting held on 03.02.2024, the Standard Operating Procedure (SOP) for VOIP Connectivity to utilities from RLDC Exchange was prepared as per Indian Electricity Grid Code Regulations, 2023 and CERC (Communication System for inter-State transmission of electricity) Regulations, 2017 to Control and Co-ordination Centre of TSPs and GENCOs with VOIP Exchange situated at RLDCs and approved in the 15<sup>th</sup> NPC meeting held on 14.11.2024

#### **4.6 Power System Development Fund (PSDF):**

**4.6.1** Ministry of Power vide letter No. 29/9/2010-R&R (Vol-II) dated 10<sup>th</sup> January 2014 circulated a scheme regarding the operationalization of the Power System Development Fund (PSDF) and utilization of funds deposited therein. NLDC is the Nodal Agency for PSDF.

**4.6.2** During the FY 2024-25, the following number of meetings of various Committees of PSDF were held:

- (a) Two (02) meetings of the Appraisal Committee, headed by Chairperson, CEA, were held. In these meetings, 9 nos. of projects were recommended to Monitoring Committee for sanction grant under PSDF.
- (b) Two (02) meetings of the Monitoring Committee, headed by Secretary (Power) were held. In these meetings, 04 nos. of projects related to Implementation of Reliable Communication (OPGW), Implementation of Wide Area Management System (WAMS) and Islanding Schemes were sanctioned for funding from PSDF.
- (c) Seven (07) meetings of Project Monitoring Group, headed by Member (GO&D) were held. In these seven meetings, 73 nos. of distinct projects were reviewed/monitored.

**4.6.3** Till 31.03.2025, Two Hundred and Nine (209) nos. of projects for total grant amount of ₹16502.23 Crores have been sanctioned since the operationalization of PSDF. Out of these 209 sanctioned projects, 17 projects with an amount of ₹388.05 Crores have been De-sanctioned due to various reasons.

**4.6.4** The details of grant sanctioned to the projects under PSDF scheme are as given below:

S. No	Project Entity	During FY 2024-25		Previous Years (Up to 31.03.2024)		Cumulative (Up to 31.03.2025)	
		No. of Projects	Sanctioned Grant	No. of Projects	Sanctioned Grant	No. of Projects	Sanctioned Grant
			(₹ crores)		(₹ crores)		(₹ crores)
1	States/UTs	4	82.23	183	8249.75	187	8331.98
2	RPCs	0	0	9	115.61	9	115.61
3	BBMB	0	0	1	23.27	1	23.27
4	DVC	0	0	2	166.46	2	166.46
5	PGCIL	0	0	5	4313.52	5	4313.52
6	PGCIL/RECTPCL	0	0	1	233.03	1	233.03
7	Central	0	0	3	1809.35	3	1809.35
	<b>Total</b>	<b>4</b>	<b>82.23</b>	<b>204</b>	<b>14911</b>	<b>208</b>	<b>14993.22</b>
Proposal approved by MOP:(1) - Stranded Gas projects						1	1509
<b>Total including Stranded Gas projects</b>						<b>209</b>	<b>16502.22</b>
<b>No. of De-sanctioned projects and Amount</b>						<b>17</b>	<b>388.05</b>
<b>Effective No. of Sanctioned projects and Amount</b>						<b>192</b>	<b>16114.17</b>

**4.6.4** Total 98 nos. of projects have been completed till 31.03.2025. Out of this, 22 projects were completed during the FY 2024-25.

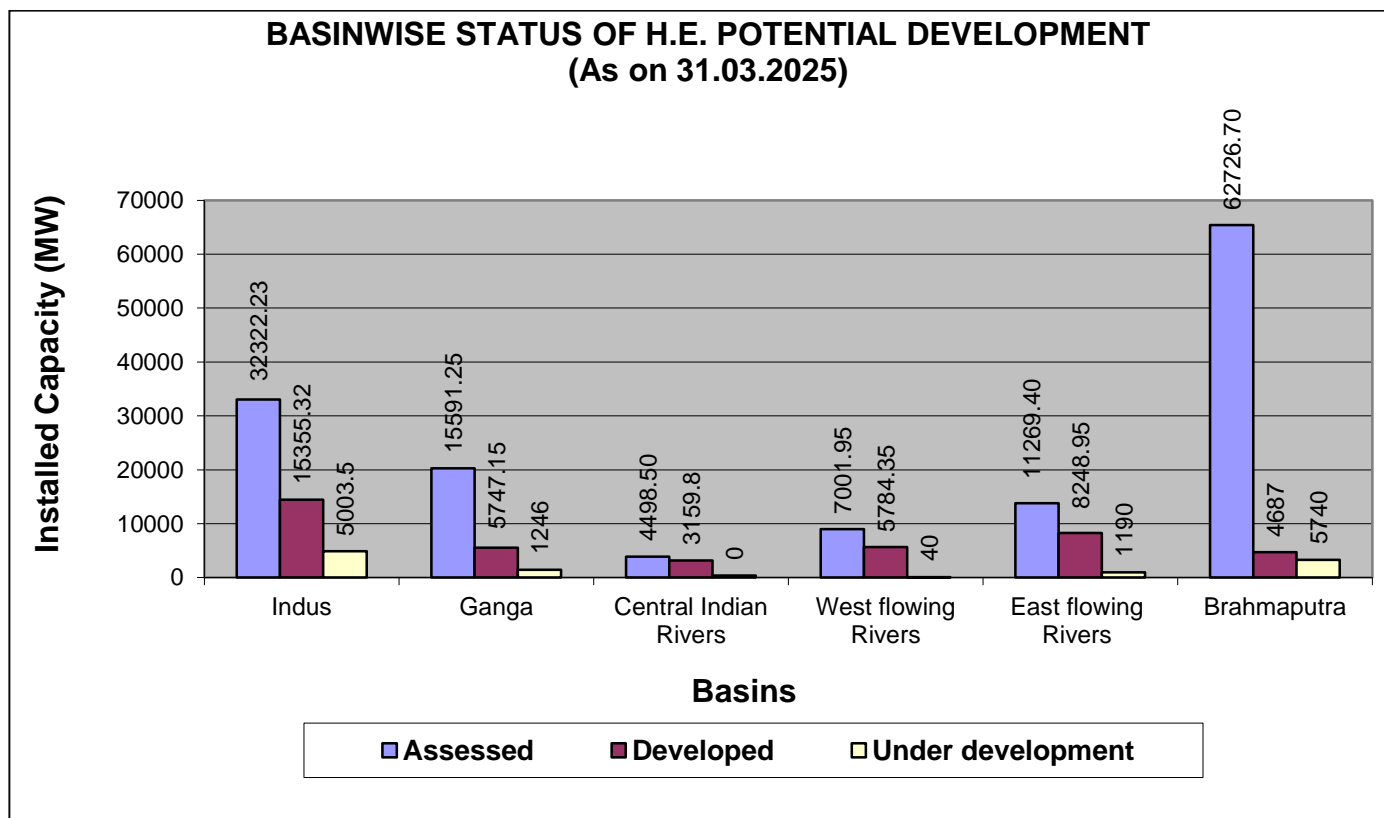
## CHAPTER – 5

### HYDRO POWER DEVELOPMENT

#### 5.1 Hydro Potential and its Development

The re-assessment studies of hydro-electric potential of the country, completed by Central Electricity Authority during 2017-23, have assessed the economically exploitable hydro power potential in terms of installed capacity as 133410 MW from schemes having capacity above 25 MW.

The basin-wise details of hydroelectric potential development in terms of Installed Capacity are indicated in the table below. As on 31.03.2025, the hydroelectric schemes in operation account for only 32.22% (42982.57 MW) and those under execution for 9.92% (13237.5 MW) of the total potential in terms of installed capacity. Thus, the bulk of the potential (57.86%) remains to be developed.



In addition, at present, 179 sites for development of Pumped Storage Schemes (PSS) with probable total installation of 201235.6 MW have been identified in the country. Out of this, 66 sites (61975.6 MW) are ON River PSPs and 113

sites (139260 MW) are OFF-River PSPs. 8 Nos. Pumped Storage Projects (above 25 MW) having total installed capacity of 4745.60 MW are in operation and 8 Pumped Storage project (9950 MW) are under construction.

## 5.2 50,000 MW Hydro-Electric initiative

Under the 50,000 MW Initiative, preparation of Preliminary Feasibility Reports (PFRs) for 162 hydro-electric projects spread over 16 states were taken up by CEA in the year 2003-04 as nodal agency with CPSUs/State agencies as Consultants. The role of CEA includes overall coordination, facilitating collection of data, and quality control by vetting conceptual planning, assessment of power benefits and selection of project parameters, evacuation of power and monitoring of works.

NHPC Ltd., WAPCOS, NEEPCO, SJVN Ltd. and Number of State Power Utilities were associated in preparation of these Preliminary Feasibility Reports. All the 162 Nos. of PFRs were completed in Sept., 2004 for all these projects with an installation of 47,930 MW. Details of these projects are given at **Annexure-5A**.

Out of 162 schemes, DPRs in respect of 37 schemes (20480 MW) have already been prepared. Out of these 37 schemes, 4 schemes (513 MW) has been commissioned while 7 schemes (2035 MW) are under construction in the country. A total of 14 schemes (6831 MW) have been concurred by CEA. DPRs of 12 HEPs with aggregate capacity of 11101 MW have been prepared but returned for various reasons. A total of 6 schemes (4651 MW) are under Survey & Investigation (S&I) for preparation of DPRs while DPR in respect of remaining 119 schemes (22689 MW) is yet to be prepared due to various issues.

## 5.3 Construction Monitoring of Hydro Projects:

Hydro Project Monitoring Division is monitoring the progress of construction of on-going sanctioned hydro power projects (above 25 MW) in pursuance to following Sections of Electricity Act, 2003 which is reproduced as under.

**Section 73(f).** Promote and assist in the timely completion of schemes and projects for improving

and augmenting the electricity system;

**Section 73(i).** collect and record the data concerning the generation, transmission, trading, distribution and utilization of electricity and carry out studies relating to cost, efficiency, competitiveness and such like matters;

**Section 73(j).** Make public from time to time the information secured under this Act, and provide for the publication of reports and investigations;

The progress of each project is monitored continuously through site visits, interaction with the developers & other stake holders. Chairperson, CEA/ Member (Hydro), Chief Engineer (HPM) hold regular review meetings with the developers/contractors and other Stakeholders.

## 5.4 Hydro additions during 2023-24:

Hydro capacity addition of 60 MW was achieved against the targets of 660 MW for the year 2023-24. Project-wise details are given at **Annexure-5B**.

**5.4.1 Hydro capacity additions during 2024-25:** 800 MW Hydro capacity has been added against the targets of 1000 MW for the year 2024-25. Project-wise details are given at **Annexure-5C**.

**5.4.2 Hydro capacity programme during 2025-26:** Hydro Capacity Addition Targets for the Year 2025-26 is 5205 MW (2570 MW in Central Sector, 715 MW in State Sector, and 1920 MW in Private Sector.). Project-wise details are given at **Annexure-5D**.

## 5.5 Survey & Investigation of Hydro Projects

CEA has been monitoring the progress of Survey and Investigation of all the hydro schemes (above 25 MW capacity) by conducting periodical review meetings with developers. In order to accelerate the pace of hydro development in the country, Guidelines for formulation of DPRs for Hydro Electric Schemes, their acceptance and examination for concurrence have been revised by CEA in June, 2023 and accordingly, CEA provides assistance to various Central/ State agencies in the

matter of survey, investigation and preparation of DPRs of hydro projects costing more than ₹1000 crores.

In line with the above Guidelines, Consultation Meetings are held by CEA, CWC, GSI and CSMRS with the project developer and guidance is provided to him for making a good quality DPR. During the year, consultation meetings were held for Saundatti PSP (1600 MW) in Karnataka, UP 01 (3660 MW) in Uttar Pradesh, Musakhand PSP (600 MW) in Uttar Pradesh, Gandikota PSP (1000 MW) in Andhra Pradesh, Kuri Gongri in Bhutan (2800 MW), Shoma PSP (2400 MW) in Uttar Pradesh, Subansiri Upper (1605 MW) in Arunachal Pradesh, Karjat (saidongar-1) PSP (3000 MW) in Maharashtra, Bilaspur PSP (1000 MW) in Chhattisgarh, Hasdeo bango PSP (800 MW) in Chhattisgarh, Panaura PSP (1500 MW) in Uttar Pradesh, Chichlik PSP (1560 MW) in Uttar Pradesh, Jhariya PSP (1620 MW) in Uttar Pradesh, Kurung (320 MW) in Arunachal Pradesh, Balimela PSP (500 MW) in Odisha, Upper Kolab PSP (600 MW) in Odisha, Idukki Extension (800 MW) in Kerala, Dulhasti St-II (260 MW) in J&K, Kamala (1720 MW) in Arunachal Pradesh, Anjaw (270 MW) in Arunachal Pradesh, Oju (2220 MW) in Arunachal Pradesh, Maval (saidongar-2) PSP (1200 MW) in Maharashtra, Amalpada PSP (300 MW) in Gujarat, Juni Bavli PSP (450 MW) in Gujarat, Shahpur PSP (1800 MW) in Rajasthan, Rayavaram PSP (1500 MW) in Andhra Pradesh, Gadikota PSP (1200 MW) in Andhra Pradesh, Owk PSP (800 MW) in Andhra Pradesh, Singanamala PSP (800 MW) in Andhra Pradesh, Upper Karnali (900 MW) in Nepal, SR-6 (460 MW) in Nepal, Rouni PSP (2100 MW) in Chhattisgarh, Satkashi PSP (330 MW) in Gujarat, Kamod PSP (2700 MW) in Maharashtra, Teesta-III (1200 MW) in Sikkim, Demwe Upper St-I (270 MW) in Arunachal Pradesh, Niare (909 MW) in Arunachal Pradesh, Upper Bhavani PSP (1000 MW) in Tamil Nadu, Masinta PSP (1000 MW) in Odisha & Ghosla PSP (2000 MW) in Maharashtra DPRs of 27 nos. of HEPs & PSPs with aggregate installed capacity of 21912.90 MW have so far been prepared in consultation with appraising agencies since 2014 and submitted for further examination in CEA/ CWC and out of which

DPRs of 21 HEPs & PSPs with aggregate installed capacity of 19630 MW have been concurred by CEA. DPRs of Upper Indravati PSP (600 MW), Sharavathy PSP (2000 MW), Bhavali PSP (1500 MW), Bhivpuri PSP (1000 MW), MP30 Gandhi Sagar PSP (1920 MW) and Chitravathi PSP (500 MW) have been prepared and concurred by CEA during the period of 2024-25. In addition, a total of 13 HEPs with aggregate capacity of 19239 MW and 49 Pumped Storage Projects with aggregate capacity of 66010 MW (having cost of more than Rs.1000 Crores) are presently under Survey & Investigation in the country and DPRs of these are to be submitted to CEA for concurrence.

## 5.6 Project Planning & Optimization Studies

- Power Potential Studies of Brahmani PSP (600 MW), Musakhand PSP (600MW), Shoma PSP (2400MW), Subansiri Upper HEP (1605 MW), Upper Karnali HEP (900 MW), Soma PSP (2400MW), Panaura PSP (1500MW), Serula PSP (960 MW), Juni Kyaliwel (300MW), Amalpada PSP (300MW), Juni Bavali PSP (450MW), Satkashi PSP (330MW), Bilaspur PSP (1000MW), Koyna Nivakane PSP (2700MW), Kamod PSP (2000MW), Ghosla PSP (2000MW), Bhivpuri PSP (1000 MW), Malshej Ghat Bhorande PSP (1500 MW), Warasgaon Warangi (1500 MW), Shirwata PSP (1800 MW), Indirasagar- Omkareshwar PSP (525 MW), MP 30 Gandhisagar PS (1920 MW), Naba HEP (1082 MW), Kalai-II HEP (1200 MW), Attunli HEP (680 MW), Anjaw HEP (270 MW), Arakot- Tiuni HEP (81 MW), Chitravathi PSP (500MW), Gandikota PSP (1000 MW), Teesta Intermediate stage HEP (90 MW), Bairasiel HEP (180 MW), Kirthai -II HEP (820 MW) and West Seti HEP (800 MW) have been carried out.

## 5.7 Studies & Other Activities Related to HydroPower Planning

- A committee has been constituted by MoP under the chairmanship of Chairperson, CEA to discuss the issues related to operationalization of 1200 MW Sardar Sarovar Pumped Storage Project. In this regard, two meeting of the committee have been held.

- Implementation of Early Warning System in Hydro projects is being monitored in CEA on monthly basis.
- Matter related to Internal Committee on Upper Siang MPP constituted by DoWR, RD& GR and prepared report.
- Report on Tentative Capacity Addition of Hydro Projects (Above 25 MW) likely to be commissioned during 2025-26 to 2031-32.
- Waiver of ISTS charges extended to PSPs for which construction work is awarded up to 30.06.2025, subject to certain conditions. Subsequently, part waiver of ISTS charges, in steps of 25% from 01.07.2025 to 01.07.2028, have been extended for PSPs for which construction work is awarded up to 30.06.2028.
- Waiver of ISTS Charges on the transmission of power from new Hydro Power Projects, for which construction work is awarded and PPA is signed on or before 30.06.2025. Subsequently, part waiver of ISTS charges, in steps of 25% from 01.07.2025 to 01.07.2028, have been extended for HEPs for which construction work is awarded and PPA is signed up to 30.06.2028.
- Ministry of Power has notified Guidelines to promote development of Pumped Storage Projects in the country on 10th April, 2023. Keeping in view the immense utility of the PSPs in grid stabilization as well as meeting the peaking power demand, guidelines have been formulated to promote PSPs and set the direction of its development. The Ministry seeks to promote the development of PSPs across the country with proactive support of the State Governments.
- The CEA has published revised Guidelines for Formulation and Concurrence of DPR of PSPs. Under the revised guidelines, the timeline for concurrence of DPR has been reduced from 90 days to 50 days for all type of PSPs.
- The development of Digital Portal for Fast Tracking of S&I of Concurrence of DPR in association with M/s NHPC is under finalization.

## 5.8 Co-operation with Neighboring Countries in Hydro Power

During the year, following works were handled in connection with development of water resources of the common rivers of India and neighboring countries of Bhutan, Nepal etc. for mutual benefits:

- Power Potential Chapter of Pre DPR of WEST Seti HEP (800 MW) of Nepal has been carried out.
- Cost of E&M works of Sankosh HEP for 2585 MW vetted.

## 5.9 Hydro Power Plants Performance & Operation Monitoring

- The report “Review of Performance of Hydro Power Stations” for the year 2024-25, is in the process of completion. Performance of hydro units (above 25 MW) would be analyzed in respect of their outages & generation in this report.
- Month-wise/station-wise hydro generation targets for year 2025-26 in respect of all the HE Stations (above 25 MW) in the country were finalized as 155.67 BU in consultation with the hydro power utilities. The total generation from hydro stations in 2024-25 was 148.63 BU against original programme of 147.71 BU.

## 5.10 Hydel Generation Performance during year 2024-25

Region	Generation (BU)		Deviation (+/-)
	Programme	Actual	(%)
Northern	80.88	76.48	-5.4
Western	16.57	19.69	18.8
Southern	30.87	33.96	10.0
Eastern	12.22	11.22	-8.2
N-Eastern	7.15	7.27	1.7
<b>All India</b>	<b>147.71</b>	<b>148.63</b>	<b>0.6</b>

## 5.11 Renovation & modernisation (R&M) of hydro electric projects

Renovation & Modernization, Uprating and Life Extension (RMU&LE) of the existing old hydroelectric power projects is considered a cost effective option to ensure optimization of resources, efficient operations, and better availability and also to augment (uprating) capacity addition in the country.

Recognizing the benefits of R&M of hydroelectric power projects, Govt. of India set up a National Committee in 1987 and a Standing Committee in 1998 and thereafter had identified the projects/schemes to be taken up for implementation under R&M. The National Perspective Plan document for R&M of hydroelectric power projects in the country was also prepared in CEA during the year 2000. The status of various projects/schemes already identified for implementation/completion till the end of XI Plan, i.e. March, 2012 has been incorporated in the National Perspective Plan.

### 5.11.1 Achievements During VIII, IX, X XI and XII Plan and Period 2017-22:

The R&M works at 118 (26 in Central and 92 in State Sector) hydro power plants (13 up to the VIII Plan, 20 in the IX Plan, 32 in the X Plan, 18 in the XI Plan, 21 in the XII Plan & 14 during 2017-22) with an aggregate installed capacity of 22634.7 MW had been completed by the end of the year 2017-22 and total a benefit of 4139.56 MW through Life Extension (LE), Uprating (U) and Restoration had been accrued.

### 5.11.2 Programme and Achievements during the period 2022-27:

The Renovation, Modernization, Uprating and Life Extension works at 49 Hydro Electric Plants (HEPs) with an aggregate installed capacity of 8765.9 MW is programmed for completion during the year 2022-27 with its break-up as 2228.8 MW through R&M at 14 HEPs, 5294.1 MW through Life Extension at 26 HEPs and 1243 MW through Life Extension and Uprating at 09 HEPs. The 09 HEPs where both Life Extension & Uprating are envisaged, the aggregate

installed capacity of 1243 MW shall get updated after completion of R&M works to 1400.5 MW resulting in additional benefit of installed capacity of 157.5 MW. As such, the revised aggregate installed capacity after completion of RMU&LE works of these 49 projects would be 8923.40 MW. The State-wise list of hydro R&M schemes expected for completion during the year 2022-27 is given at **Annexure-5E**.

Out of these 49 schemes, Eleven (11) Schemes with an aggregate installed capacity of about 2590.8 MW have been completed till March, 2025 which has resulted in benefit of 1301 MW through Life Extension and 90 MW through Uprating.

### 5.11.3 Programme for the year 2024-25

For the year 2024-25, it was programmed to complete following 10 schemes having capacity under R&M of 1268 MW. On completion of these schemes, there was to be a benefit of 783 MW through Life Extension and 6 MW through Uprating.

S. No.	Name of Scheme, Utility/Agency	Capacity under R&M (in MW)	Category	Cost (in Rs. Crores)	Benefit
1.	Obra, UPJVNL	3x33	RM&LE	58.80	99(LE)
2.	Shivasamudram KPCL	6x3+4x6	RM&LE	169.18	42(LE)
3.	Kadra Dam Power House KPCL	3x50	R&M	44.47	-
4.	Kodasalli Dam Power House KPCL	3x40	R&M	50.60	-
5.	Supa Dam Power House, KPCL	2x50	R&M	47.91	-
6.	Sabagiri (U-6&U-2)KSEB	1x60+1x55	R&M	-	-
7.	Moyar PH, TNPGL	3x12	RMU&LE	121.12 7	36 (LE)+ 6 (U)
8.	Balimela OHPC	6x60	RM&LE	382.91	360(LE)
9.	Khadong Power station	2x23	RM&LE	277.74	46(LE)
10.	Kopili Power Station, NEEPCO	4x50	RM&LE	1075.1 9	200 (LE)

### 5.11.4 Achievements during the year 2024-25

R&M works of the following one (1) Scheme with an aggregate installed capacity of about 200 MW have been completed during the year 2024-25 which

has resulted in benefit of 200 MW through Life Extension:

S. No.	Name of Scheme, Utility/Agency	Capacity under R&M (in MW)	Category	Cost (in Rs. Crores)	Benefit
1	Kopili Power Station, NEEPCO	4x50=200 MW	RM&LE	1201.65	200(LE)

Extension works at 32 Hydro Electric Plants (HEPs) with an aggregate installed capacity of 5161.20 MW is programmed for completion during 2027-32 through Life Extension and Upgrading. The State-wise list of hydro R&M schemes expected for completion during 2027-32 is given at **Annexure-5F**.

### 5.11.5 Programme during the period 2027-32

The Renovation, Modernization, Upgrading and Life

**Plan-wise summary of R&M of H.E. Projects starting from VIII Plan is given below:**

#### Summary of R&M of Hydro Electric Projects

##### I Hydro R&M schemes completed up to 2022

Sl. No.	Plan Period	No. of Projects			Installed Capacity (MW)	Actual Expenditure (Rs. in Crs)	Benefit (MW)
		Central Sector	State Sector	Total			
1.	Upto VIII Plan Schemes	2	11	13	1282.00	127.37	429.00 [39.00(U) + 54.00(LE) + 336.00(Res.)]
2.	IX Plan Schemes	8	12	20	4892.10	570.16	1093.03 [339.00(U) + 423.00(LE) + 331.03(Res.)]
3.	X Plan Schemes	5	27	32	4446.60	1029.24	827.73 [122.05(U) + 701.25 (LE) + 4.43(Res.)]
4.	XI Plan Schemes	4	14	18	5841.20	294.84	735 [12 (U) + 708 (LE) + 15 (Res.)]
5.	XII Plan Schemes	2	19	21	4149.60	1146.02	549.40 [58 (U) + 476.40 (LE) + 15(Res.)]
6.	2017-2022	5	9	14	2023.2	848.68	505.4 [479.2(LE) + 26.2(U)]
	<b>Total</b>	<b>26</b>	<b>92</b>	<b>118</b>	<b>22634.7</b>	<b>4016.31</b>	<b>4139.56</b> [596.25 (U) + 2841.85 (LE) + 701.46 (Res.)]

**Abbreviations:**

MW – Mega Watt; Res. – Restoration; U – Uprating; LE – Life Extension;

**II Hydro R&M Schemes during 2022-27:**

Sl. No.	Category	No. of Projects			Capacity covered under RMU&LE (MW)	Benefit (MW)
		Central Sector	State Sector	Total		
1.	Programmed	6	43	49	8765.90	6694.6 [6537.10 (LE)+ 157.5 (U)]
	Completed	2	9	11	2500.8	1391 [1301 (LE)+ 90 (U)]
2.	Under Implementation	3	17	20	3140.75	2477.25 [2441.75 (LE)+ 35.5 (U)]
3.	Under Tendering	1	2	3	312	218 [212 (LE)+ 06 (U)]
4.	Under DPR Preparation/ Finalization/ Approval	0	4	4	955	961 [955 (LE)+ 6(U)]
5.	Under RLA Studies	0	11	11	1857.35	1647.35 [1627.35 (LE)+ 20 (U)]

**III Programme of R&M works during 2027-32:**

Sl. No.	Category	No. of Projects			Capacity covered under RMU&LE (MW)	Benefit (MW)
		Central Sector	State Sector	Total		
1.	Programmed	5	27	32	5161.2	5267.03 [5161.20 (LE)+ 105.83(U)]
2.	Under Implementation	0	1	1	144	156[144(LE)+12(U)]
3.	Under Tendering	1	2	3	751	835.83 [751(LE) + 84.83(U)]
4.	Under DPR Preparation/Finalization/ Approval	0	6	6	1058	1067 [1058 (LE)+ 9 (U)]
5.	Under RLA Studies	4	18	22	3208.20	3208.20 [3208.20(LE)+ 0(U)]

**Abbreviations:**MW – Mega Watt; Res. – Restoration; U – Uprating; LE – Life Extension;  
RLA- Residual Life Assessment

**5.11.6 Appraisal of DPR for existing R&M schemes based on direction/ request of MoP/ CERC/ State Power Utilities during the year 2024-25:**

DPR of Renovation, Modernization and Uprating (RMU) along with Life Extension of Pong Power House 396 MW (6x66 MW) (Existing) to 450 MW (6x75 MW), Himachal Pradesh, BBMB has been appraised during 2024-25.

**5.12 Concurrence / Appraisal of Hydro Schemes**

During 2024-25 (till 31.03.2025) ,DPR of 6 HE Schemes with an installed capacity of 7520 MW has been concurred by CEA. Details are given as under:

S. No.	Name of Scheme/ State/ Executing Agency	Installed Capacity (MW)
1.	Upper Indravati PSP in Odhisa by OHPC	4X150
2.	Sharavathy PSP in Karnataka by KPCL	8x250
3.	Bhavali PSP in Maharashtra by JSW Energy PSP Two Ltd.	5x250 + 2x125
4.	Bhivpuri PSP in Maharashtra by TATA Power Company Ltd.	4x200 + 2x100
5.	MP30 Gandhisagar PSP in Madhya Pradesh by Greenko MP01 IREP Private Ltd.	7x240 + 2x120
6.	Chitravathi PSP in Andhra Pradesh by Adani Renewable Energy 42 Ltd.	2x250

### 5.13 Computerization in CEA

All Divisions and Sections of CEA have been equipped with the latest IT infrastructure. All computers of CEA office at Sewa Bhawan and West Block-II are interconnected through wired network. The important statistics/data/information of CEA is uploaded in bilingual (English & Hindi) website of Central Electricity Authority for global access. The content of this website is updated on daily basis. [Cea.nic.in](http://Cea.nic.in) is a bilingual and GIGW (*Guidelines for Indian Government Websites*) compliant website.



The website provides organizational information, online access to notified regulations of CEA, various published CEA reports and power sector specific information dashboard.

During 2023-24, following new sections/features have been implemented on CEA Website:

- Dedicated vigilance corner
- Dedicated webpage for Cross Border Approvals
- Implementation of Google Analytics on CEA website for tracking user behaviour.

### 5.14 National Power Data Management System (NPDMS) / National Power Portal (NPP)

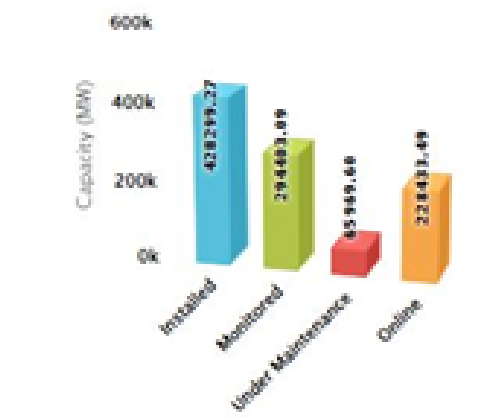
- Hon'ble Minister of State (I/C) for Power and New & Renewable Energy

launched the National Power Portal (NPP) on 14.11.2017 with the vision of creating a central hub for collection and dissemination of all Power Sector data.

- The NPP Dashboard has been designed and developed to disseminate the information of power sector and provide visualization chart windows on capacity, generation, transmission, and distribution at National, State, DISCOM, town, feeder level.
- The NPP facilitates online capture of input information from entire power value chain; generation, transmission, and distribution utilities in the country on daily, monthly and annual basis.
- The NPP is integrated with associated systems of Central Electricity Authority (CEA), Power Finance Corporation (PFC), Rural Electrification Corporation (REC) and other major utilities and serve as single authentic source of power sector information to apex bodies, utilities for the purpose of analysis, planning, monitoring as well as for public user. The system is available 24x7 and ensures effective and timely collection of data. It has standardized data parameters and formats for seamless exchange of data between NPP and respective systems of utilities.
- The stakeholders of NPP are Ministry of Power (MoP), CEA, PFC for Integrated Power Development Scheme (subsumed in Revamped Scheme), REC for Deen Dayal Upadhyaya Gram Jyoti Yojana (subsumed in Revamped Scheme), other power sector utilities in government as well as private sector, Apex Bodies, other government organizations and public users. Central Electricity Authority is the nodal agency for NPP.

- NPP captures data and displays following information:

**Installed Capacity:** Information pertaining to total / sector-wise / category-wise Installed Capacity of generating units.



Category wise Installed Capacity

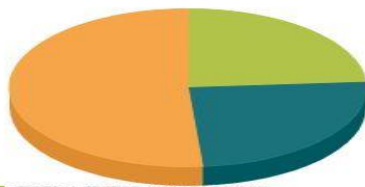
Total Capacity : 428299.28 MW



Thermal	(240022.92) MW
Hydro	(46910.17) MW
Nuclear	(7480.00) MW
Wind Power	(44736.25) MW
Small Hydro Power	(4986.75) MW
Bio Power	(10844.70) MW
Solar Power	(73318.49) MW

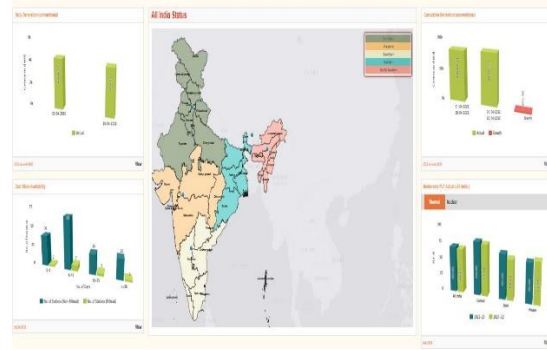
Sector-wise Installed Capacity

Total Capacity : 428299.27 MW

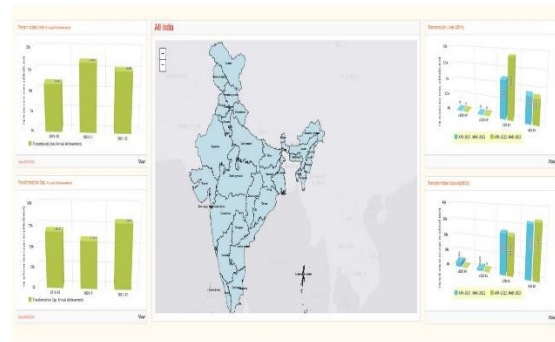


CENTRAL SECTOR	(102274.93) MW
STATE SECTOR	(106332.93) MW
PVT SECTOR	(219691.41) MW

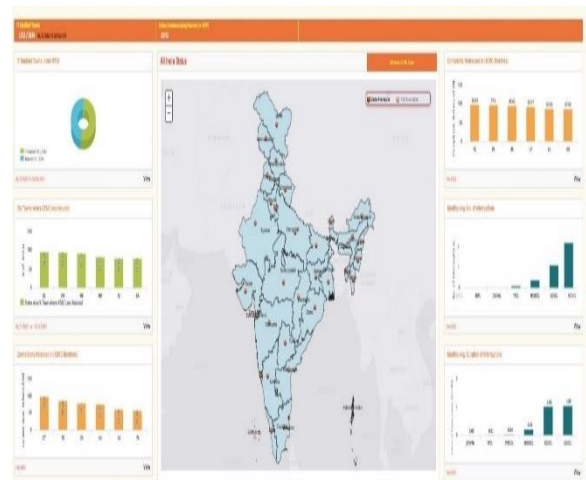
**Daily Generation:** Information pertaining to Daily Conventional generation, Cumulative Generation, Daily Coal Stock availability, Sector wise PLF.



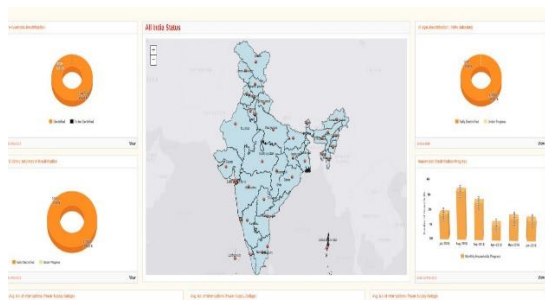
**Transmission:** Displays information on Transformation Capacity (in MVA) and total length of transmission lines (in CKM).



**Urban Distribution:** Captures and displays information of IT Enabled Towns, Towns where AT&C loss has been reduced, Connections Released, Complaints Redressed, Monthly Avg. No. of Interruptions, and Monthly Avg. Duration of Interruptions.

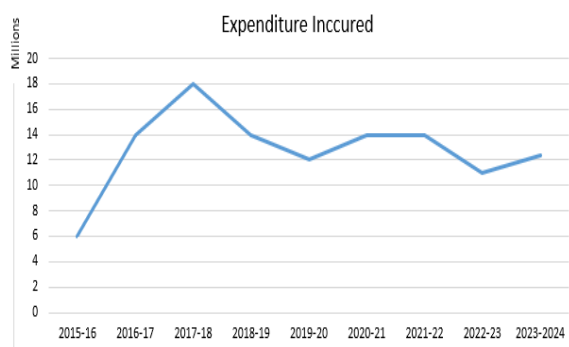


**Rural Distribution:** Captures and displays information about rural power supply. Access to backend data inputs has been given to States/UTs for further granular analysis for adoption of promotion of data-based policy making and decisions.



**Reports:** NPP facilitates various types of reports i.e. Generation Reports, Coal Reports, Transmission Line reports and Installed Capacity reports required to be published regularly.

**Expenditure incurred in NPP project:** Year-wise breakup of expenditure in NPP project is as under:



**Portals under NPP**

**UPADHI Portal:** Monitoring Platform for Consumer Rules (DISCOM) provides a framework of Visible Monitoring to ensure the compliance of Consumer Rights by the Discoms. This portal is hosted under NPP and launched by Hon’ble Minister of Power & New Renewable Energy on 11.07.2023.

**DRIPS Portal:** Disaster Resources Inventory for Power Sector (DRIPS) portal will serve as a single point of contact for all the designated nodal officers of power sector departments and agencies in the affected districts, states and at national level for managing the inventory of specific Power System equipment and critical supplies much needed for an emergency response. It will be made available for public shortly.

**NPP APIs:** Datasets are also exchanged between NPP and the portals of other agencies. APIs have been developed to provide NPP data to NITI Aayog and Ministry of Coal.

**5.15 E-Office in CEA**

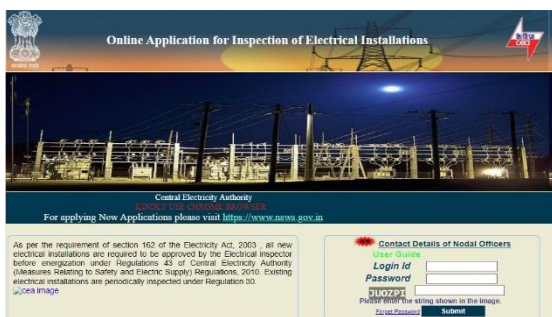
For conducting file and letter handling processes in more efficient and transparent manner, e-office migration from NIC server to Railtel server has been successfully accomplished by CEA in 2023-24. During this process eOffice URL has been changed to <https://eoffice.cea.gov.in>. The eOffice application is hosted on the Cloud of Railtel which provides features like e-sign for ascertaining authentication & non-repudiation, role-based work flow, tracking and searching facility, etc. Migration of CEA eOffice from version from 6.3 to 7.x is being done in 2024-25. This upgradation is being carried out to include advanced features of eOffice and for this training has been provided to CEA officers/staff.

**5.16 Digitization of Approvals / Clearances given by CEA**

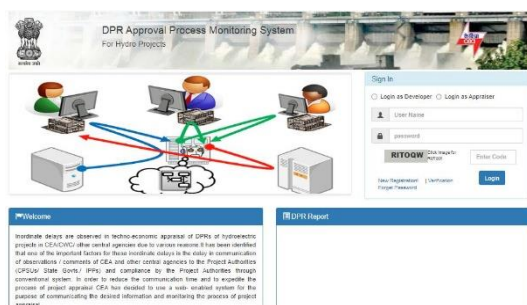
As per the direction of Project Monitoring Group of Cabinet Secretariat, online portal for the following approvals/ clearances,

given by Central Electricity Authority, have been implemented:

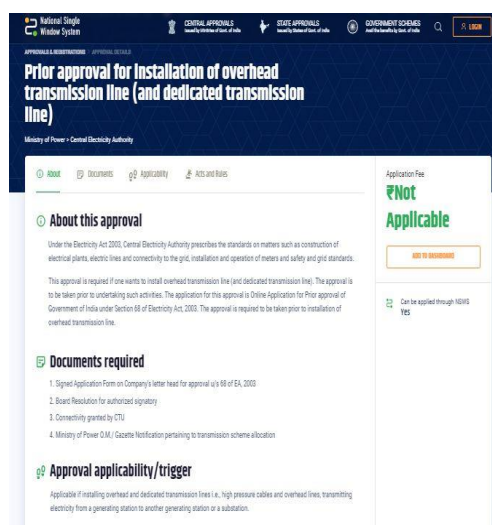
- Online Application portal for Inspection of Electrical Installations



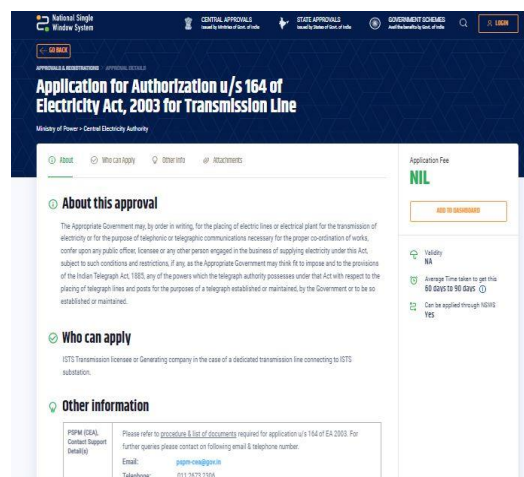
- DPR Approval Process Monitoring System for Hydro Projects



- Prior Approval of GoI for installation of transmission lines as per Section 68 of the Electricity Act 2003



- Authorization u/s 164 of Electricity Act, 2003 for Transmission Lines



The digitization of approval/clearance processes is ensuring transparency and timely approval by CEA. This also facilitates developers to track the status of their application. Further, National Single Window System (NSWS) is a digital platform with the aim to include all Govt. approvals at one place for ease of doing business. In this regard, Central Electricity Authority has integrated its above-mentioned clearances portal with NSWS.

### 5.17 Dedicated intranet portal of CEA

Intranet portal of CEA is hosted at <https://intranet.cea.gov.in>. This portal is accessible within as well as outside the NIC network. Internal information of the organization like presentations / forms / posting orders / leave orders / internal circulars etc. are shared through this portal.

### 5.18 Procurement Related Activities

- Centralised procurement of all Regional Power Survey Offices (RPSOs), Regional Inspectorate Offices (RIOs) and CEA Headquarter is being done by IT Cell & Procurement Division of CEA.

Mostly procurement of Goods, Works & Services is being done through GeM portal and their payments are being made via PFMS.

## **5.19 COMPUTER SECURITY INCIDENT RESPONSE TEAM – POWER, CEA**

### **Introduction:**

In order to handle potential cyber threats and improve cyber posture of the power sector, in line with the National Cyber Security Policy, Ministry of Power in collaboration with CERT-In, initiated an action for creation of a specialized Computer Security Incident Response Team for the power sector (CSIRT-Power). The CSIRT – Power, was constituted vide MoP F. No. 1/32/2021/IT&CS (258359) dated 05.04.2023 as an extended arm of CERT - In and was set up under Central Electricity Authority (CEA) to help the utilities in handling cyber incidents and improve cyber security preparedness of power sector in totality. The establishment of CSIRT-Power is envisaged to add sector specific insights and suitable analysis of incidents associated with sector.

Hon'ble Union Minister of Power, Shri Manohar Lal, inaugurated the CSIRT–Power at 3rd Floor, NRPC, Katwaria Sarai, New Delhi on 23.09.2024. CSIRT–Power has been made fully functional since then. CSIRT - Power being equipped with advanced infrastructure, cutting - edge cybersecurity tools and dedicated team of experts, is establishing a strong cybersecurity framework through, both proactive and reactive analysis. It has been enabling utilities to tackle emerging threats and in implementing crucial measures to

enhance overall preparedness and resilience of the power sector.

### **Important functions and activities at CSIRT-Power:**

**i. Incident Response:** CSIRT–Power proactively analyses the information available on TSOC dashboard at the Security Operation Center (SOC) and identifies cyber threats and incidents and notifies the same to the utilities for taking suitable measures. In addition, it coordinates with various central agencies like Cert-In, NCIIPC, Intelligence Bureau etc. for cyber incidents in power sector.

**ii. Forensic Analysis:** CSIRT–Power collects forensic artifacts of recommended cyber incidents and carries out Root Cause Analysis (RCA) and assesses the impact of incident. The detailed forensic analysis report is prepared for identified incident along with the recommendations to mitigate the identified gaps.

**iii. Monthly Capsule:** On the basis of detailed forensic analysis of identified cyber incidents in the power sector, a monthly bulletin consisting of details of malicious actors, IP addresses and malware families observed as persistent threats in the incidents along with suitable recommendations are shared with the power sector utilities as a capsule for taking necessary action and strengthening the cyber security posture.

**iv. Capacity Building:** Considering the paramount importance of cybersecurity awareness among power sector professionals, CSIRT-Power actively

coordinates for capacity building programs (Intermediate and Advanced level) in collaboration with premier academia viz. IIT Kanpur, IIT Kharagpur, IISc Bangalore and Rashtriya Raksha University, Gandhinagar. The programs are based on cybersecurity curriculum tailored to needs of power sector, covering aspects of IT and OT security, CEA (Cyber Security in Power Sector) Guidelines and other relevant topics. During the FY 2024-25, **more than 200 power sector professionals have been trained across all sub- sectors** viz. Thermal, Hydro, Transmission, Grid-Operation, and Distribution and RE.

**v. Cyber Security Regulations:** The draft CEA (Cyber Security in Power Sector), Regulations, 2024 were circulated for public comments. The comments received from all stakeholders were analysed and after due deliberations and by incorporating suitable comments thereafter, CEA (Cyber Security in Power Sector), Regulations, 2025 were placed before the Authority. After getting approval from Authority, draft regulations have been forwarded to

Ministry of Law and Justice for legal vetting.

**vi.** CSIRT - Power coordinates with various cyber agencies on matters pertaining to identification and notification of **Critical Information Infrastructure (CII)**, finalization of **Cyber Crisis Management Plan (CCMP)**.

**vii.** CSIRT-Power has issued **Guidelines on Scope of Cybersecurity Audit in the Power Sector** with an intent to ensure the scope of cybersecurity audits in the power sector is as per national and international requirements, standards and baselines and mandate that the audit in power sector is carried out through CERT-In empaneled auditors only.

**viii.** CSIRT-Power has issued **Guidelines on Quality and Cost Based selection (QCBS) criteria for Cybersecurity Auditors** to ensure a systematic approach for the evaluation and selection of auditors, considering their competence and sector specific expertise.

**CHAPTER-6****THERMAL POWER DEVELOPMENT****6.1 New Thermal Power Projects accorded Environment Clearance:****6.1.1 Power Projects accorded Environment Clearance**

During the year 2024-25, Environment clearance has been granted to 07 thermal power project as listed below:

1	Super Critical TPP, Korba (W)	CSPGCL	2x660	1320	26.03.2025
2	New Nabi Nagar- II	NTPC	3x800	2400	28.02.2025
3	Mahan Energen Ph-III	Adani Power	2x800	1600	20.02.2025
4	Raigarh TPS	Adani Power	2x800	1600	01.01.2025
5.	Koderma TPS , PH-II	DVC	2x800	1600	07.12.2024
6	Raipur TPS	Adani Power	2x800	1600	01.11.2024
7	Koradi Replc TPP	MAHAGENCO	2x660	1320	19.09.2024
Total				<b>11,440</b>	

**6.1.2 Power Projects for which Main Plant (BTG) order placed**

During the year 2024-25, order for 24,760 MW thermal capacity have been placed as listed below:

Sl.	Project	Implementing Agency	Plant Configuration	Capacity (MW)	Main Plant (BTG)
1	Darlipalli-II	NTPC	1x800	800	LNTN issued to BHEL , Sept 2024
2	Sipat-III	NTPC	1x800	800	Awarded to BHEL, Sept 2024
3	Raigarh	Adani Power	2x800	1600	Awarded to BHEL in April 2024. (BTG)
4	Mahan Energen Ph-III	Adani Power	2x800	1600	Awarded to BHEL in Aug 2024 (BTG)
5	Koderma TPS , PH-II	DVC	2x800	1600	Awarded to BHEL on July 2024
6	Raipur TPS	Adani Power	2x800	1600	Awarded BHEL, June 2024 (BTG)
7	Mirzapur TPS	Adani Power	2x800	1600	Awarded BHEL, June 2024 (BTG)
8	Kawai	Adani	4x800	3200	Awarded to BHEL in August 2024. (BTG)
9	Telangana Stage II	NTPC	3x800	2400	LNTN issued BHEL, Nov 2024
10	New Nabi Nagar- II	NTPC	3x800	2400	Awarded to L&T, Nov 2024 (BTG)
11	Gadarwara Stage II	NTPC	2x800	1600	LNTN to L&T, Nov 2024 (BTG)

12	Koradi TPP	MSPGCL	2x660	1320	Awarded BHEL, Feb 2025 (BTG)
13	Raghunathpur TPS, PH-II	DVC	2x660	1320	Awarded BHEL, Feb 2025 (BTG)
14	Singareni U#3	SCCL	1x800	800	Awarded BHEL, Feb 2025
15	Super Critical TPP, Korba (W)	CSPGCL	2x660	1320	Awarded BHEL, March 2025
16	Ukai TPP U#7 , Tapi	GSECL	1x800	800	Awarded BHEL, March 2025
<b>Total</b>				<b>24,760</b>	

### 6.1.3 Thermal Power Plants expected to be commissioned by the year 2029-32

**A. Candidate Thermal Power Plants identified by CEA and expected to be commissioned by 2029-32** are furnished below:

<b>A. Central Sector Candidate Projects</b>					
1	Patratu Stage II	NTPC	Jharkhand	2x800	PitHead
2	Meja-II	NTPC-UP-JV	Uttar Pradesh	3x800	Non-PitHead
3	Obra D TPP	NTPC-UP-JV	Uttar Pradesh	2x800	Non-PitHead
4	Anpara E	NTPC-UP-JV	Uttar Pradesh	2x800	Non-PitHead
5	Durgapur TPS	DVC	West Bengal	1x800	PitHead
6	Chandrapura Extn TPS	DVC	Jharkhand	2x800	PitHead
7	Buxar TPP-II	SJVN	Bihar	1x800	PitHead
8	Mahanadi Basin Power	MCL	Odisha	2x800	PitHead
9	TPS-II 2nd Expansion	NLCIL	Tamil Nadu	2x500	PitHead
10	NLC Talabira STPS	NLCIL	Odisha	1x800	PitHead
<b>Subtotal Central Sector</b>				<b>13,800 MW</b>	
<b>B. State Sector Candidate Projects:</b>					
1	Chandrapur TPP	MAHAGENCO	Maharashtra	1x800	PitHead
2	Pirpanthi	BSPGCL	Bihar	3x800	PitHead
3	IB Valley Extn St-III, (U#5 & 6)	OPGC	Odisha	2x660	PitHead
4	Amarkantak TPS	MPPGCL	Madhya Pradesh	1x660	PitHead
5	Santaldih TPS, St-II, U#3 & 4	WBPDC	West Bengal	2x800	PitHead
6	Barkeshwar TPS, St-II, U#3	WBPDC	West Bengal	1x660	PitHead
7	Godna TPS	KPCL	Chhattisgarh	2x800	PitHead
8	Tenughat St II	TVNL	Jharkhand	2x660	PitHead
9	Durgapur Projects Limited.	DPL	West Bengal	1x660	Non-PitHead

10	Satpura TPP (Sarni) U#12	MPPGCL	Madhya Pradesh	1x660	Non-PitHead
11	Satpura TPP U#13 Phase-V	MPPGCL	Madhya Pradesh	1x660	PitHead
<b>Sub Total State Sector</b>				<b>12,340 MW</b>	
<b>C. Private Sector Candidate Projects:</b>					
1	NSL, Nagapatnam Poier and Infrastructure Ltd., Talcher, Angul ,OD	NSL	Odisha	2x660	PitHead
2	Ind Bharat Extn.	JSW	Odisha	1x800	PitHead
3	Anuppur	M B Power	Madhya Pradesh	2x800	PitHead
4	Lalitpur	Bajaj	Uttar Pradesh	3x800	Non-PitHead
5	Salboni STPP	JSW	West Bengal	2X800	Non-PitHead
<b>Sub Total Private Sector</b>				<b>7,720 MW</b>	

## 6.2 Captive Coal Blocks Allocated to Power Sector

As on Mar'25, 49 nos. of Coal Blocks are allocated to the Power Sector. 33 nos. of coal blocks are producing coal. 16 nos. of coal blocks are in development. The total nos. of coal blocks allotted to the Central Sector is 12 nos., State Sector is 33 nos., Private sector is 02 nos. and UMPP is 02 nos. Captive mines allocated to Power Sector produced 120.88 MT of coal against a target of 126.52 MT for FY 2023-24. For FY 2024-25, the captive coal production was 154.16 MT against the target of 153.77 MT.

## 6.3 Linkage under SHAKTI Policy, 2017

Ministry of Coal in May 2017 formulated a new policy for the allocation of coal to the power sector named SHAKTI (Scheme for Harnessing and Allocating Koyala transparently in India), 2017. Since, the inception of the policy, coal linkage has been accorded to various Govt. /Private power utilities under its various provisions/clauses. Status up to March-2025 is as under

### 6.3.1 Shakti Policy Para B (i):-Policy:-

CIL/SCCL may grant Coal linkages for Central Government, State Government Gencos and JVs formed between or within CPSUs and State Govt./PSUs at the notified price of CIL/SCCL.

**Achievement:** Till Mar'25, SLC (LT) has accorded coal Linkage to 54 nos. Thermal Power Projects totaling 63,810 MW to Central /State GENCOs. In FY 2024-25, 7 nos. of Thermal Projects of capacity 5,130 MW have been allocated long term linkage.

### 6.3.2 Shakti Policy Para B (ii): Policy:-

CIL/SCCL may grant coal linkages on notified price on auction basis for power producers/IPPs having already concluded long term PPAs (both under section 62 and section 63 of The Electricity Act, 2003) based on domestic coal.

Round of auction under Para B(ii)	Coal Qty booked (in G13 Grade) (MTPA)	Number of successful bidders and maximum discount offered on tariff
1st Round (Sep'17)	32.68	10 plants, Max discount 4 Paisa
2nd Round (May'19)	3.335	8 plants, Max Discount 7 Paisa
3rd Round (May'20)	3.466	5 plants, Max Discount 10 Paisa
4th Round (Sept'21)	3.819	5 plants, Max discount 12 paisa
5th Round (Dec'22)	0.058	2 plants, Max Discount 12 Paisa
6th Round (Dec'23)	2.935	7 plants, Max Discount 19 Paisa

### 6.3.3 Shakti Policy Para B (iii): -

**Policy:-** CIL/SCCL may grant future coal linkages on auction basis for power producers /IPPs without PPAs that are either commissioned or to be commissioned. All such power producers/IPPs may participate in this auction and bid for premium above the notified price of the coal. Coal drawl will be permitted only against valid long term and medium-term PPAs, which the successful bidder shall be required to procure and submit within two years of completion of auction process.

**Achievements:-** Six rounds of auctions for coal linkage under Shakti B (iii) have been held till Mar'25.

Round of auction under Para B (iii)	Coal Qty booked (in G13 Grade) (MTPA)	Premium offered in the auction
1 <sup>st</sup> Round, Feb'2020	7.15	Average premium is 8.5%.
2 <sup>nd</sup> Round, May'2022	7.01	Average premium is 2%.
3 <sup>rd</sup> Round, Sept'2022	5.57	Premium is Zero.
4 <sup>th</sup> Round,	4.87	Average premium

Jan'2023		is 1.88%.
5 <sup>th</sup> Round, Dec'2023	7.636	Average premium is 4.6%.
6 <sup>th</sup> Round, Sept'2024	12.37	Average Premium is Zero

### 6.3.4 Shakti Policy Para B (IV): -

**Policy:-** In this clause coal linkage may be earmarked to the states for fresh PPAs, by pre-declaring the availability of coal linkage with description. States may indicate these linkages to Discoms/State Designated Agencies (SDA). The States/Discoms may, based on such linkage, undertake tariff based competitive bidding for long-term and medium-term procurement of Power.

**Achievements:-** Till Mar'25, SLC (LT) has earmarked coal Linkage to 11 nos. of states for a capacity of 28,977 MW. In FY 2024-25, coal have been earmarked to 09 nos. of States for a capacity of 20,520 MW

### 6.3.5 Shakti Policy Para B (v): -

**Policy:-** In this clause, Power requirement of group of States can be aggregated and procurement of such aggregated power can be made by an agency designated by Ministry of Power or authorized by such States on the basis of tariff based bidding. Coal linkages will be earmarked for such agencies by pre-declaring the availability of coal linkage with description, based on which such agency will undertake tariff based competitive bidding for long-term and medium-term procurement of power and recommend grant of these linkages to successful bidders.

**Achievements:-** Under this clause, in FY 24-25, PFCCCL (designated agency by MoP) did not invite bids.

### 6.3.6 Shakti Policy Para B (viii) (a):

**Policy: -**

All such power plants including private generators which do not have PPAs, shall be allowed coal linkage under SHAKTI Policy for a period of minimum 3 months and upto a

maximum of 1 year, provided further that the power generated through that linkage is sold through any product in power exchanges or in short term through a transparent bidding process through Discovery of Efficient Energy Price (DEEP) portal.

#### **Achievements: -**

Twenty One rounds of auctions by CIL and one round of auction by SCCL for coal linkage under SHAKTI B (viii) (a) have been held so far upto March-2025:

<b>Tranches no. of auction under Para B(viii)(a)</b>	<b>Coal Qty booked (in G13 Grade) (MTPA)</b>	<b>Number of successful bidders and premium offered/ton</b>
Tranche-1 (Apr-Jun'20)	1.34	9 plants, Premium NIL
Tranche-2 (July-Sep'20)	0.63	8 plants, Premium NIL
Tranche-3 (Oct-Dec'20)	0.35	6 plants, Premium NIL
Tranche-4 (Jan-Mar'21)	0.64	7 plants, Avg. Premium 1.4%
Tranche-5 (Apr-Jun'21)	1.07	8 plants, Avg. Premium 0.4%
Tranche-6 (July-Sep'21)	0.82	8 plants, Premium NIL
Tranche-7 (Oct-Dec'21)	1.81	8 plants, Avg. Premium 1.2%
Tranche-8 (Jan-Mar'22)	1.45	11 plants, Avg. Premium 2.95%
Tranche-9 (Apr-Jun'22)	6.13	16 plants, Avg. Premium 152%
Tranche-10 (Jul-Sep'22)	4.25	27 Plants, Avg. Premium 320%
Tranche-11 (Oct-Dec'22)	6.01	22 Plants, Avg. Premium 133%
Tranche-12 (Jan-Mar'23)	5.39	26 Plants, Avg. Premium 139%
Tranche-13 (Mar-May'23)	3.67	21 Plants, Avg. Premium 38%
Tranche-14 (May-Jul'23)	3.49	25 Plants, Avg. Premium 24%
Tranche-15 (Aug-Oct'23)	4.82	28 Plants, Avg. Premium 60%
Tranche-16 (Oct'23-Mar'24)	10.6	33 Plants, Avg. Premium 42%
Tranche-17 (Nov'23-Jan'24)	2.09	16 Plants, Avg. Premium 15%
Tranche-18 (Apr'24-Mar'25)	18.5	29 Plants, Avg. Premium 2.6 %

Tranche-19 (May'24-Jul'24)	1.03	14 Plants, Avg. Premium 1%
Tranche-1 SCCL (Aug'24-Jul'25)	0.4	1 Plant, Avg. Premium 0%
Tranche-20 (Jul'24-Dec'24)	2.37	18 Plants, Avg. Premium 12.35%
Tranche-21 (Oct'24-Dec'24)	2.66	20 Plants, Avg. Premium 0.34%

### **6.4 Bridge Linkage**

Ministry of Coal vide Office Memorandum dated 08.02.2016, had issued policy guidelines for grant of bridge linkage to End Use Plants (EUPs) of Central and State public sector undertakings which have been allocated Coal Mines/Coal Blocks. Based on these guidelines, 35 nos. Thermal Projects totaling 39,870 MW were granted Bridge Linkage. It includes 17,980 MW Operational Bridge Linkage to 18 TPPs during the FY 2024-25.

### **6.5 Use of Treated Sewage Water by TPS under Tariff Policy-2016:**

As per Tariff Policy dated 28.01.2016, notified by Government of India, sewage treated water is to be used by Thermal Power Plants (Thermal Power Plants which are located within 50 Kms from Sewage Treatment Plants) for cooling purpose. Accordingly, MoP/ Central Electricity Authority (CEA) is exploring the feasibility for the usage of Sewage Treated Water by Thermal Power Plants for cooling purpose. Presently, 09 nos. of Thermal Power Stations with a total capacity of 10611 MW are utilizing 639 MLD of STP water i.e. Koradi TPS, Khaperkheda TPS, Sinnar TPP Phase-I & Chandrapura TPP in Maharashtra, Pragati CCGP & Pragati-III in Delhi, Bhavnagar Lignite TPS in Gujrat and Yelahanka CCP in Karnataka and Jojobera TPS in Jharkhand are utilizing STP water. Also, 02 nos. of Thermal Plants (3580 MW) have successfully placed the order for construction of the projects (Tertiary Treatment Plant and Pipeline). Quantum of

STP water associated with these projects amounts to 90 MLD.

## 6.6 Mega Power Project

### Certificate:

Recommendation to MoP for issuance of proportionate Mega Certificate to provisional Mega Power Projects for release of Proportionate Bank Guarantee/FDRs. So far, the following 6 projects have been granted proportional Mega Certificate:

- i. MB (Madhya Pradesh) Power Ltd
- ii. DB Power Ltd
- iii. RKM Powergen Pvt. Ltd.
- iv. IL&FS Tamil Nadu Energy Ltd.
- v. Adani Power Limited, Raipur TPP
- vi. Sembcorp Energy India Limited

## 6.7 Ultra Mega Power Projects (UMPPs):

Government of India through Ministry of Power launched the initiative of Ultra Mega Power Projects (UMPPs) i.e. 4,000 MW super thermal power projects (both pit head and imported coal based) in November 2005 with the objective to develop large capacity power projects in India. Central Electricity Authority (CEA) has been designated as Technical Partner and Power Finance Corporation Ltd (PFC) as the Nodal Agency to facilitate the development of these projects.

### 6.7.1 Present Stance of MoP, GoI on development of new UMPP:

Presently, no UMPP is under construction. As the country is undergoing energy transition from fossil fuel to non-fossil fuel, Ministry of Power vide OM dated 12.11.2021, decided to defer any action on formulation of UMPP Bidding framework as of now. Therefore, no project activities related to development of UMPP are being taken up further.

## 6.8 Construction Monitoring Of Thermal Power Projects:

CEA closely monitors the progress of various construction activities of thermal power projects under construction in the country. Project monitoring related activities emerge from Section 73 (f) Electricity Act, 2003. Regular visits are made by CEA officers to the project sites for assessing the progress of various construction activities and rendering necessary advice/assistance in resolving the problems being faced by the Project Authorities to meet the schedule of commissioning. Regular Review Meetings are also held in CEA with Project Authorities, Main Plant & Equipment Manufacturers and other equipment Suppliers to review the progress status of the Projects.

### 6.8.1 Key initiatives

Based on the past experience, there has been a significant shift in approach in the area of project monitoring. Some key initiatives taken during recent past in the role of a facilitator, includes the following:

- PROMPT Portal was inaugurated by Hon'ble Minister of Power on 20-08-2024 with a vision of enabling transparent, coordinated, and effective monitoring of the power sector in the country.
- In order to achieve scheduled capacity addition targets in respect of Thermal Power Projects, MoP vide OM No.11/11/2023-Th.I dtd 23-04-2024 constituted a Thermal Project Monitoring Group for monitoring the execution of Thermal Power Projects under implementation. The scope of the members of TPMG included undertaking site visits of all the Thermal Power Projects which are under implementation to observe first hand progress made by the project proponents, undertake meetings with key stakeholder involved in the project, identify challenges or obstacles encountered during the implementation phase and evaluate mitigation strategies employed by the project proponents and furnish site visit report to CEA.

- As and when required, issues related to under construction thermal power projects are also reviewed in the PRAGATI portal of PMO for proactive governance and timely implementation
- Drawing up of detailed schedules for project /milestones commitments from project authorities for on-going under construction projects.
- Participation in various review meetings held in the Ministry of Power, Ministry of Heavy Industries, Project Monitoring Group and NITI Aayog etc.
- Holding review Meetings with various implementing agencies including suppliers to review the progress of work and finalizing the completion schedule of under construction thermal power projects.
- Undertaking visits to thermal projects to assess the progress of various activities at site.

During the year 2024-25, the following under construction thermal projects have been visited by CEA officers to assess the actual progress of various construction activities and the anticipated date of trial run of unit of the project:

1. Ghatampur TPP (3x660 MW) of NUPPL, in the State of U.P. was visited on 18-04-2024, 25.07.2024 to 26.07.2024, 04.10.2024 to 05.10.2024 and 11.03.2025 to 12.03.2025
2. Bhusawal SCTPP (1x660 MW) of MSPGCL in the State of Maharashtra was visited from 21.05.2024 to 22.05.2024, 28.08.2024 to 30.08.2024 and 17.12.2024 to 18.12.2024
3. Yadadri TPS (5x800 MW) of TGGENCO, in the State of Telangana was visited from 14.05.2024 to 15.05.2024, 11.09.2024 to 13.09.2024 and 01.03.2025 to 02.03.2025
4. Khurja TPP (2x660 MW) of THDC, in the state of U.P. was visited from 20.09.2024 to 21.09.2024
5. Jawaharpur STPS (2x660 MW) of UPRVUNL, in the state of U.P. was visited from 05.05.2024 to 06.05.2024 and

23.09.2024 to 24.09.2024

6. Obra-C TPP (2x660 MW) of UPRVUNL in the State of U.P. was visited from 07.05.2024 to 08.05.2024 and 14.10.2024 to 16.10.2024
7. Sagardighi TPP (1x660 MW) of WBPDC in the State of West Bengal was visited from 25.06.2024 to 26.06.2024, 21.10.2024 to 22.10.2024 and 22.03.2025
8. Panki Extn. TPP (1x660 MW) of UPRVUNL in the State of U.P. was visited from 03.05.2024 to 04.05.2024 and 10.11.2024 to 11.11.2024
9. North Karanpura TPP (3x660 MW) of NTPC in the State of Jharkhand was visited from 07.05.2024 to 08.05.2024 and 13.11.2024 to 14.11.2024
10. Patratu TPS (3x800 MW) of PVUNL in the State of Jharkhand was visited from 21.05.2024 to 22.05.2024, 19.11.2024 to 20.11.2024 and 25.03.2025 to 26.03.2025
11. North Chennai STPP, St-III (1x800 MW) of TNPGL in the State of Tamil Nadu was visited from 14.12.2024 to 15.12.2024
12. Udangudi STPP, St-I (2x660 MW) of TNPGL in the State of Tamil Nadu was visited from 21.05.2024 to 22.05.2024 and 08.01.2025 to 09.01.2025
13. Buxar TPP (2x660 MW) of STPL/SJVNL in the State of Bihar was visited from 07.05.2024 to 08.05.2024 and 09.01.2025 to 10.01.2025
14. Barh STPP, St-I (3x660 MW) of NTPC in the State of Bihar was visited from 21.05.2024 to 22.05.2024 and 22.01.2025 to 23.01.2025
15. Ennore SEZ SCTPP (2x660 MW) of TNPGL in the State of Tamil Nadu was visited from 25.06.2024 to 26.06.2024

#### **6.8.2 Other Important activities of construction monitoring of thermal projects:**

- Monitoring of progress (financial progress/ CAPEX) of National Infrastructure Pipeline (NIP) projects which are State's projects in thermal sector on monthly basis. The status of bidding of upcoming projects of State's projects

in thermal sector are also prepared on Quarterly basis.

- Preparation of monthly/fortnightly reports viz. report for PMO / MIS report /Thrust Area report/ report for D.O. letter from Secretary (Power) to Cabinet Secretary/report for updates regarding Min. of Power/ Report for Urja Darpan portal in respect of under construction thermal power projects in the country.

## 6.9 Thermal capacity addition program

### 6.9.1 Thermal capacity addition achievement during 2024-25

The thermal capacity addition schedule for the year 2024-25 was 15360 MW against which a capacity of 4100 MW has been achieved. During the FY 2024-25, an additional thermal capacity of 430 MW was also commissioned Sector-wise details of target and achievement during the year 2024-25 are as follows:-

(All fig. in MW)

Sector	Thermal (Planned)		Thermal
	Schedule	Achieved	Achieved
CENTRAL	6740	1320	0
STATE	8620	2780	370
PRIVATE	0	0	60
<b>TOTAL</b>	<b>15360</b>	<b>4100</b>	<b>430</b>

The details of Schedule / achievements for the year 2024-25 is enclosed at **Annexure-6A**.

### 6.9.2 Thermal capacity addition schedule during 2025-26

The schedule for thermal capacity addition during 2025-26 is as under:-

SECTOR	Target (MW)
CENTRAL	6,220
STATE	6,640
PRIVATE	0
<b>TOTAL</b>	<b>12,860</b>

## 6.10. Thermal Engineering & Technology Development (TE&TD):

CEA has been actively associated in resolving the thermal engineering related issues and introduction of new technologies in thermal power generation. The important responsibilities entrusted to TE&TD division are:

Advice to Electricity Regulatory Commissions/Power Generating Utilities on Technical Matters, Preparation of Standard Technical Specifications for Thermal Power Stations, Issues related to the Indian Boiler Regulation, Preparations/ Amendment of CEA Regulations pertaining to Construction of Electrical Plants & Electric Lines, Safety Requirements for Construction, Operation and Maintenance of Electrical Plants & Electric Lines and Flexible Operation of Coal based Thermal Power Generating Units, etc. Investigation of Accidents/Failures at Thermal Power Stations, Examining Proposal for R&D in Indian Power Sector, Technical Advice to various Expert/Technical Committees set up by CEA/Others organizations, Reference for expert advice on Technological matter, New and Emerging clean energy technologies in the Thermal Power Sector such as Hydrogen co-firing in Gas Turbines, Ammonia in coal based TPS, CCUS etc., Matters related to Operating Parameters of Coal/Lignite and CCGT based Thermal Power Stations, Matters related to Excellence Enhancement Center and Bureau of Energy Efficiency, Matters related to Make in India for Thermal Power Sector, Co-firing of Biomass and Exemptions to TPPs under National Mission on use of Biomass in Thermal Power Plants (SAMARTH), Safety related matters under CEA(Safety Requirements for Construction, Operation and Maintenance of Electrical Plants & Electric Lines) Regulations, 2011 as amended.

### 6.10.1 Important Activities

The following important activities have been completed/ undertaken during the financial year 2024-25:

#### A. Promoting Use of Biomass in Thermal Power Plants:

The Executive committee headed by Member (Thermal), CEA with representatives from MoP, MNRE, BHEL NTPC, BEE, CPRI, NPTI, DVC, CE(TE&TD) & SAMARTH Mission. It has been constituted by MoP to supervise the activities of SAMARTH Mission and evaluate the progress of Mission Directorate. With the active support of the Executive Committee, approximately 21,11,819 metric tonnes (MT) biomass have been co-fired as on 31.03.2025 since inception of SAMARTH and in FY 2024-25 approximately 16,18,449 metric tonnes (MT) of biomass have been co-fired in thermal power plants in the country. Out of this, the biomass co-fired in the NCR region stands at 15, 91,429 MT since inception and 12, 97,802 MT in FY 2024-25.

A Committee under the Chairmanship of Chief Engineer (TE&TD) with representatives from Ministry of Agriculture, CPRI, NTPC, BHEL & SAMARTH Mission has been constituted by MoP to examine the request of power plants for their exemption / relaxation from mandatory co-firing of biomass. The Committee prepared and circulated the guidelines / procedure for examining the request of the power plants for seeking exemption / relaxation from co-firing, to all the coal based thermal power plants in the country. As on 31.03.2025, total 45 no. of applications for exemption/relaxation from mandatory co-firing of biomass had been assessed. It is to mention that as on 31.03.2025, no exemption/relaxation to any thermal power plant has been given for non-compliance of biomass co-firing, however, Unit No. 10 (1x660 MW) of Harduaganj TPP had been

exempted from mandatory co-firing of biomass till January 2025 on account of contractual obligation which mentions "All contractual obligations (guarantee, warrantee, etc.) by contractor (s) for 1x660 MW (Unit No. 10) of Harduaganj TPP should be regarded as 'over' with effect from the date of co-firing of Biomass fuel".

Ministry of Power issued modification on 16.06.2023 in the revised biomass policy dated 08.10.2021 and mandated 5% biomass co-firing in Thermal Power Plants (TPPs) from FY 2024-25. This obligation shall increase to 7% from FY 2025-26.

In July 2023, MoEF&CC notified Environment (Utilisation of Crop residue by Thermal Power Plants) Rules, 2023, in which the Commission for Air Quality Management (CAQM) shall impose and collect the environmental compensation from NCR Thermal Power Plants on annual basis at the rates specified in the gazette for not complying with mandatorily blend of pellets made of crop residue along with coal.

With a view to promote and develop sustainable supply chain & at the same time to ensure faster procurement of biomass pellets for co-firing with coal in thermal power plants, MoP constituted a Committee under Member (Thermal), CEA with the representatives from various states, Gencos, CE(TE&TD), SAMARTH Mission etc. to recommend a benchmark price for biomass pellets. Based on the recommendations of the Committee the benchmark price for non-torrefied biomass pellets has been issued by Ministry of Power (MoP) on 23.08.2023 for National Capital Region (NCR) at Rs 2.32 per 1000 kcal (excluding GST & transportation cost from pellet manufacturing plant site to thermal power plant) for a period of one (01) year i.e. upto 31.08.2024, which was extended for one more year i.e. upto 31.08.2025. Further, based on the recommendations of the Committee, the benchmark price for Torrefied biomass

pellets (with volatile matter less than 22%) has been issued by Ministry of Power (MoP) on 18.11.2024 for National Capital Region (NCR) at Rs 2.58 per 1000 kcal (excluding GST & transportation cost from pellet manufacturing plant site to thermal power plant) for a period of one (01) year.

This will also have a stability effect on the prices of raw biomass in the market.

A MoU has been signed between CEA and Administrative Staff College of India (ASCI) in August 2024 to carry out “Evaluation Study for Assessment of Biomass Availability & related aspects in India” with following objectives.

- i. Estimate and map crop-wise potential of biomass for different crops (maize, cotton, paddy etc.) and the form of residue (stalk, shell, husk etc.) for all states/UTs in the country, through primary/field surveys, including surplus biomass availability and detailed price trend of biomass used in different sectors (incl. domestic and industrial) and its crop-wise seasonal price variation.
- ii. Assessment of Biomass collection methodologies being practiced as well as the stepwise cost components for complete supply-chain along with historical trends (aggregation, transportation etc.).
- iii. Assessment of quality parameters (incl. Ultimate, Proximate & GCV data) for the studied biomasses
- iv. Identification of optimal locations for setting up pellet manufacturing plants along with detailed feasibility analysis and mapping of pellet manufacturing plant with corresponding feeder areas.
- v. Evaluation of existing government schemes and recommendations for additional policy support.

Interim Report of the study has been submitted by ASCI in February’2025.

Draft Comprehensive Policy for utilization of Biomass & Torrefied Charcoal made from Municipal Solid Waste for Power Generation through Co-firing in Coal based Thermal

Power Plants is under preparation.

### **B. Safety related matters under CEA:**

Reference is invited to Central Electricity Authority (Safety requirements for Construction, Operation and Maintenance of Electrical Plants and Electric Lines) Amendment Regulations, 2022 notified in Gazette on 16<sup>th</sup> November, 2022. A new Schedule-IV was introduced in the regulation named as Elements of safety checks for electrical plants. Therefore, in compliance of above, Safety advisory was recirculated to all thermal power stations of the country.

After discussing with National Safety Council (NSC) and NTPC, checklist of CEA and the qualifying criteria for safety audit team were modified. It was communicated to all TPPs for adherence from the next external audit cycle onwards.

As per the mandate of above Safety Regulation 2022, 4 Nos. Thermal Power Plants viz. Paras & Bhusawal of MAHAGENCO and Ramagundem & Telengana of NTPC were visited for physical verification of submitted Safety Audit reports and item-wise compliances thereof.

### **C. Recommendation to CERC for specifying Operational Norms of TPPs in CERC (Terms and Conditions of Tariff) (First Amendment) Regulations, 2025:**

The Tariff Policy notified by the Central Government under the Electricity Act 2003, provides that The Central Commission would, in consultation with the Central Electricity Authority, notify operating norms from time to time for generation and transmission.

In respect of thermal generating stations, in October 2024, CERC had requested CEA to furnish its Technical Recommendations on “Operational norms of secondary fuel oil consumption per start up (kl) for different unit sizes for hot, warm and cold start up separately” to be incorporated in CERC (Terms and Conditions of Tariff) (First

Amendment) Regulations, 2025.

In this regard, Technical Recommendations comprising of recommendation on all the aforesaid parameters, alongwith the Explanatory Memorandum for the same, was submitted to CERC on 13.01.2025.

#### **D. National Energy Conservation Awards 2024:**

Ministry of Power has undertaken a scheme to encourage, motivate as well as give recognition through National Energy Conservation Awards to industrial units and other establishments, who take extra efforts to reduce energy intensities while maintaining the production levels. The scheme is aimed to create an environment that would spur industries and other establishment in achieving excellence in efficient use of energy and its conservation. The awards were given away for the first time in December, 14, 1991 which is now celebrated as National Energy Conservation Day throughout the country. Member (Thermal), CEA is the head of the Technical Sub-Committee to assist the Award Committee, headed by Secretary, Power, in the finalization of awards. During the year 2023-24, proposals received from four industrial sectors viz. DISCOMs, Tyre, Cement and Food Processing were evaluated by CEA. The awards to the best performing industrial units in all the sectors covered during 2023-24 were given on 14th December, 2024 in New Delhi.

#### **E. Incentive Mechanism for Flexible operation of thermal power plants**

In the Minutes of Meeting held under the chairmanship of Secretary (Power) on 25.07.2024 to discuss the issues related to Grid Management and Grid Operation, one of the action points for CEA was “For enabling voluntary backing down up to TML, by all the

Maharashtra State Power Generation Company (MAHAGENCO)’s Paras Thermal Power Station (2x250 MW) and Bhusawal Thermal Power Station (1x210 + 2x500 MW) were visited alongwith Excellence Enhancement Centre (EEC) team for Health assessment of Coal Handling Plant.

generators, Incentive Mechanism should be developed by CEA.”

As per the above action point, a “Draft Incentive Mechanism for Flexible operation of thermal power plants” was formulated and submitted to MoP.

#### **F. Committee for preparation of Concept Note on Carbon Capture, Utilization and Storage (CCUS):**

In the 25th meeting of the Prime Minister’s Science, Technology, and Innovation Advisory Council (PM-STIAC) held on 9th July, 2024 under the chairmanship of Principal Scientific Adviser to the Government of India (PSA), it was decided to adopt CCUS (Carbon Capture, Utilization & Storage) technologies through a mission-mode approach and Ministry of Power (MoP) has been made nodal agency to lead CCUS Mission with the help of other relevant ministries/ Departments. MoP constituted a committee headed by Chairperson, CEA to prepare a concept note on creation of Mission on CCUS. The Concept note on creation of Mission on CCUS is under preparation in consultation with relevant Ministries/ Departments.

#### **G. Committee to examine the frequent outages/shutdowns of RRVUNL TPPs:**

In order to examine the reasons of frequent outages/shutdowns, a committee comprising members from CEA and NTPC visited the Suratgarh thermal power plant of RRVUNL. The committee also scrutinized the maintenance practices. Based on the outcomes, the committee submitted its report in August, 2024 to Ministry of Power.

#### **H. Health assessment of Coal Handling Plant:**

#### **I. Technical Committee on Thermal Research:**

The Technical Committee on Thermal Research convened by Central Power Research Institute (CPRI) has members from CEA, IITs, NTPC,

and BHEL & Tata Power for evaluation of various research proposals/projects under the schemes of CPRI. The 16<sup>th</sup>, 17th and 18th meeting of the Committee were held in various phases during the year 2024-25 and various thermal research projects were evaluated.

**J. Identification and Allocation of suitable parcels of degraded land for biomass cultivation initiatives for enhancing green hydrogen:**

MoP nominated Chief Engineer (TE&TD) as nodal officer for Identification and Allocation of suitable parcels of degraded land for biomass cultivation initiatives for enhancing green hydrogen on request of Principal Scientific Advisor to GoI.

The details of suitable parcels of degraded land available with CPSU's under control of MoP were provided to PSA office for biomass cultivation initiatives for enhancing green hydrogen.

**K. Chairman/Members of various Committees:**

a. Chief Engineer, TE&TD is a member of the Working Committee constituted by NITI Aayog for the development of a policy framework for the effective implementation of the Carbon Capture, Utilization and Storage (CCUS) initiatives in India.

b. Chief Engineer, TE&TD is a member of the Standing Site Selection Committee for selection of sites for future nuclear power stations constituted by Department of Atomic Energy (Power Section).

c. Chief Engineer, TE&TD is a member of the Technical Committee on Thermal Research for review, recommendation and monitoring of R&D proposals under IHRD, RSOP, NPP schemes of MoP, Govt. of India

d. Chief Engineer, TE&TD has been member secretary of Sub- Committee-7 constituted

under the chairmanship of CMD, NTPC to provide/update report on "Key Inputs for Power Sector" for National Electricity Plan (2022-27).

e. Chief Engineer, TE&TD has been member secretary of Sub- Committee-1 constituted for National Electricity Plan (2022-27).

f. Chief Engineer, TE&TD is member of Technical Committee constituted to finalize the baseline and target parameters for existing DCs under Thermal Power sector under PAT scheme.

g. Chief Engineer, TE&TD is member of Central Boilers Board and undertakes works related to technical matters related to boilers, issues related to repeal or re-enactment of boilers act 1923, technical advice, comments on renewal or recognition of applications under IBR, 1950 etc.

h. Chief Engineer, (TE&TD) is a Member on Board of Directors of Haryana Power Generation Corporation Limited (HPGCL), Haryana.

i. Director (TE&TD) is a Member on Board of Directors of Puducherry Power Corporation Limited, Puducherry.

j. Deputy Directors of TE&TD division are the members of Subgroup-1 (R&D on properties/characteristics of Biomass) and Subgroup-2 (R&D on boiler design on biomass co - firing and safety aspects) created under National Mission on use of biomass in coal based thermal power plants.

**L. DRIPS (Disaster Resource Inventory for Power Sector)**

DRIPS portal was developed by NIC with DP&M Division, CEA as Nodal Division and the inventory of the said portal was prepared based on the inputs fed by the utilities. The portal was launched by Hon'ble Minister of Power on 20.08.2024. During the launch of DRIPS portal,

**Hon'ble Minister of Power** had directed all utilities in Generation, Transmission and Distribution sectors to regularly update their spare inventory details in the portal on monthly basis at <http://drips.npp.nic.in/login>. In order to make the DRIPS portal meaningful and effective for the intended purpose, it was communicated to all the thermal generating companies to register themselves on the DRIPS portal and fill up/update the data on the portal.

### 6.11 Thermal Civil Design (TCD):

CEA is involved in the monitoring of Ash Generation and its utilization at the Coal / Lignite based Thermal Power Plant in the Country. During 2024-25, as per the CPCB Coal Ash Portal, the Ash Utilization is 97.02 % from

357 Thermal Power Plants.

### 6.12 R&M/ LE Programme during (2017 - 22)

71 thermal generating units with aggregate capacity of 14929 MW have been identified for implementation of R&M/LE works during 2017-22 period. Out of this a total of 34 nos. thermal generating units with aggregate capacity of 7570 MW for LE works and 37 nos. thermal generating units with aggregate capacity of 7359 MW for R&M works have been identified for the period 2017-22. Break-up summary of LE and R&M works of 14929 MW to be taken up during 2017-22 in terms of Central/ State sector-wise is furnished below at Table A:

Category	LE/R&M works identified during 2017-22 No. of units & capacity (MW)		Total (State Sector + Central Sector)
	State Sector	Central Sector	
<b>LE</b>	34 (7570)	--	34 (7570)
<b>R&amp;M</b>	30 (7135)	07 (224)	37 (7359)
<b>Total</b>	64 (14705)	07 (224)	71 (14929)

#### 6.12(a) Achievements of R&M & LE Projects upto 31-03-2025:

Life Extension works on 5 thermal generating units with aggregate capacity of 1020 MW and R&M works on 3 thermal generating units with aggregate capacity of 177 MW were completed upto 31-03-2025. Details of achievements is furnished below at Table:

	Name of the TPS	Unit No.	Date of S/D	Capacity (MW)	Utility	Sector	Date of Achievement
<b>1. 2017-18</b>							
<b>LE</b>	Ukai TPS	4	07-12-2016	200	GSECL	State	17.05.2017
	Wanakbori TPS	3	25-07-2017	210	GSECL	State	27-11-2017
<b>R&amp;M</b>	Kathalguri CCGT	3	19-06-2017	33.5	NEEPCO	Central	20-07-2018
	Kathalguri CCGT	6	19-03-2018	33.5	NEEPCO	Central	31-03-2018
<b>Sub Total</b>		<b>34</b>		<b>477.00</b>			
		<b>(Units)</b>					
<b>2. 2018-19</b>							
<b>LE</b>	Koradi TPS	6	25-08-2015	210	MAHAGENCO	State	16-07-2018(oil firing) 20-08-2018(coal firing)
	Obra TPS	12	01-10-2016	200	UPRVUNL	State	24-09-2018
<b>R&amp;M</b>	--	--		--	---	--	--
<b>Sub Total</b>		<b>02</b>		<b>410</b>			
		<b>(unit)</b>					
<b>3. 2021-22</b>							
<b>LE</b>	---	--	--	--	--	--	--
<b>R&amp;M</b>	Barauni TPS	6	15-11-2009	<b>110</b>	NTPC	Central	31-05-2022
<b>4. 2022-23</b>							
<b>LE</b>	Obra TPS	13	16-05-2018	<b>200</b>	UPRVUNL	State	27-09-2022
<b>R&amp;M</b>	--						
<b>Total LE</b>	<b>05 (1020)</b>	<b>State</b>	<b>05(unit)</b>	<b>1020</b>			
		<b>Centre</b>	--	--			
<b>Total R&amp;M</b>	<b>03 (177)</b>	<b>State</b>	--	--			
		<b>Centre</b>	<b>03(unit)</b>	<b>177</b>			
<b>Grand Total</b>		<b>08</b>	<b>(units)</b>	<b>1197.0</b>			

#### 6.12(b) Undergoing R&M /LE in Thermal: Power Units upto 31-03-2025:

Total of 31 units of central and state sector, with combined capacity of 6420 MW of the identified thermal power units, are currently undergoing R&M/LE works.

#### 6.13 Monitoring of R&M Projects:

The progress of R&M and LE works being

implemented at Thermal Power units are monitored by holding the review meetings and information compiled on monthly/quarterly basis. Based on data / information collected & compiled, Quarterly Review Report on status of R&M projects were prepared.

#### 6.14 Implementation of FGD installation, ESP upgradation and Combustion modification in respect of new Environmental Norms

The timelines for complying with the new emission norms (Dec 2015) were revised by MoEF&CC vide gazette notification dated 31.03.2021 which categorized thermal power plants in three categories having different timelines.

Based on the MoEF&CC notification dated 31st March 2021, a task force was constituted comprising of representatives from MoEF&CC, MOP, CEA and CPCB to categorize the thermal power plants in above mentioned three categories. CPCB vide its MoM dated 13.12.2021 categorized the 600 TPP units in category A, B & C of which 66 units (20577 MW) are under Category A, 72 units (24057 MW) are under Category B and 462 units (166885 MW) are under Category C. The criteria considered for categorisation of TPPs along with compliance timelines is given as under:

**Category A** - Within 10 km radius of NCR or cities having million plus population as per 2011 census of India. Timeline for compliance: 31.12.2022

**Category B** - Within 10 km radius of critically polluted areas or Non-Attainment cities as defined by CPCB. Timeline for compliance: 31.12.2023

**Category C** - Other than those included in category A and B. Timeline for compliance: 31.12.2024

Subsequently, based upon the recommendations of CEA, the timelines for implementation of FGD installation for compliance with SO<sub>2</sub> norms were extended in every category vide MoEF&CC gazette notification dated 30.12.2024. However, the timelines for compliance of parameters other than SO<sub>2</sub> remained unchanged. The revised timelines for installation of FGD in various category TPPs is as under:

**Category A** - Timeline for compliance with SO<sub>2</sub> norms: 31.12.2027

**Category B** - Timeline for compliance with SO<sub>2</sub> norms: 31.12.2028

**Category C** - Timeline for compliance with SO<sub>2</sub> norms: 31.12.2029

CEA published two reports in the year 2020 & 2021 on FGD installation across the country where advantages & disadvantages of FGD installation were analyzed and clearly stated that FGD installation across the country is unnecessary as ambient SO<sub>2</sub> level across the country is well below the national standards (80 µg/m<sup>3</sup>). Further, installation of FGD has adverse impact on ambient air quality due to generation of secondary pollution and greenhouse gases (CO<sub>2</sub>). Considering findings of CEA studies, IIT Delhi study was commissioned by MOP under CEA-IIT Delhi MOU. Subsequently, NEERI-Nagpur study and NIAS-Bangalore study were also commissioned by NITI Aayog and Principal Scientific Advisor (PSA) to the Govt. of India respectively. The key common point in these studies is that, fitment of FGDs in all TPPs in India is not necessary to comply with the NAAQ standards whose compliance is essential to safeguard public health. While all TPPs must comply with the December 2015 stack emission standards, SO<sub>2</sub> stack emission standards can be relaxed to ensure that they are in conformance with the NAAQ standards (ambient SO<sub>2</sub>) which are notified by CPCB keeping in mind the human health and other aspects. This way, TPPs may be able to comply with these standards without fitting FGDs. Since the existing NAAQ standards (for ambient SO<sub>2</sub>) must be complied with, this change will not affect human health in India.

Subsequently, on the recommendation of PSA (based on above scientific studies), MoEF&CC has notified amendment on 11.07.2025 where applicability of SO<sub>2</sub> emission standards in thermal power plants has been revised based on their location/category

As per MoEF&CC gazette notification dated 11.07.2025, SO<sub>2</sub> emission norms are not applicable on Category C units provided they comply with original stack height criteria as

notified by MoEF&CC, GoI. Similarly, Category B units may apply for exemption from SO<sub>2</sub> norms, and their cases will be reviewed on case-to-case basis by Expert Appraisal Committee.

### 6.15 Current Status of FGD Installation, ESP Upgradation and Combustion Modification

- Out of 600 TPP units, 57 units (28440 MW) have installed FGD systems for compliance with SO<sub>2</sub> emission norms.
- Out of 600 TPP units, 446 units (174996.5 MW) have upgraded ESPs for compliance with SPM emission norms.
- Out of 600 TPP units, 444 units (157331.5 MW) have completed combustion modification for compliance with NO<sub>x</sub> emission norms.

### 6.16 Flexible Operation of Thermal Power Stations

India's Intended Nationally Determined Contributions (INDCs) include a reduction in the emissions intensity of its GDP by 45 percent by 2030 from 2005 level, achieve about 50 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030 and to create an additional carbon sink of 2.5 to 3 billion tonnes of CO<sub>2</sub> equivalent. Generating power from renewable sources of energy is of cardinal importance if India is to meet its INDC targets. With the aim to ensure future security & reliability of power supply and stability of electricity grids while maximizing generation from renewables flexibilization of existing coal-fired power plants is an important measure.

A comprehensive report titled "Flexibilisation of Coal Fired Power Plant - A Roadmap for Achieving 40% TML" was prepared by CEA in Feb 2023 to help utilities and understand the low load operation. The report has comprehensively touched the various aspects of flexible operation of thermal generating units including operating procedure, identification of measures of low load

operation/ramp rates and cost of flexible power.

A Compensation methodology for operating a coal based power plant below 55% load was prepared by CEA and the same was forwarded to CERC by MOP.

Another report titled "OPERATING PROCEDURE AND TRAINING CURRICULUM AT 55% MINIMUM TECHNICAL LOAD OF THERMAL GENERATING UNITS" was prepared and published to provide Standard operating procedures for thermal generating utilities for 55% technical minimum load at low load operation.

As per CEA (Flexible Operation of Coal Based Thermal Power Generating Units) Regulation, 2023, the coal based thermal power generating units shall have flexible operation capability with minimum power level of 40%. Moreover, the coal based power generating units shall have flexible operation capability with minimum power level of 55% along with ramp rate of 2% between 55%-70% and ramp rate of 3% above 70% within one year of notification of the above mentioned regulations i.e. by Jan 2024. The implementation of the flexible operation (40%) shall be as per the phasing plan specified by the authority from time to time. In view of above, CEA has prepared and notified in gazette of India a roadmap for achieving the minimum load operation in a phased manner in Dec 2023. The summary of the phasing plan is as below:

- Pilot Phase (10 units, 5850 MW) : May 2023 - March 2024
- Phase 1 (91 units, 51080 MW) : July 2024 - June 2026
- Phase 2 (100 units, 46825 MW) : July 2026 - June 2028
- Phase 3 (101 units, 37215 MW) : July 2028 - December 2029
- Phase 4 (191 units, 55767 MW) : January 2030 - December 2030

In the pilot phase, 10 units of Central/State/Pvt sector shall be taken for refurbishment. The experience gained in pilot phase shall be useful for future planning.

### 6.17(a) Japan-India Co-operation for Study on Efficiency and Environmental Improvement of Coal Fired Stations

Under Indo- Japan Co- operation for Efficiency and Environmental Improvement of Coal Fired Power Stations. Four MoUs have already been implemented between Central Electricity Authority (CEA) and Japan Coal Energy Centre (JCOAL) in the field of efficiency improvement and environmental improvement of coal fired power stations. The 4<sup>th</sup> MoU between CEA and JCOAL has been signed on 16<sup>th</sup> December, 2019 for Efficiency & Environment Improvement for Sustainable, Stable and Low Carbon Supply of Electricity. The purpose of this MoU is to address issues and barriers in expediting sustainable, stable and low carbon thermal power development by means of studies, training program and knowledge-sharing activities, outcomes of which are to be conducive to overall power development in India as well as to expedite relevant policy implementation by the Government of India. Following activities were carried out under 4<sup>th</sup> MoU:

- i) Update on the current and future policy trend in the Indian power sector and consideration of the identified issues/barriers to find out those which could be addressed through mutual collaboration.
- ii) Identification of issues to be addressed regarding both existing and upcoming facilities, and also operation and maintenance.
- iii) Implementation of studies with priorities, but not limited to environmental technologies for coal fired power generation Flexibilization measures and biomass utilization are also of high priority.
- iv) Biomass study on Co firing of biomass pellets and Waste to Energy technologies and Coal GCV loss in power plant and its remedies Implementation of an annual workshop in India and CCT Training Programme in Japan.
- v) Holding joint meetings to discuss issues that have arisen or may arise in the course of implementation of the Cooperation.

Under Clean Coal Technology (CCT) Training Programme study tours to Japan have been organized in which representatives from MoP, CEA and different power utilities have

participated. The participants visited the latest USC power stations and updated about various applicable technologies and equipment as well as O&M technique. During the FY22, 50 participants have undergone the Virtual CCT Training Programme from 31st Oct. 2022 to 2<sup>nd</sup> Nov. 2022. Under Indo-Japan Cooperation, a one-day Workshop on “Project on Efficiency and Environmental Improvement for Sustainable, Stable and Low-carbon Supply of Electricity” was organized jointly by CEA and JCOAL on 14th Dec, 2023.

The 5th MoU between CEA and JCOAL for Efficiency & Environment Improvement for Sustainable, Stable and Low Carbon Supply of Electricity is under finalization.



**CEA-JCOAL Workshop FY23**

### 6.17 (b) Indo-Denmark Co-operation

A MOU on India-Denmark Energy Cooperation was signed between the two governments in June 2020. TPRM Division, CEA is coordinating the following areas/activities under this cooperation:

- i. Transfer of technology for emission control from Thermal Power plants,
- ii. Waste heat recovery from Thermal power plants,
- iii. Flexibility in operation of power plants for RE integration.

Flexible operation test (upto 40% load) has been successfully conducted in thermal generating units of Unit #7, 500MW Ramagundam TPS of NTPC and Unit #3, 210 MW Raichur TPS of KPCL under India-Denmark cooperation.

### 6.18 Fuel Management and Analysis

Central Electricity Authority (CEA) plays a pivotal role in optimal utilization of coal for the power sector. It monitors coal supply to the power plants so that plants have sufficient coal stock as per norms. CEA in association with MoP, MoC,

Railways and other stakeholders closely monitors the coal supply to power plants and take necessary steps to improve supply of coal to power plants. With the concerted efforts of all stakeholders, the coal supply to power utilities is maintained to meet their coal requirement. At the beginning of the year, the coal stock available with the thermal power plants was 50.7 Million Tonnes (MT) (73% of the normative coal stock required), which was sufficient for an average of 18 days at a requirement of 85% PLF. However, as on 31<sup>st</sup> March 2025, the total coal stock available with the plants increased to 58.11 MT (80% of the normative coal stock required), which was sufficient to run these plants for an average of about 20 days at a requirement of 85% PLF.

### 6.18.1 Monitoring Mechanism

The coal stock position of all the power plants in the country are being monitored by CEA on daily and monthly basis and accordingly daily and monthly reports are published on National Power Portal (NPP) ([www.npp.gov.in](http://www.npp.gov.in)).

CEA has revised the coal stocking norms w.e.f. 6<sup>th</sup> December 2021. As per the revised norms, daily coal requirement for both Pithead and Non-Pithead plants would be estimated @85% PLF and number of days for which stock needs to be maintained would vary from 12 to 17 days for Pithead plants and 20 to 26 days for Non-Pithead plants with month-wise variation based on coal despatch/ coal consumption pattern during the year.

Quarter	Month	Pithead	Non-pithead
Q1	Apr	17	26
	May	17	26
	Jun	17	26
Q2	Jul	14	22
	Aug	13	21
	Sep	12	20
Q3	Oct	13	21
	Nov	14	22
	Dec	15	23
Q4	Jan	16	24
	Feb	17	26
	Mar	17	26

### Monitoring by Inter-Ministerial Committee

A Secretary level Inter Ministerial committee has been set up to ensure that the medium and long term requirements of coal are met. The IMC comprises of Chairman Railway Board, Secretary, Ministry of Coal, Secretary Ministry of Environment Forests and Climate Change as members and Secretary Ministry of Power as convener.

### Monitoring by Subgroup:

CEA is a member of an Inter-ministerial subgroup constituted by the Infrastructure Constraints Review Committee under the Chairmanship of Joint Secretary, Ministry of Coal comprising of representatives from Ministry of Railways, Ministry of Power, Shipping, NITI Aayog, CEA, CIL and NTPC Limited. The subgroup reviews and monitors coal supply and related infrastructural constraints on day-to-day basis for adequate supply of coal to power plants.

### 6.18.2 Coal Scenario for the Power Sector during 2024-25

#### 6.18.2.1 Estimation of coal requirement for the year 2024-25

During 2024-25, based on generation target, the coal requirement was estimated to be about 915 MT. The break-up of coal requirement during 2024-25 is given as under:

(Figs. in MT)

Coal Requirement	2024-25
Domestic Coal based (DCB) Plants	874.2
Imported Coal based (ICB) Plants	40.7
Total Requirement	<b>914.9</b>

#### 6.18.2.2 Coal Supply Position for the year 2024-25:

For the year 2024-25, the receipt of coal was 888.4 MT against the consumption of 880.2 MT. The details of coal receipt and consumption for year 2024-25 are given as under:

<b>A. Estimated Requirement (Domestic + Imported)</b>	<b>914.9</b> (874.2+40.7)
<b>B. Receipt</b>	
a. Domestic coal	825.8
b. Imported coal for blending	14.0
c. Imported coal for ICB plants	48.5
d. Total Import	62.6
<b>Total Receipt (a+d)</b>	<b>888.4</b>
<b>C. Consumption</b>	
a. DCB Plants	831.9
b. ICB Plants	48.3
<b>c. Total</b>	<b>880.2</b>

During the year **2024-25**, the receipt of domestic coal by the power plants was 825.8 MT as against 798.6 MT during 2023-24 resulting in increase of about 27.2 MT (3.4%). The total coal consumption during **2024-25** was 880.2 MT as against 849.7 MT during last year, thus increasing 30.5 MT (3.6 %). Plant-wise details of coal receipt and coal consumption during **2024-25** is enclosed at **Annexure-6B**.

#### 6.18.2.3 Source-wise Receipt of coal during 2024-25

During the year 2024-25, source-wise break-up of coal receipt at the power stations is given below:

Source	Actual Receipt (MT)
CIL	584.2
SCCL	58.9
Captive Mines	142.7
E-Auction	24.7
Others	15.3
<b>Total Domestic Coal Receipt</b>	<b>825.8</b>
Import Coal for Blending	14.0
Imported Coal by Imported Coal Based Plants	48.6
<b>Total Imported Coal Receipt</b>	<b>62.6</b>
<b>Total Receipt</b>	<b>888.4</b>

#### 6.18.2.4 Import of coal during the year 2024-25.

1. Power plants designed on domestic coal, import coal in view of their cost economics and power plants designed on imported coal import coal to meet its fuel requirement.
2. Ministry of Power vide letter no. FU-21/2020-FSC(Vol-IV) dated 27.06.2024 directed all Gencos to import coal for blending @4% (by weight) up to 15<sup>th</sup> October, 2024 so as to have adequate coal stocks at power plants end for smooth operation till 15th October, 2024. In view of adequate coal stock at the power plants, the advisory has not been extended since then
3. During 2024-25, the coal imported by domestic coal based plants was 14.0 MT and that by imported coal based plants was 48.6 MT. Thus, the total coal imported by the power plants was about 62.6 MT as against 65.7 MT during 2023-24, thus decreasing by about 3.2 MT (5%).

#### 6.18.2.5 Generation Loss

During the year, 2024-25, there was no loss of generation due to shortage of coal.

#### 6.18.2.6 Specific Coal Consumption

During the year 2024-25, the Specific Coal Consumption (kg/kWh) of the Domestic Coal Based Plants was 0.692 kg/kWh as compared to 0.686 kg/kWh in 2023-24. However, for imported coal based plants, it was maintained at 0.500 kg/kWh in 2024-25 as in 2023-24.

#### 6.18.3 Coal Quality Issues

In order to address quality concerns of the coal supplied to power plants, it was decided in the meeting dated 28.10.2015 that coal samples shall be collected and prepared by a Single Third Party Agency appointed by power utilities and coal companies. Accordingly, it was decided by the Ministry of Power and the Ministry of Coal that the power utilities would appoint a Third Party Sampler (CIMFR) for Third Party Sampling and Analysis of coal at loading-end as well as at unloading-end.

Based on the Third Party Sampling analysis results furnished by CIMFR, credit/debit note are being issued by coal companies to the power plants in case of difference between declared grade of coal and analyzed grade of coal.

Subsequently, Ministry of Power vide letter dated 30.03.2021 conveyed the decision that Power Finance Corporation (PFC) shall empanel Third Party Sampling (TPS) Agencies for Power Sector, in addition to CIMFR, and consumers shall be free to take services of any of the empaneled agencies.

The Terms of Reference for empanelment for the agency was to be formulated with the following broad guidelines:

- a. Multiple Agencies should be available.
- b. Sampling only at loading end with appellate/referee provision.
- c. Choice of taking services from empaneled agencies shall be of the buyer of coal.
- d. Review mechanism to review the working of the system.

MoP, after consultation with the stakeholders including CEA, finalized the Terms of Reference for empanelment of TPS which was forwarded to PFC on 17.08.2021 for taking further necessary action.

In the 1<sup>st</sup> round of empanelment PFC had empaneled one firm (M/s Mitra SK Private Limited) as a Third Party sampling Agency (TPSA) for collection, preparation and analysis of coal samples at loading end with appellate/referee provision for power sector.

Subsequently, Ministry of Power vide letter dated 20.09.2022, while amending the terms of reference dated 17.08.2021, requested PFC/CEA to finalize the Terms of Reference for second round of empanelment of Third Party Sampling (TPS) agencies for power sector and complete the empanelment process at the earliest.

In the 2<sup>nd</sup> round of empanelment, PFC vide letter dated 04.10.2023, empaneled 10 agencies

(Inspectorate Griffith India Pvt Ltd, Quality Services and Solutions Pvt Ltd , Quality Austria Central Asia Pvt Ltd ,Cotecna Inspection India Pvt Ltd , KCS Quality Inspection Pvt Ltd ,Ravi Energie Pvt Ltd, Mitra S. K. Pvt Ltd, Superintendence Company of India Pvt Ltd, Therapeutics Chemical Research Corporation and Dr. Amin Controllers Pvt. Ltd.) as 'Third Party Sampling Agency (TPSA) for collection, preparation and analysis of coal samples at loading end with appellate / referee provision for power and non-power sector' for a period of five years from 3<sup>rd</sup> October, 2023.

#### **6.18.4 New initiatives for addressing issues related to coal supply to Power Plants**

##### **A. Flexibility in Utilization of Domestic Coal**

a. The Government, on 04.05.2016, approved the proposal for allowing flexibility in utilization of domestic coal amongst power generating stations to reduce the cost of power generation. Under the scheme, the Annual Contracted Quantity (ACQ) of each individual coal linkage as per Fuel Supply Agreement is to be aggregated as consolidated ACQ for each State and Company owning Central Generating Stations instead of individual generating station. The State/Central Gencos have flexibility to utilize their coal in most efficient and cost effective manner in their own power plants as well as by transferring coal to other State/Central Gencos Power plants for generation of cheaper power. The methodology provides for utilizing coal amongst State/Central Generating Stations having 4 cases- i) within state ii) one state to another state iii) one state to CGSs & vice versa and iv) within CGSs & other CGSs. The methodology in this regard has been issued by CEA on 08.06.2016.

b. Further, the methodology for use of coal transferred by a State to Independent Power Producer (IPP) generating stations has been issued by Ministry of Power, Govt. of India on 20.02.2017. As per the methodology, the State can divert their coal and take equivalent power from IPP generating station, which is selected

through an e- bidding process. The guiding principle of the methodology is that the landed cost of power from IPP generating station at the State's periphery should be lower than the variable cost of generation of the State generating station whose power is to be replaced by generation from IPP. The landed cost of power is inclusive of the transmission charges and transmission losses.

c. Based on the experience gained, Ministry of power vide letter dated 15.06.2018 has amended clauses related to bid security, performance security coal transportation mode in the methodology for Case-4. Subsequently, Ministry of Power vide letter dated 25.10.2018 has issued 2<sup>nd</sup> amendment in the methodology allowing moisture correction while reconciliation of coal.

d. All State/Central gencos have signed supplementary agreement with Coal Companies for aggregation of their ACQ. CIL, on quarterly basis, allocates coal to the plants of State /Central Gencos as per their requirement within their AACQ.

### B. Construction of Belt-MGR

Construction of Belt /MGR in the power plants, which are located within 100 kms of linked coal mines, is being monitored in CEA. 51 power plants have been identified to be having coal source within 100 km. The status of these 51 power plants are as under:

- 18 plants are having functional Belt / MGR system for receiving coal from linked mines.
- 4 plants are constructing Belt / Piped conveyor for receiving coal through linked mines.
- 13 plants are under deliberations for construction of Belt / MGR system
- 16 plants are identified under "Not feasible" category.

using gas as primary fuel. However, the supply of domestic gas to power sector has been very less as compared to requirement.

- The domestic gas supply during 2024-25 was only about 11.22 MMSCMD against allocation of 83.35 MMSCMD. The domestic supply during 2024-25 reduced by about 6% as compared to that during 2023-24 (11.9 MMSCMD). However, the import of LNG during 2024-25 has increased to about 8.48 MMSCMD as against 7.8 MMSCMD during 2023-24.
- The PLF achieved during 2024-25 was 15 % against PLF of 15.1 % during previous year. Plant-wise details of gas allocated and supplied/consumed during 2024-25 is enclosed at **Annexure-6C**.

The gas supply position in gas based power plants during 2024-25 is as under:

(Fig. in MMSCMD)

		Allocation	Supplied
Domestic Gas	APM / Non - APM/ PMT	52.41	10.89
	KGD-6	30.94	0.33*
	<b>Total Domestic Gas</b>	<b>83.35</b>	<b>11.22</b>
Imported Gas (RLNG)	Long Term Contract	7.48	3.26
	Spot	-	5.22
	<b>Total Imported Gas</b>	<b>7.48</b>	<b>8.48</b>
	<b>Total Gas</b>	<b>90.83</b>	<b>19.70</b>

(\*: Auction gas from KGD-6)

### 6.18.5 Gas Supply Position

- CEA monitors 58 Nos. of gas based power stations with a total installed capacity of about 24,006 MW (As on 31<sup>st</sup> March 2025)

## CHAPTER-7

### DISTRIBUTION SCHEMES AND INITIATIVES

#### 7.1 Revamped Distribution Sector Scheme (RDSS)

Central Government launched Revamped Distribution Sector Scheme (RDSS) in July, 2021 with the objective of improving the quality and reliability of power supply to consumers through a financially sustainable and operationally efficient distribution Sector. The Scheme aims to reduce the AT&C losses to pan-India levels of 12-15% and Average Cost of Supply (ACS) - Average Revenue Realized (ARR) gap to zero by 2024-25. The Scheme has an outlay of Rs.3, 03,758 crore and an estimated Gross Budgetary support of Rs 97,631 Crores from Govt. of India.

The Scheme has two parts: Part 'A' - Financial support for upgradation of the Distribution Infrastructure and Prepaid Smart Metering & System Metering and Part 'B' - Training & Capacity Building and other Enabling & Supporting Activities.

Under the scheme, eligible DISCOMs (all State-owned Distribution companies and State /UT Power Departments excluding private Sector power companies) are being provided financial support for upgradation of the Distribution Infrastructure, Distribution Automation, IT intervention, implementation of SCADA/DMS & installation of 25 Crore Pre-paid smart meters for consumers and Smart Metering at Feeder and Distribution Transformers etc.

The scheme envisages installation of 25 crore prepaid smart meters for all consumers along with associated AMI & communicable meters for DTs & Feeders. Prepaid Smart Meters including System metering with communication features are important interventions in reducing Distribution losses in the Utilities and in facilitating automatic measurement of energy flows and energy accounting as well as

auditing without any human intervention. This intervention will also facilitate switch over to digital pre-paid system, with recharging facility through mobile phones and enabling of Time-of-Day tariff.

Advanced ICT like Artificial Intelligence & Machine Learning Technologies would be leveraged to analyse data generated through IT/OT devices including System Meters, prepaid Smart meters to prepare actionable MIS from system generated energy accounting reports every month so as to enable the DISCOMs to take informed decisions on loss reduction, demand forecasting, asset management, Time of Day (ToD) tariff, Renewable Energy (RE) Integration and for other predictive analysis. This would contribute a great deal towards enhancing operational efficiency and financial sustainability of the DISCOMs.

An inter-ministerial Monitoring Committee for the Scheme has been constituted under the chairmanship of Secretary, Ministry of Power. The Monitoring Committee frames and approves all operational guidelines, sanction all Action Plans & DPRs of DISCOMs / States, review and monitor implementation of Scheme, approves scope of works and take necessary decisions for operationalization of various components of the Scheme and amendments thereof, within the framework approved by Cabinet Committee on Economic Affairs (CCEA). The Monitoring Committee is also competent to modify the scope of works under various parts of the Scheme in line with the objectives of the Scheme. Chairperson, CEA is the member of the Monitoring Committee.

The funds for a particular year in respect of Infrastructure Works are released in respect of a DISCOM for a particular year only after it is found to have fulfilled the pre qualifying criteria and its

total weighted score is at least 60 marks on the result evaluation matrix after having been evaluated by the Nodal Agency and approved as such by the Monitoring Committee. Evaluation of parameters

relating to financial accounts is based on audited quarterly/ annual accounts. The details of the projects sanctioned upto March 2025 under RDSS are as under:

**State/UT-wise Loss Reduction and Smart Metering works sanctioned under RDSS**  
(in Rs. Cr.)

State/UTs	Sanctioned Cost of Loss Reduction Infrastructure Works	Sanctioned Cost of Smart Metering	Total Sanctioned Project Cost
Andaman & Nicobar Islands	462	54	516
Andhra Pradesh	10,710	4,128	14,838
Arunachal Pradesh	1,042	184	1,226
Assam	3,395	4,050	7,444
Bihar	9,983	2,021	12,004
Chhattisgarh	4,021	4,105	8,126
Delhi	324	13	337
Goa	247	469	716
Gujarat	6,089	10,642	16,731
Haryana	6,797	-	6,797
Himachal Pradesh	2,327	1,788	4,116
Jammu & Kashmir	4,771	1,064	5,835
Jharkhand	3,462	858	4,320
Karnataka	36	-	36
Kerala	3,018	8,231	11,249
Ladakh	876	-	876
Madhya Pradesh	9,426	8,911	18,336
Maharashtra	17,238	15,215	32,453
Manipur	615	121	737
Meghalaya	1,232	310	1,542
Mizoram	319	182	500
Nagaland	461	208	668
Puducherry	84	251	335
Punjab	3,873	5,769	9,642
Rajasthan	18,693	9,715	28,408
Sikkim	416	97	514
Tamil Nadu	9,568	19,235	28,803
Telangana	120	-	120
Tripura	598	319	917
Uttar Pradesh	21,661	18,956	40,617
Uttarakhand	1,718	1,106	2,824
West Bengal	7,223	12,670	19,893
<b>Grand Total</b>	<b>1,50,803</b>	<b>1,30,671</b>	<b>2,81,474</b>

### A. Status of Smart Consumer Meters in the Country

Under RDSS, 19.79 Crore smart consumer meters, 52.53 lakh communicable Distribution Transformer meters and 2.11 Lakh communicable feeder meters have been sanctioned. Around 2.4 lakh crore Smart consumer meters have installed in the country by the end of March 2025

### B. Household Electrification under RDSS

Central Government in line with its commitment, is supporting States under the ongoing Scheme of Revamped Distribution Sector Scheme (RDSS) for electrification of any left-out households in the country. MoP requested all the States/UTs to identify

the balance un-electrified villages/habitations for funding under RDSS and issued the norms for electrification of left out households. In addition, all households belonging to Particularly Vulnerable Tribal Group (PVTG) identified under PM-JANMAN (Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan), households belonging to Scheduled Tribes identified under DA-JGUA (Dharti Aaba Janjatiya Gram Utkarsh Abhiyan) and households identified under PM-AJAY (Pradhan Mantri Anusuchit Jaati Abhyuday Yojana) are also being sanctioned for funding under RDSS as per the Scheme guidelines. Details of Households Electrification Works sanctioned under RDSS by end of March 2025 is as given below:

Sl. No.	State	Sanctioned Project Cost (Rs. Cr.)	Central Gross Budgetary Support (Rs. Cr.)	No. of Households Sanctioned
1	Andhra Pradesh	161.27	96.76	46,443
2	Arunachal Pradesh	75.52	67.97	10,136
3	Assam	785.55	706.99	1,27,111
4	Bihar	300.55	180.33	42,635
5	Chhattisgarh	423.17	253.90	80,734
6	Himachal Pradesh	6.63	5.96	100
7	Jammu & Kashmir	77.10	69.39	10,730
8	Jharkhand	199.98	119.98	38,672
9	Karnataka	35.90	21.54	5,844
10	Kerala	7.07	4.24	1,482
11	Madhya Pradesh	184.70	110.81	36,045
12	Maharashtra	57.02	34.21	17,529
13	Manipur	214.44	193.00	36,972
14	Meghalaya	435.70	392.13	50,501
15	Mizoram	79.90	71.91	15,167
16	Nagaland	69.55	62.59	10,004
17	Rajasthan	1765.08	1059.04	4,39,372
18	Tamil Nadu	29.89	17.94	10,673
19	Telangana	120.42	72.25	31,081
20	Tripura	104.52	94.08	19,853
21	Uttar Pradesh	964.48	578.69	2,58,700
22	Uttarakhand	14.59	13.13	2,049
<b>Total</b>		<b>6,113</b>	<b>4,227</b>	<b>12,91,833</b>

### C. Development of Smart Distribution in selected cities under RDSS

To deal with the power supply issues in big cities keeping in view the high load growth in these cities, a team consisting of CEA, NSGM, PFC and REC has been constituted by MoP to prepare DPR. CEA

provided technical guidance for finalization of DPR of Smart Distribution. Smart distribution works like SCADA/DMS, GIS, consumer indexing, drone based monitoring of lines, OMS, ERP, underground cabling, GIS sub-stations etc. have been sanctioned for six cities under RDSS, as per details given below:

S. No.	State	DISCOM	City	Sanctioned Cost (Rs. Cr.)	Sanctioned GBS (Rs. Cr.)
1	Haryana	DHBVNL	Gurugram	706.04	423.62
2	Haryana	DHBVNL	Faridabad	2932.17	1759.30
3	Uttar Pradesh	KESCO	Kanpur	751.27	450.76
4	Uttar Pradesh	PaVVNL	Noida	1333.20	799.92
5	Uttar Pradesh	PuVVNL	Varanasi	1333.63	800.18
6	Bihar	SBPDCL	Patna	296.93	178.16
<b>ALL INDIA TOTAL</b>				<b>7,353.24</b>	<b>4,411.95</b>

These works are under various stages of implementation.

### 7.2 Technical Clearances/examination of DPRs/PPRs/proposals:

- Technical clearance was accorded to Scheme for augmentation of DG capacity at Port Blair by installation of 7x2 MVA DG sets at Chatham Power House in South Andaman.
- Technical clearance was accorded to Scheme for augmentation of DG capacity at Port Blair by installation of 5x2 MVA DG sets at Phoenix Bay Power House in South Andaman.
- Technical clearance was accorded to Detailed Project Report by DNHDDPDCL for 33 kV and above network in UT of DNH&DD.
- Technical clearance was accorded for the construction of 1 km 33kV D/c line on tower from the proposed 132/33kV Sub-Station (2x12.5) at Hnahthial to the existing 33/11kV Sub-station (2x2.5 MVA) at Hnahthial in Mizoram.
- Technical clearance was accorded to Preliminary Project Report (PPR ID-12135) regarding Solar Photovoltaic Water Pumping Systems and Agricultural Feeder Solarization Project/Conventional Pump in Maharashtra.
- Scheme for establishment of new 66/11 kV, 2X20 MVA GIS sub-station at Panchal Industrial Area,

(Transport Nagar), Bhimpore, Daman area was examined and comments were furnished.

- The proposal for introduction of 132/33 kV system in Gujarat was examined and comments were furnished.
- DPR for construction of 23.5 km 33kV D/c line on tower from E. Lungdar Sub-station (1x6.3 MVA) to Khawbung Sub-station (2.5 MVA) in Mizoram was examined and comments were furnished.
- Preliminary Project Report (PPR ID-12301) regarding Maharashtra Power Distribution Enhancement Program for Facilitating solarization and Expanding Agricultural Connections was examined and comments were furnished.
- PPR (PPR ID 12504) for ADB Loan for Renewable Energy Transition Acceleration project, Tripura (Re-TAP) was examined and comments were furnished.
- PPR (PPR ID 12390) for ADB Loan for Technical Assistance grant for West Bengal Distribution System Strengthening Program was examined and comments were furnished.
- Proposals for corporatization of transmission entity in UT of DNH&DD and Ladakh were examined and comments furnished to MoP.

### 7.3 Distribution Perspective Plan 2030 & 2035

A draft Distribution Perspective Plan (DPP) 2030 & 2035 was prepared in consultation with distribution utilities covering the Distribution Plan upto 2029-30 and 2034-35. This Plan has included the Discom wise and all India level Distribution infrastructure planned by Discoms to meet the projected demand by 2029-30 and by 2034-35. The DPP has been forwarded to MoP for approval.

### 7.4 CERT-Distribution

Ministry of Power constituted CERT-Distribution (CERT-D) under Chief Engineer (DP&T), CEA. CERT-D is working to improve the cyber security posture of power distribution Sector by coordinating with the DISCOMs, NCIIPC, MoP, CISO-MoP and CERT-In. The following actions were taken by CERT-D during 2024-25: -

- a. Inputs were provided for finalization of CEA Cyber Security Regulations, finalization of specification of equipment for establishment of CSIRT-Power, revision of MoP Order for testing of imported items etc. and also participated in various meetings related to these subjects.
- b. CERT-D disseminated information and advisories to all the DISCOMs on cyber security issues received from NCIIPC, CERT-In & CISO-MoP and action taken report was sought from the Discoms.
- c. All Major Discoms have nominated their Chief Information Security Officer (CISOs) and updating their details regularly, in case of any change.
- d. All Major Discoms (except one) have on boarded

Cyber Swachhta Kendra (Botnet Cleaning and Malware Analysis Centre) being operated by CERT-In. Vulnerability of DISCOMs reported in every fortnightly Power Sector Situational Report of CSK, is taken up by CERT-D with the concerned DISCOMs for closer/necessary action and closure reports are submitted to MoP/CERT-In.

- e. Discoms were advised regularly to prepare their Cyber Crisis Management Plan (CCMP). 61 Discoms have prepared their CCMP, out of which, CCMP of 35 Discoms have been approved by CERT-In. CCMPs of other Discoms are under various stages of preparation and approval.
- f. Template & guidelines issued by NCIIPC for identifying the Critical Information Infrastructure (CII) in Distribution sector was circulated to all DISCOMs. Further, documents from NCIIPC regarding identification of CII of various Discoms were examined and comments were furnished. CII of major cities like Delhi, Mumbai, Kolkata, Bangalore, Trivandrum etc. have been declared and CII of other cities/Discoms are under examination of NCIIPC.
- g. Discoms were advised regularly to take necessary actions to ensure cyber security like quarterly review of their Cyber Security Measures, to conduct regular security audits through CERT-IN empaneled agencies, implementation of ISO 27001, conduction of mock drill etc.
- h. An Empowered Committee under Secretary, MoP and Standing Committee under Additional Secretary, MoP have been constituted to monitor the cyber security measures taken by Power Utilities. CERT-D is regularly participating and providing necessary inputs in the meeting of Empowered Committee & Standing Committee. The status of Discoms under purview of CERT-D for various cyber security activities is as given below:

S. No.	Activity	Status
1	Appointment of CSIO	81/81
2	Preparation of CCMP	61/81
3	Identification of CII	65/81
4	Implementation of ISO 27001	41/81
5	Onboarding on Cyber Swachhta Kendra (CSK)	80/81
6	Conduction of Cyber Security Audit	69/81

### **7.5 Guidelines for Benchmarking of Operation & Maintenance (O&M) Norms for Distribution Utilities**

Guidelines on the benchmarking of O&M norms for Discoms was prepared covering both the financial as well as technical benchmarking of O&M. The Report covered the analysis of the present practices being followed by SERCs for calculation of O&M cost of Discoms and recommended a suitable model, which may be adopted by SERCs for calculation of O&M cost of Discoms. Technical benchmarking for various distribution infrastructure like sub-stations, DTs, lines etc. were also covered in the document. The Guidelines have been published in the month of January, 2025.

### **7.6 Guidelines for standardization /optimization of Manpower norms in DISCOMs**

To rejuvenate the Power Sector, Standardizing/optimizing the Manpower/ Workforce Norms in DISCOMs is one of the key action points and a need was felt to decide the normative Manpower in the DISCOMs. In this context, development of Guidelines for standardization/ optimization of manpower norms has been taken up in consultation with various stakeholders. The recommendations include, inter-alia, total manpower required in a DISCOM, indicative organizational layering of manpower at different levels, Training and its budget, Workforce Mapping across verticals, promotion, and best practices across the DISCOMs for the benefit of all.

### **7.7 Guidelines for Standardization and Interoperability in AMI Systems for End to End Communication between Smart Meter, HES and MDM**

"Guidelines for Standardization and

Interoperability in AMI Systems for End to End Communication between Smart Meter, HES and MDM" was published in the month of January, 2025, to deal with the issues related to standardization and interoperability in AMI systems.

### **7.8 Island wise integrated Report for UT of Lakshadweep**

As per the minutes of the 7<sup>th</sup> meeting of Island Development Authority (IDA) chaired by Hon'ble Home Minister on 03.01.2025, Ministry of Power was directed to prepare a comprehensive report for development of green energy in the UT of Andaman and Nicobar Islands and UT of Lakshadweep and submit within 3 months.

In this regard, a Committee was constituted in CEA under the chairmanship of Chairperson, CEA for preparing the Island-wise Integrated DPRs for Lakshadweep for greening of Islands. Four meetings of the Committee have been held so far. The final Report of the Committee is expected to be prepared by end of May, 2025.

### **7.9 Greening of islands of A&N and power supply of GNI**

Chairperson, CEA is regularly monitoring the various works related to greening on A&N Islands including power supply requirements of GNI. A status Note was also furnished to MoP regarding Island Development Authority (IDA) meeting for greening of A&N and Lakshadweep.

### **7.10 Inter-Ministerial Central Team (IMCT)**

Officers of CEA participated in Inter-Ministerial Central Team (IMCT) visits of MHA for assessing the damage to power infrastructure due to disasters in the State of Himachal Pradesh, Tamil Nadu, UT of

Puducherry, Odisha and Kerala. IMCT members of CEA provided their recommendations for release of amount under NDRF/SDRF norms for immediate restoration of power sector infrastructure damaged during disaster. Further, PDNA reports of Himachal Pradesh, Sikkim, Kerala, Puducherry were also examined and comments furnished to MHA.

### **7.11 Conduction of Mock Test Exercise at Parliament House**

To ensure reliability of power supply to Parliament house before onset of each Parliament session, mock drill exercises at CPWD 11 KV Parliament House S/S were organized by CPWD in presence of officers of CEA, CPWD & NDMC before the Monsoon, Winter and Budget Sessions of Parliament and the reports of the Mock Test Exercise were sent to MoP, CPWD & NDMC.

### **7.12 Consultancy work for NPCL**

A Report on Distribution infrastructure requirement of NPCL for 10 years has been finalized in consultation with NPCL.

### **7.13 Amendment in “Guidelines for Recognition of Training Institutes in the field of Distribution of Electricity including details of Training Curriculum for Engineers, Supervisors and Technicians”**

Amendment was effected for “Guidelines for Recognition of Training Institutes in the field of Distribution of Electricity including details of Training Curriculum for Engineers, Supervisors and Technicians” to include hot line maintenance in the curriculum.

### **7.14 UPADHI (Urbhokta Adhikaar) Portal**

Government of India has rolled out the Electricity (Rights of Consumers) Rules, 2020, emphasizing on the belief that power systems exist to serve the consumers and the consumers should have rights to get the proper services,

and reliable, quality electricity. The Rules have an extensive coverage including areas such as Rights of consumers and Obligations of Distribution licensees, Release of connection, Metering arrangement, Billing and Payment, Disconnection and Reconnection, Reliability of supply, Consumer as Prosumer etc. To report and monitor the progress regarding the implementation of the provisions of the Electricity (Rights of Consumers) Rules, 2020, an online platform/portal UPbhokta ADHIkaar has been developed by CEA.

UPADHI encompasses the holistic framework for performance monitoring of DISCOMs & SERCs across key metrics defined in the rules and collects state-wise information on compliance with the provision of rules on a single platform. It encapsulates the performance of DISCOMs on 109 key performance indicators (KPIs) and SERCs on 68 KPIs across key consumer service standards defined in the rules.

UPADHI can be accessed at <https://upadhi.cea.gov.in>

### **7.15 Disaster Resource Inventory for Power Sector (DRIPS) Portal**

As per the directions of Hon’ble Minister of Power, Government of India, CEA was entrusted the task of developing an electronic inventory of disaster resources for power sector in line with India Disaster Resource Network (IDRN). The same was developed in consultation with all relevant stakeholders and has been hosted on National Power Portal (NPP) for ease of convenience for all stakeholders. The portal was launched by Hon’ble Minister of Power on 20.08.2024.

The Portal is aimed to assist the disaster affected utilities in faster identification of availability of equipment and resource requisitioning across the country to mitigate the impact of disaster on an immediate basis. The portal is an online inventory of spares for

all wings of Power Sector viz. Generation, Transmission and Distribution. The DRIPS Portal can be accessed by the registered users of CEA, Discoms, Gencos and Transmission utilities on <https://drips.npp.nic.in/login>.

### 7.16 National Feeder Monitoring System

National Feeder Monitoring System (NFMS), being developed under RDSS, is an automated Web-based System for Monitoring the 11 kV Distribution Feeders by integrating data from various DISCOM's and status of all outgoing 11 kV Feeders from 33/11kV substations to make the information available on near Real-Time basis through M2M communication mode.

The National Feeder Monitoring System (NFMS) aims to set up a Centralized Unified system which will be further linked to NPP. NFMS is envisaged with the following key objectives:

- Automatic monitoring for Reliability of Power parameter such as SAIFI, SAIDI and Hours of Supply etc.
- Automatic monitoring for Quality of Power such as Voltage level, Frequency, Powerfactor etc.
- Enabling Inputs for DISCOM Consumer Service Rating, Demand forecasting, Network Planning, Load Management & Energy Accounting and other operational & strategic initiatives
- Advanced reporting and generation of multi layered MIS for all stakeholders along with enablement for Advanced Data based Analytics (AI/ML based)
- Enabling seamless Machine to Machine data transfer from field equipment to the servers and data processing Unit without any manual interventions.

### 7.17 Monitoring of Prime Minister's Development Package (PMDP) 2015

### Distribution Projects in UT of J&K and Ladakh

#### Projects under Ongoing Projects for PMDP 2015:

Ministry of Power on 9th Nov, 2016 has sanctioned an amount of Rs 2570.14 Crores for Strengthening of Distribution system and new technologies in the UT of J&K and Ladakh as below:

**Rural Areas:** Projects in 21 districts amounting to Rs 1157.75 Crores including PMA charges were sanctioned for strengthening the rural distribution network including electrification of shrines, underground cable laying in tourist places and electrical infrastructure in industrial areas. JPDCL, KPDCL & PGCIL have been nominated as Project Implementing Agencies (PIA) by JKPDD.

**Urban Area:** Project in 12 circles amounting to Rs 1144.59 Crores including PMA charges for strengthening the urban distribution network which includes establishment of meter testing labs were sanctioned. JPDCL, KPDCL & RECPDCL are the PIAs.

**Smart metering projects:** Projects for providing smart meters to 2 lakh consumers at the cost of 126.54 Crores including PMA charges were sanctioned, for which RECPDCL is the PIA. Works are under advanced stages of completion.

Approval of the ministry w.r.t. PIA charges has already been conveyed vide Ministry's OM of even number dated 31.3.2021 regarding Sanction of PIA charges to central PSUs under PMDP-2015 for UT of J&K and Ladakh.

#### Projects under Additional Projects for PMDP 2015:

Ministry of Power vide sanction order dated 01- June-21 approved additional funds of Rs 1068.98 crs for completion of balance works

sanctioned under PMDP2015. These works have been awarded by the respective PIAs during November-December 2021. These works have been awarded by the respective PIAs during November-December 2021.

**Rural Areas:** Additional Funds for projects in 21 districts amounting to Rs 530.19 Crores including PMA charges were sanctioned for strengthening the rural distribution network including electrification of shrines, underground cable laying in tourist places and

**Status as on 31.03.2025:**

electrical infrastructure in industrial areas. JPDCL, KPDCL & PGCIL have been nominated as Project implementing Agencies (PIA) by JKPDD.

**Urban Areas:** Additional funds for Project in 12 circles amounting to Rs 428.43 Crores including PMA charges for strengthening the Urban distribution area has been sanctioned. JPDCL, KPDCL & RECPDCL are the PIAs. The expected date of completion of Projects under Additional fund is March, 2025.

Summary of projects in J&K and Ladakh					
Projects	UT	No of sub-projects sanctioned	No of sub-projects awarded	No of sub-projects completed	Remarks
Originally Sanctioned	J&K	161	159	159	1 sub-projects (meter test lab) dropped. 1 Smart grid project dropped.
	Ladakh	38	34	34	2 sub-projects (meter test lab) dropped. 2 Smart grid projects dropped
<b>Total - Originally Sanctioned</b>		<b>199</b>	<b>193</b>	<b>193</b>	
Additional Sanctioned	J&K	37	37	37	
	Ladakh	3	3	1	2 sub-projects at Leh and Kargil are under progress
<b>Total – Additional Sanctioned</b>		<b>40</b>	<b>40</b>	<b>38</b>	
<b>Grand Total (Originally sanctioned + Additional)</b>		<b>239</b>	<b>233</b>	<b>231</b>	

**Pending Projects:**

PIA POWERGRID projects in Leh (97 % complete) and Kargil (71 % complete) are in the final stages of closure, with claim proposals currently under submission.

**7.18 Report of the PVVNL, WBSEDCL, AVVNL and MePDCL regarding implementation of Smart Metering for Feeders and Distribution Transformers under**

**RDSS**

Ministry of Power directed that a survey is to be carried out to assess the working condition of existing feeder/DT meters, which are proposed to be replaced under RDSS. CEA was requested to conduct field survey of AVVNL, PVVNL, WBSEDCL and MePDCL. Based on the data received/ field survey/ discussions held with these Discoms, a Report was prepared and submitted to MoP.

### **7.19 Report of the Status of Feeder, Distribution Transformer and consumer metering**

In order to monitor the status of Feeder, Distribution Transformer and consumer metering, a Report is being framed in CEA. The Report covers the category wise (viz. urban, rural, agricultural) status of metering of feeders & DTs and also category wise (viz. residential, industrial, agricultural etc.) status of metering of consumers. The report is being updated quarterly & annually. The last annual report covering the status of metering of feeders, distribution transformers and consumers as on 31.03.2024, was published in the month of September, 2024.

### **7.20 Revision of Make in India Order**

Inputs were provided for revision of MoP Make in India (MII) Order, PLI Scheme, MoP Order for defining local content of Smart Meters & MDM regarding distribution sector and also participated in various meetings related to these subjects.

### **7.21 Committee for framing the Policy for Recycling/Disposal of the Electricity Meter**

A Committee was constituted by Ministry of Power under the chairmanship of Member (GO&D), CEA with representatives from MoEFCC, CPRI, EGSM, distribution utilities of Gujarat, Madhya Pradesh, Uttar Pradesh, IEEMA & CEA, to prepare a draft policy for disposal and recycling of meters being replaced under RDSS. Two meetings of the Committee have been held so far. The draft of the Policy for Recycling/ Disposal of the Electricity Meter was prepared and circulated for deliberations with the stakeholders.

### **7.22 Amendment in CEA Metering Regulation for Green energy open access for LT consumer**

MoP notified Electricity (Promoting Renewable Energy through Green Energy Open Access) Rules, 2022 on 6th June, 2022. To facilitate Green Energy Open Access to consumers at LT level, an amendment in CEA (Installation and Operation of Meters) Regulations, 2006 was proposed. The draft amendment was published for public comments in the month of March, 2025 after approval from Authority.

## CHAPTER – 8

### DESIGN & ENGINEERING SERVICES

#### 8.1 Design & Engineering of Hydro Electric Projects

Central Electricity Authority (CEA) renders design & engineering services for Hydro Electric Projects under execution in the Country in Central/ State Sectors and neighboring countries. CEA provides consultancy for conventional type hydro generating units, bulb/ tubular type units, pumped storage schemes with an underground/ surface power stations. Design & Engineering includes complete design, techno-economic analysis and preparation of Technical Specifications, tender evaluation, selection and sizing of equipment, detailed layout and schematic drawings for hydro turbine, generator, transformer, GIS, switchyard equipment and other auxiliaries.

#### 8.2 Programme and Achievement during 2024-25

During 2024-25, CEA continued consultancy services for design and engineering of electrical and mechanical works of ten (10) nos. hydroelectric projects. Out of these, eight (8) projects are in India and two (2) projects are in Bhutan. Units-I, II & III of Punatsangchhu–II Hydroelectric Project Authority has been successfully commissioned in 2024-25. The Projects for which design & engineering services were rendered by CEA are as given below:-

Sl. No.	Name of the H.E. Project	Executing Agency/ State	Capacity
<b>E&amp;M Design &amp; Engineering Consultancy</b>			
<b>Main Consultancy (Neighboring Countries)</b>			
1.	Punatsangchhu–I HEP	PHPA-I,Bhutan	6x200 MW
2.	Punatsangchhu–II HEP	PHPA-II,Bhutan	6x170 MW
<b>Main Consultancy (India)</b>			
3.	Lakhwar MPP	UJVNL, Uttarakhand	3x100 MW
4.	Upper Indravati PSP	OHPC Ltd., Odisha	4x150 MW
5.	Kharag HEP	OHPC Ltd., Odisha	3x21 MW
<b>Overview Consultancy (India)</b>	a) Under Construction: i. Tehri PSP ii. Vishnugad Pipalkoti HEP b) Under Operation: i.. Tehri HEP ii. Koteshwar HEP iii. Dhukwan Small HEP	THDCIL, Uttarakhand	4x250 MW 4x111 MW  4x250 MW 4x100 MW 3x8 MW

### 8.3 Scrutiny/Examination/Preparation of DPRs of HE Projects

- a) Chapters on General Layout Aspect, Electro-Mechanical equipment, related drawings, bill of quantities, Memorandum of Changes, etc. of 13 nos. (10 nos. in India and 03 nos. in Nepal) of DPR of HEPs aggregating to 10830 MW including clarifications/ drawings/ documents etc. as received from time to time were examined and commented upon.
- b) Chapters on General Layout Aspect, Electro-Mechanical equipment, related drawings, bill of quantities, Memorandum of Changes, etc. of 41 nos. of DPR of PSPs aggregating to 57810 MW including clarifications/ drawings/ documents etc. as received from time to time were examined and commented upon.
- c) Chapters on E&M aspects along with related drawings & BOQ pertaining to Lift Irrigation Scheme which are referred to CEA by CWC are examined and commented upon. However, no proposal was received.
- d) Memorandum of Changes pertaining to Electro-mechanical aspect received for 02 nos. HEP of 1820 MW were examined and commented upon.
- e) Revised Cost Estimate of 01 no. HEPs aggregating to 600 MW for which the concurrence was already accorded by CEA, was also examined/commented upon.
- f) Electro-mechanical chapter along with related drawings & BoQ of DPR for Pachnad Lift Irrigation Scheme, UP for Planning Circle (CWC), Faridabad was prepared.

The list of above projects is as given below:

#### A. List of DPRs of HEPs examined for E&M aspects during the year:

S.No.	Name of the Project	State	Installed Capacity (MW)
1	Anjaw HEP	Arunachal Pradesh	270
2	Naba HEP	Arunachal Pradesh	1105
3	Teesta	West Bengal	90

	Intermediate HEP		
4	Kamala HEP	Arunachal Pradesh	1720
5	Demwe Upper Stage-I HEP	Arunachal Pradesh	270
6	Oju Subansiri HEP	Arunachal Pradesh	2220
7	Kurung HEP	Arunachal Pradesh	320
8	Subansiri Upper HEP	Arunachal Pradesh	1605
9	Niare	Arunachal Pradesh	860
10	Dulahasti Stage-II	Jammu & Kashmir	260
Projects abroad			
11	West Seti HEP	Nepal	750
12	Seti River-6	Nepal	460
13	Upper Karnali HEP	Nepal	900

#### B. List of PSPs under S&I stage which were examined for E&M aspects during the year:

S.No.	Name of the Project	State	Installed Capacity (MW)
1	Pane PSP	Maharashtra	1500
2	Vemapalli PSP	Andhra Pradesh	1500
3	UP-01 PSP	Uttar Pradesh	3660
4	Kandhaura PSP	Uttar Pradesh	1680
5	Shahpur PSP	Rajasthan	1800
6	Raiwada PSP	Andhra Pradesh	900
7	Tarali PSP	Maharashtra	1500
8	Malshej Ghat Bhorende PSP	Maharashtra	1500
9	Patgaon PSP	Maharashtra	2100
10	Upper Indravati PSP	Orissa	600
11	Warasgaon PSP	Maharashtra	1200
12	Shoma PSP	Uttar Pradesh	2400

13	Bhivpuri PSP	Maharashtra	1000
14	Rayavaram PSP	Andhra Pradesh	1500
15	Musakhand PSP	Uttar Pradesh	600
16	Naya Gaon PSP	Maharashtra	2000
17	Jhariya PSP	Uttar Pradesh	1620
18	Chichlik PSP	Uttar Pradesh	1560
19	Panaura PSP	Uttar Pradesh	1500
20	Brahmani PSP	Rajasthan	600
21	Karjat (Saidonagar-1), PSP	Maharashtra	3000
22	Maval (Saidonagar-2), PSP	Maharashtra	1200
23	Hasdeo Bango PSP	Chhattisgarh	800
24	Sukhpura PSP	Rajasthan	2560
25	Serula PSP	GSECL	960
26	Juni Kayaliwel PSP	GSECL	300
27	Amalpada PSP	GSECL	300
28	Juni Bavali PSP	GSECL	450
29	Satkashi PSP	GSECL	330
30	Ukai PSP	GSECL	1600
31	Savitri PSP	NHPC	2400
32	Somasila PSP	Andhra Pradesh	1200
33	Gadikota PSP	Andhra Pradesh	1200
34	Masinta PSP	Odisha	1000
35	Warasgaon Warangi PSP	Maharashtra	1500
36	Koyna PSP	Maharashtra	2700
37	Shirwata	Maharashtra	1800
38	Indirasagar-Omkareshwar PSP	Madhya Pradesh	640
39	Bilaspur PSP	Chhattisgarh	1000
40	Sirohi PSP	Rajasthan	1200
41	Kamlapadu PSP	Andhra Pradesh	950

**C. List of Lift Irrigation Schemes, referred by CWC, which were examined for E&M aspects during the year:**

No proposal received during the given period.

**D. List of HEPs Memorandum of Changes which were examined for E&M aspects during the year:**

S. No.	Name of the Project	State	Installed Capacity (MW)
1	Kirthai-II HEP	Andhra Pradesh	820
2	Pakal Dul HEP	Himachal Pradesh	1000

**E. List of HEPs which were examined for Revised Cost Estimates for E&M aspects during the year:**

S. No.	Name of the Project	State	Installed Capacity (MW)
1	Kameng HEP	Arunachal Pradesh	600

## 8.4 Proposals for Foreign Assistance/Bilateral Co-operation

Relevant material/ inputs were provided for the proposal of bilateral co-operation with various countries in the field of hydro power development (including Energy Storage) as and when received from various ministries, such as Czech Republic, Russia, European Union, ASEAN, Ghana, Kazakhstan, Norway, Peru, Phillipines, United Kingdom, France, Switzerland, Slovenia, Finland, Ukraine Japan, Germany, US, Mauritius, New Zealand etc.

## 8.5 Review of Technical Standards/Regulations:

Participated in panel meetings of BIS for

preparation of/ amendments in draft Indian Standards, namely IS: 12800 Part-I and Part-II, as and when required.

### 8.6 R&D Activities:

- i. Providing inputs on R&D references received from various ministries and organizations as and when received.
- ii. Participation in various workshops, conferences and trainings conducted by CBIP, CWC, etc. pertaining to developments in Hydro Power Sector.
- iii. Member of Technical Committee on Hydro Research for the examination of R&D proposals for Hydropower sector received from entities for funding by Government of India.

### 8.7 Examination of Innovative Proposals:

Examination/scrutiny of one (01) Innovative Proposal on electric power generation without disturbing the flow of water was received from Sh. Durgaprasad P, Assistant Engineer, KSEB Ltd., Kerala in the given period and commented upon.

### 8.8 Miscellaneous Works:

- i. A Committee was constituted under the chairmanship of Member (Hydro), CEA in the matter of Finalisation of Opening and Closing time ranges of guide vane during turbine and pumping modes of operation in in PSPs vide OM no. 10/3/HE&TD/2023/ dated 30.10.2023 and its report published on CEA website on 08.05.2024.
- ii. Standard Operating Procedure (SOP) on Early Warning System (EWS) published on CEA website on 21.06.2024.

- iii. A sub-committee on 'communication infrastructure' was constituted under the chairmanship of Chief Engineer (HETD&RM), CEA for establishment of norms for cost of components under enabling infrastructure of hydroelectric projects/ pumped storage projects and its report is under finalization.
- iv. Providing inputs and participation in Technical Coordination Committee (TCC) & Authority Meetings of Punatsangchhu- I (6x200 MW) and Punatsangchhu-II (6x170 MW) HEP, Bhutan. Participation in other project related meetings like Project Level Tender Evaluation Committee (PLTEC), Pre-Bid Meetings, Tender- Evaluation Committee (TEC), etc. of Punatsangchhu-I (6x200 MW) and Punatsangchhu- II (6x170 MW) HEP, Bhutan
- v. Conducting inspections at manufacturer works and preparation of reports thereof for various Electro-Mechanical equipment of Punatsangchhu-I (6x200 MW) and Punatsangchhu-II (6x170 MW).
- vi. Inputs in respect of Hydro Power Sector pertaining to Public Procurement (Preference to Make in India) [PPP-MII] Order were provided as & when required. Examination of representations from various associations/ manufacturers in light of latest PPP-MII Order & other relevant MoP & DPIIT Orders.
- vii. Examination of tender documents of value more than Rs. 500cr. floated by CPSUs of Hydro Power Sector under Ministry of Power to ascertain the compliance of PPP-MII Order issued by DPIIT & MoP.
- viii. Inputs for preparation of National Electricity Plan in respect of Hydro Power Sector were provided.
- ix. Reply of various Parliament Questions, VIP references, RTI applications etc. as and when received.

## CHAPTER -9

### ECONOMIC AND COMMERCIAL ASPECTS OF POWER INDUSTRY

As per the Electricity Act, 2003, CEA has, inter-alia, been entrusted with duties and functions relating to collection/recording of data relating to generation, transmission, distribution, trading and utilization of electricity and to carry out studies relating to cost, efficiency, competitiveness etc. to evaluate the financial performance of the power sector.

#### 9.1 Electricity Tariff & Duty and Average Rates of Electricity Supply in India

In-fulfillment of its obligation under section 73(i) & (j) of the Electricity Act, 2003, CEA brings out a publication titled “Electricity Tariff & Duty and Average Rates of Electricity Supply in India”. The latest edition (March 2024) contains information on retail electricity tariff applicable in various States / Utilities effective during the year 2023-24.

The publication provides assimilation of regulatory data on notified tariffs of various States/UTs, the estimated data on average rates of electricity supply & electricity duty for different categories of consumers, along with the summarized data on power supply schemes for special categories of consumers. It also provides the details of subsidy support given by the government to various categories of consumers along with cross subsidy. The estimated average rates of electricity published herein have been computed on the basis of tariff orders received from various State Electricity Regulatory Commissions.

The effective rates for different consumer categories have been worked out assuming different energy consumption for various sanctioned load keeping in view the urbanization, increase in usage of electricity appliances and improvement in the standard of living. In the March 2024 edition, tariff revisions subsequent to the last edition of the publication have been incorporated and tariff applicable in 43 Distribution Utilities have been indicated.

The sanctioned load and monthly energy consumption have been assumed for each category of consumer and considering the tariff notified by the respective Regulatory Commissions, the total amount payable by a particular category of consumer is worked out for the assumed load and monthly energy consumption. The Taxes and Duties are then added to arrive at the average estimated rate of electricity supply in terms of Paise / kWh.

A statement indicating category-wise estimated average rates of electricity for various Distribution Utilities in the country is given as **Annexure-9A**.

#### 9.2 Publishing of Weighted Average Rate of Sale of Power (WARSP)

CEA publishes annually “Weighted Average Rate of Sale of Power” region-wise (Western/ Eastern/ Northern/ Southern/ North-Eastern), sector-wise (Central/ State/ Private) and fuel wise (Thermal/ Nuclear/ Hydro) for conventional generating plants with capacity 25 MW and above. The Generation Tariff Data is collected from various Conventional Generating Utilities/ Power Stations on an annual basis. From the Station-wise Rate of Sale of Power, Weighted Average Rate of Sale of Power (WARSP) figures are computed and uploaded on CEA website.

### 9.3 Assistance to DPIIT for the calculation of Whole Sale Price Index (WPI)

CEA assists Department for Promotion of Industry and Internal Trade (DPIIT) by providing Monthly Generation Tariff data from 72 Conventional Generating Stations (CPSUs and Private) for the compilation of Whole Sale Price Index (WPI).

### 9.4 Commercial appraisal of Power Sector Projects

#### 9.4.1 During the year 2024-25, CEA carried out commercial appraisal of following projects/proposals in India

- 240 MW HEO Hydro Electric Project in Arunachal Pradesh by NEEPCO
- 186 MW Tato-1 HEP in Arunachal Pradesh by NEEPCO
- 700 MW Tato-2 HEP in Arunachal Pradesh by NEEPCO
- Cost Estimate (RCE) of 210 MW Luhri Stage-I HEP – regarding reimbursement of towards Cost of Flood Moderation of 2880 MW Dibang Multipurpose Project, 600 Crores

#### 9.4.2 CEA also carried out financial and commercial appraisal of following hydro projects in Bhutan

- Vetting of the calculations of proposed amortization schedule for the cost of Associated Transmission System (ATS) of MHP apportioned to Kholongchhu and Chamkharchhu Hydro-Electric Project in Bhutan
- Provided inputs for Tariff negotiations for Punatsangchhu-II HPS of Bhutan (Cost of project 5033 Crores)

### 9.4.3 Recommendation of tariff for Nuclear Power Stations

- As per Atomic Energy Act 1962, tariff of nuclear power station is decided by Department of Atomic Energy in consultation with Central Electricity Authority.
- Tariff determination exercise carried out for Narora Atomic Power Station Units 1 & 2 for the period 2015–17, including scrutiny of cost data, plant performance parameters, and other inputs shared by NPCIL.
- Detailed examination of the draft tariff notification of the Department of Atomic Energy for the tariff period 2022–27, with comments furnished to strengthen regulatory framework.

### 9.4.4 Computation of Energy Charge Rate (ECR) for Imported Coal Based Plant during Section 11 period

Assisting the expert committee set up by Ministry of Power under Chairperson, CEA in determination of benchmark ECR of Imported Coal Based (ICB) Station for period of application of directions under Section 11 of Electricity Act 2003 to relieve the impact of high electricity demand in crunch period. The committee had recommended the benchmark ECR for 6 nos of ICB plants for the entire period from April, 2024 to March, 2025 on fortnightly basis.

### 9.5 Preparation of Policy, Bidding Documents and Guidelines

- Draft revised Electricity Policy 2025 was prepared in consultation with stakeholders and shared with Ministry of Power (MoP) in February 2025.

- As directed by Hon'ble Minister of Power, an Alternate Mechanism for levying uniform monthly surcharge along with the tariff, instead of monthly varying Fuel and Power Purchase Adjustment Surcharge to avoid tariff shock to the consumers along with necessary amendment in Rule 14 of Electricity Rules were prepared in consultation with stakeholders and shared with MoP in January 2025.
- In order to ensure sustainable level of borrowing by distribution companies, transmission companies and generating companies, modifications in Additional Prudential Norms followed by lenders (REC/PFC) were prepared and shared with MoP in May 2024.
- Guiding Principle for streamlining of O&M expenses of distribution companies were prepared and shared with MoP in July 2024 and the same was approved by MoP. The same was circulated to States in form of Guidelines issued by CEA.
- Draft guidelines for procurement of pumped storage power were prepared and sent to MoP in April 2024 and the same was notified by MoP in Feb 2025
- Draft Guidelines for Tariff Based Competitive Bidding Process for Procurement of Power from Thermal Power Stations under long term on Finance, Own and Operate (FOO) and Model Power Supply Agreement were prepared and sent to MoP. The same was discussed in MoP and proposed changes are being carried out.
- Draft revised Guidelines for short-term Procurement of Power by Distribution Licensees through Tariff based bidding process were prepared and sent to MoP.
- Prepared draft TBCB Guidelines and SBDs for award of transmission projects in DVC system and shared with MoP
- Based on received requests for Transmission Service Providers, following amendments in

the TBCB Guidelines, and Standard Bidding Documents were proposed to MoP:-

1. Inclusion of Insurance Surety Bond, Payment on Order Instruments in addition to Bank Guarantee for Bid Bond and Performance Security Guarantee. This has been notified by MoP.
2. Flexibility to Bidders to execute their projects through new SPV route or any other existing SPV or balance sheet of the company.
3. Qualification Requirement for HVDC project and Statcom
4. Empanelment of bidders so that submission of Qualification Requirement details by bidders for each bid could be avoided
5. Mechanism to address CIL claims for change in wind zone for existing lines and change in river course events
6. Mechanism to address the situation of no bid or single bid received
7. Mechanism to address claims related to change in line length due to change in sub-station location
8. Mechanism to address change in law relief for right of way compensation paid by TSP.

## 9.6 Monthly report on Indices

A summary analysis from electricity point of view of major indices like WPI, Index of 8 core industries, CPI and IIP released by DPIIT and MOSPI is prepared and sent to Ministry of Power on monthly basis.

## 9.7 The Electricity Act, 2003

### 9.7.1 Framing and Amendments of the CEA Regulations framed and notified under the Electricity Act, 2003

The Central Electricity Authority has been vested with the powers to make regulations under section 177 of the Electricity Act, 2003. The following regulations and their respective amendment regulations have been framed and notified by the Central Electricity Authority during previous years

since the enactment of the Electricity Act, 2003:

Sl. No.	Short title of the regulation	Notified on
<b>1</b>	Central Electricity Authority (Installation & Operation of Meters) Regulations, 2006	17.03.2006
1.1	Central Electricity Authority (Installation & Operation of Meters) (Amendment) Regulations, 2010	04.06.2010
1.2	Central Electricity Authority (Installation & Operation of Meters) (Amendment) Regulations, 2014	26.11.2014
1.3	Central Electricity Authority (Installation & Operation of Meters) (Amendment) Regulations, 2019	23.12.2019
1.4	Central Electricity Authority (Installation & Operation of Meters) (Amendment) Regulations, 2022	28.02.2022
<b>2</b>	Central Electricity Authority (Procedure for Transaction of Business) Regulations, 2006	18.8.2006
<b>3</b>	Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulation, 2007	21.02.2007
3.1	Central Electricity Authority (Technical Standards for Connectivity to the Grid) (Amendment) Regulation, 2013	15.10.2013
3.2	Central Electricity Authority (Technical Standards for Connectivity to the Grid) (Amendment) Regulation, 2019	06.02.2019
<b>4</b>	Central Electricity Authority (Furnishing of Statistics, Returns & Information) Regulation, 2007	10.04.2007
4.1	Central Electricity Authority (Furnishing of Statistics, Returns & Information) (Amendment) Regulation, 2022	17.03.2022
4.2	Central Electricity Authority (Furnishing of Statistics, Returns & Information) (Amendment) Regulation, 2023	25.07.2023
<b>5</b>	Central Electricity Authority (Grid Standards) Regulation, 2010	26.06.2010
<b>6</b>	Central Electricity Authority (Safety requirements for construction, operation and maintenance of electrical plants and electric lines) Regulations, 2011	24.01.2011
6.1	Central Electricity Authority (Safety requirements for construction, operation and maintenance of electrical plants and electric lines) (Amendment) Regulations, 2022	15.11.2022
<b>7</b>	Central Electricity Authority (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations, 2013	30.09.2013
7.1	Central Electricity Authority (Technical Standards for Connectivity of the Distributed Generation Resources) (Amendment), Regulations, 2019	06.02.2019
<b>8</b>	Central Electricity Authority (Technical Standards for Communication Systems in Power System Operation) Regulations, 2020	27.02.2020
<b>9</b>	Central Electricity Authority (Technical Standards For Construction of Electrical Plants and Electric Lines) Regulations, 2022.*	23.12.2022
<b>10</b>	Central Electricity Authority (Flexible Operation of Coal Based Thermal Power Generating Units) Regulations, 2023	25.01.2023
<b>11</b>	Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2023 **	08.06.2023

\* These regulations have replaced the earlier regulations framed in Year 2010.

\*\* These regulations have replaced the earlier regulations framed in Year 2010.

Central Electricity Authority.

### 9. 7. 2 Court Cases

CEA is dealing with the Court Cases filed in the Hon'ble Supreme Court, High Courts, National Green Tribunal and District Courts/ Lower Courts across the Country on behalf of Government of India, Ministry of Power and

More than 250 court cases which are ongoing/ pending at various courts in which Ministry of Power or Central Electricity Authority have been impleaded as respondent (s) during the year 2024-2025.

## 9.8 Assistance to Ministry of Power

Comments were furnished to the Ministry of Power on various references received. The important issues in which the comments were furnished are as under: -

- Request for clarification- Treatment of FSA/Coal Supply in case of conversion of part of capacity from IPP to CPP.
- Reference from MoP on Rajasthan Electricity (Duty) Bill, 2023.
- Minutes of Meeting (MoM) held on 04.04.24 with Ministry of Power and Ministry of Coal to address various issues emanating out of Hon'ble APTEL's order dated 12.02.24. (Railway Board, Ministry of Railway's letter dated 10.04.2024 addressed to Secretary, Power, requesting to provide the comments/inputs on the proposal by Indian Railways for exemption under section 184 of the Electricity Act, 2003.)
- Reference from MoP on The Electricity (Haryana Amendment) Bill, 2019

## 9.9 Legal Assistance/Advice to Utilities

The comments were furnished to various departments/organizations stakeholders/utilities on references received from them. The important issues on which the comments were furnished are as under: -

- Recommendation to Government of India to align the Electricity Rules, 2005 to enable BSR model as Captive generating plant
- Reference received from UPPCL-Representation against the provision of Deemed Renewal of Licensee inserted through Electricity

(Amendment) Rules, 2023 amending the Electricity Rules, 2005

- Shore to Ship power supply-Representation from ArcelorMittal Nippon Steel (AM/NS) India Limited for captive consideration

**9.10** In exercise of the powers vested under sub-rule (3) of rule 3 of the Electricity Rules, 2005, the Central Electricity Authority has framed the procedure with the approval of the Central Government for verifying the captive status of such generating plants, where Captive Generating Plant and its Captive User(s) are located in more than one state.

## 9.11 Other important Policy and Regulatory issues

- **Rules/Regulations:** Inputs were given for amendments to Electricity (Late Payment Surcharge and related matters) Rules including mandatory offering of requisitioned power in power exchange and inclusion of intra-state transmission; CEA also facilitated finalization of procedures under these Rules and resolved related generator issues.
- **Procurement of Gas Based Generation during crunch period:** Prepared scheme for procurement of upto 1800 MW of Gas Based Stations for meeting the anticipated increased demand during 16 Mar-15 Oct 25 and the same was approved by MoP. After approval, 4 nos of GBS with about 1740 MW of contracted capacity selected for supply.
- **Benchmark tariff for Gas Based Stations:** Determined benchmark tariff for selected GBS with no PPA during Section 11 period from 1st May-30th June 2024.

- **Monetisation of transmission assets:** Assisted TANTRANSCO for decision making on monetisation of their transmission assets. Besides, CEA organised a sensitization workshop of monetisation of transmission asset on 06.12.2024, where finance and technical officers from more than 20 state utilities participated. Challenges to monetisation of transmission assets identified and road map for addressing the same are being worked out with stakeholders.
- **Optimum utilisation of transmission capacity:** A report on optimum utilization of transmission capacity was prepared in consultation with stakeholders and shared with MoP.
- **Fair price of major RE equipment and tariffs:** A report on fair price of major solar equipment and fair tariff was prepared and submitted jointly to MoP and MNRE.
- **Promotion of Green Hydrogen:**
  - Optimisation Model utilisation of Green Hydrogen as Storage with 100 MW Electrolyser Capacity carried out for different combination of Solar, Wind, Electrolyser capacity and the report with MNRE.
  - Report on issues related to banking for Green Hydrogen/Green Ammonia projects was prepared and shared with MoP
  - Technical inputs shared with MNRE on optimization and banking studies for Green Hydrogen projects, including impact on grid balancing, system costs, and international competitiveness.
  - Provided input to MoP regarding designating India as single bidding zone for the purpose of production of Green Hydrogen that qualifies as renewable hydrogen as per the recently implemented EU Delegated regulation on Renewable Fuels of Non-Biological Origin (RFNBO)
- **EV Charging:** Revised the ceiling limit of service charge to be levied by Public Charging Station for serving the capital expenditure
- **Climate Finance Taxonomy:** Examined Concept Note on Climate Finance Taxonomy prepared by Department of Economic Affairs and shared with MoP and Department of Economic Affairs.
- **Promotion of Renewable Energy:**
  - In order to address shortage of RE Generation to meeting Renewable Consumption Obligation, concept note of Virtual Power Purchase Agreement and Renewable Energy Commitment Certificate prepared and shared with MoP
  - Methodology to determine per unit Electricity Charges for Rooftop Solar Renewable Energy on Government Buildings under PM Surya Ghar: Muft Bijli Yojana for Mechanism-I (SIP owned deployment) prepared and sent to MNRE
  - To enable introduction of Market Based Mechanism for sale of renewable energy power through Power Exchanges, analysis of funding requirement to the Pool for a pilot 500 MW Vanila solar project for the period 2025-45 was carried out and shared with MoP.
  - Comments of CEA on draft guidelines of the Payment security mechanism component and central financial assistance under PM- surya ghar- muft Bijli yojana sent to MoP in Sept 2024
  - Analysed cost and tariff for BSUL Jalaun solar park-1200 MW, Rs 800 Cr (a JV of NHPC & UPNEDA) under the MNRE Scheme (MODE 8-UMREPP, 45 MW Solar power project at Madhogarh, Distt. Jalaun in Uttar Pradesh by BSUL (184 Crores)
  - Analysed of cost and tariff for 1200 MW Solar PV project (s) under CPSU Scheme Phase-II, Tranche-III by Solar Energy Corporation of India (SECI) Limited, 3600 Cr

- **Energy Storage:** Proposals for GST exemption on pumped storage and battery projects were analysed and shared with MoP.
- **Nuclear Power:**
  - Prepared the roadmap for achieving 100 GW of nuclear capacity by 2047, including technical analysis, cost implications, as discussed in the Committee meetings co-chaired by senior officials from CEA and NPCIL.
  - Inputs provided for inter-ministerial meeting co-chaired by Secretary (Power) and Secretary (DAE) in January 2025, covering policy, regulatory, and technical issues relating to expansion of nuclear generation.
- **Thermal Power:**
  - Comments provided to the Ministry of Coal on Rajasthan's conditions for sale of power from VS Lignite Power Ltd., including regulatory and cost-related observations.
  - Analysed the request of M/s MSPGCL regarding evaluating the higher O&M expenses of Koradi Thermal Power Station (KTPS) (3 x 660 MW) compared to the prevailing O&M expenses norms specified by the state electricity regulator and provided inputs
  - Comments provided on private thermal developers request for reduction in lending rates for thermal projects to bring them in line with RE sector lending norms.
- **E-reverse auction for hydro EPC works:** Analysis of requests from contractors for exempting hydro projects from e-Reverse Auction, with comments shared with MoP in December 2024.
- **Implementation modality for High - Capacity Interconnection between India and**

**Bangladesh - 765 kV Katihar - Parbotipur – Bornagar D/c line:** Facilitated preparation of background note and discussion points of the joint committee co-chaired by Member (E&C) from Indian side to finalize implementation modalities for High - Capacity Interconnection between India and Bangladesh - 765 kV Katihar - Parbotipur – Bornagar D/c line

## 9.12 Market Monitoring

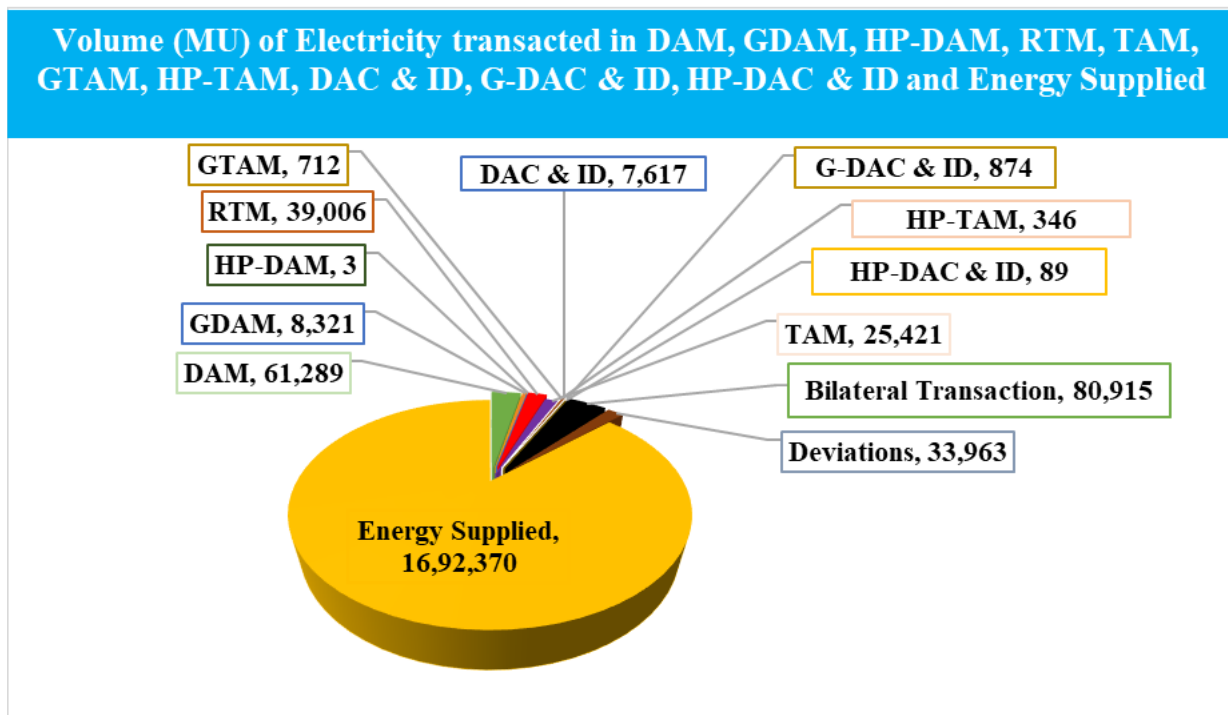
1. Ministry of Power in March, 2019 had entrusted CEA with the task of monitoring the transaction in the electricity market in India. As such, CEA prepares Monthly Market Monitoring Reports (MMMR) and Annual Market Monitoring Reports (AMMR) with the objective of analysis of movement of prices discovered for the electricity transacted on the power exchanges in India in the Day Ahead Market (DAM), Green Day Ahead Market (GDAM), High Price Day Ahead Market (HP-DAM), Real Time Market (RTM), Term Ahead Market (TAM), Green Term Ahead Market (GTAM), High Price Term Ahead Market (HP-TAM), Day Ahead Contingency & Intraday (DAC & ID), Green Day Ahead Contingency & Intraday (G-DAC & ID) and High Price Day Ahead Contingency & Intraday (HP-DAC & ID). In the year 2024-25, CEA has prepared Annual Market Monitoring Report (for year 2023-24) and Monthly Market Monitoring Reports (for March, 2024 to February, 2025). These reports are available on CEA's website (<https://cea.nic.in/market-monitoring-cell-annual-report/?lang=en>).

2. The salient points of the electricity market for FY 2024-25 are:

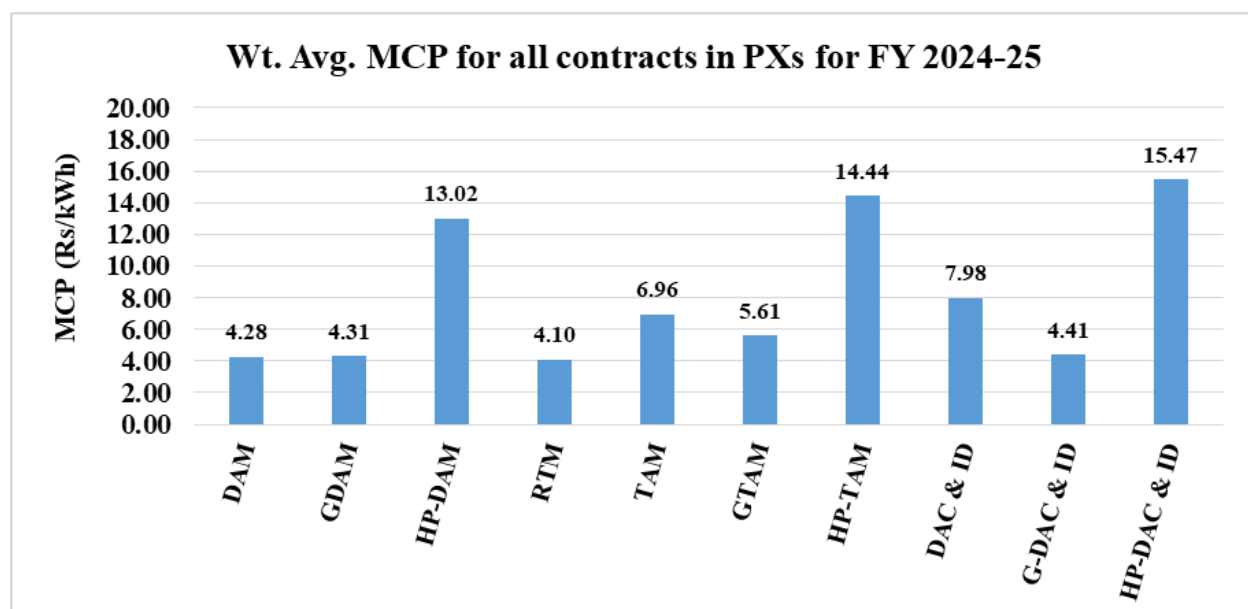
(i) The total volume of electricity transacted during FY 2024-25 in the power exchanges i.e. IEX, PXIL and HPX on delivery date basis was **143,677 MU**, which is 8.49 % of the total energy supplied i.e. **1,692,370 MU** in the country during FY 2024-25.

The total volume of electricity transacted in 2024- electricity transacted in the power exchanges during 25 increased by 18.19 % compared to the total FY 2023-24, which was 121,569 MU.

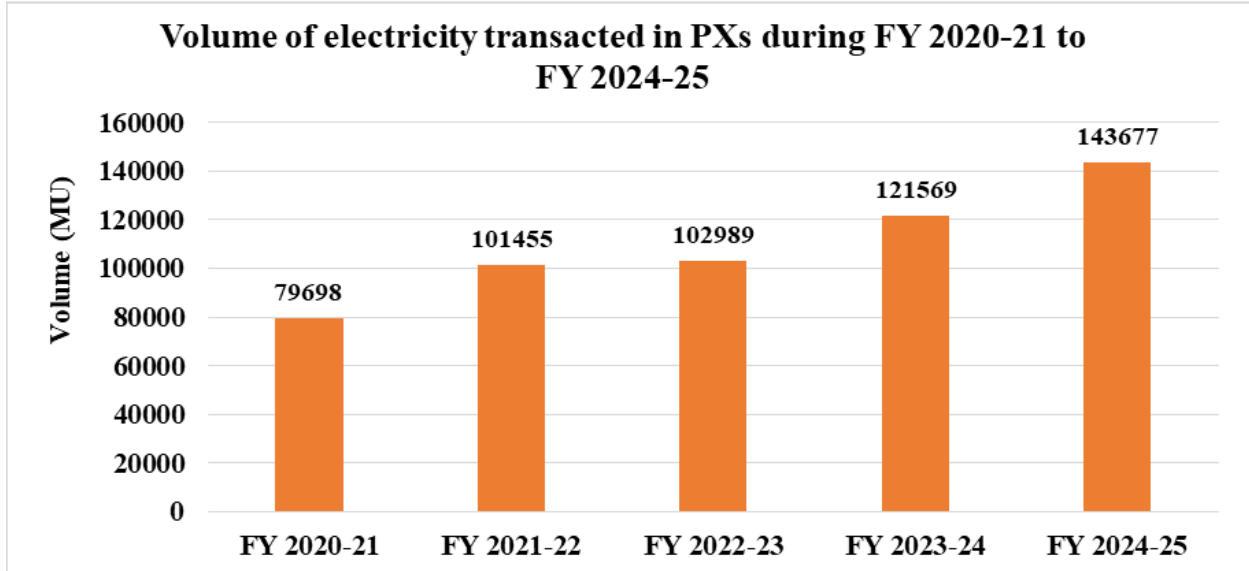
(ii) The total volume of electricity transacted in the power exchanges in DAM, GDAM, HP-DAM, RTM, TAM, GTAM, HP-TAM, DAC & ID, G-DAC & ID and HP-DAC & ID during FY 2024-25 were **61289 MU, 8321 MU, 3 MU, 39006 MU, 25421 MU, 712 MU, 346 MU, 7617 MU, 874 MU, 89 MU**, respectively. The volume of electricity transacted in Day Ahead Market constituted about 43 % of total transacted volume of electricity in the power exchanges during FY 2024-25.



(iii) The Market Clearing Price variation among all the contracts in power exchanges for FY 2024-25 is as follows:



(iv) The total volume of electricity transacted in power exchanges from the period FY 2020-21 to FY 2024-25 is shown below:



## CHAPTER – 10

### POWER GENERATION

#### 10.1 Power Generation

Generation of power from conventional sources (Thermal & Nuclear) Large Hydro and import from Bhutan by the Central Sector, State Sector, Pvt. Utilities & IPPs was about

1574688.75 million units (MUs) during the Year 2024-25. This represents a growth of about 4.06 % over the same period during previous year 2023-24 as per details given below:

#### Power Generation during 2024-25

Category	Program (MU)	Actual (MU)	Shortfall (-)/ Excess (+) w.r.t Program (in MU)	% of Program	Growth (%) with respect to previous year Actual Gen.
<b>Thermal</b>	1444943	1363890	(-) 81053.2	94.39	2.81
<b>Nuclear</b>	55348	56680.83	1332.83	102.41	18.24
<b>Hydro</b>	147709	148634	924.98	100.63	10.88
<b>Bhutan Import</b>	8000	5484.18	(-) 2515.82	68.55	16.29
<b>Grand Total</b>	<b>1656000</b>	<b>1574689</b>	<b>(-) 81311</b>	<b>95.09</b>	<b>4.06</b>

**Note:** Generation from stations having installed capacity less than 25MW is not being monitored in CEA since 01.04.2010.

The highlights / achievements of operation performance of generating stations in the country during the year 2024-25 are as under:

- Gross annual generation of the country was 1574.689 BU.
- The annual growth in the energy generation during the year was 4.06%.
- Thermal, Nuclear, Hydro and Import from Bhutan achieved a growth rate of 2.81%, 18.24, 10.88% & 16.29% respectively. The electricity generation during the year 2024-25 from coal based thermal power stations was 1298.87 BU showing a growth rate of 3.01 % over same period last year.
- In Northern Region, the growth in thermal generation was 5.88% with respect to last year, which was highest amongst all the regions.
- The national average PLF for thermal stations was 69.45 % and 106 Stations with an aggregate installed capacity of 124938.85 MW, achieved PLF above national average. 11 number of thermal power stations with an aggregate installed capacity of 14795.19 MW achieved above 90% PLF.

The Sector-Wise Generation and PLF during 2024-25 is given below:

Category /	APRIL 2024 - MAR-2025		
	Program (MU)	Actual (MU)	PLF (%)
<b>CENTRAL SECTOR</b>			
THERMAL	543246	486184.98	75.32
NUCLEAR	55348	56680.83	79.10
HYDRO	61363	59246.61	
<b>TOTAL</b>	<b>659957</b>	<b>602112.42</b>	
<b>STATE SECTOR</b>			
THERMAL	452967	409553.02	63.23
HYDRO	69543	73831.17	
<b>TOTAL</b>	<b>522510</b>	<b>483384.19</b>	
<b>PVT. SECTOR UTL.</b>			
THERMAL	19345	18076.83	59.85
HYDRO	1480	1561.12	
<b>TOTAL</b>	<b>20825</b>	<b>19637.95</b>	
<b>PVT. SECTOR IPP</b>			
THERMAL	429385	450074.93	70.19
HYDRO	15323	13995.08	
<b>TOTAL</b>	<b>444708</b>	<b>464070.01</b>	
<b>TOTAL PVT</b>	<b>465533</b>	<b>483708</b>	
<b>BHUTAN IMP</b>			
-	8000	5484.18	
<b>All India Region</b>			
THERMAL	1444943	1363889.76	69.45
NUCLEAR	55348	56680.83	79.10
HYDRO	147709	148633.98	
BHUTAN IMP	8000	5484.18	
<b>TOTAL</b>	<b>1656000</b>	<b>1574688.75</b>	

**Note:** Based on 2024-25 Actual Generation (Up to March, 25) from conventional sources Thermal/Hydro/Nuclear) with station capacity > 25 MW

## 10.2 Plant Load Factor (PLF) of Thermal Power Stations

During the year 2024-25 the average PLF of Thermal Power Stations was 69.45 % and for

Nuclear Power Stations was 79.10%. 100 Thermal power plants (Coal and Lignite based) achieved PLF higher than the All India average PLF of 69.45 % as per details given in the table below:

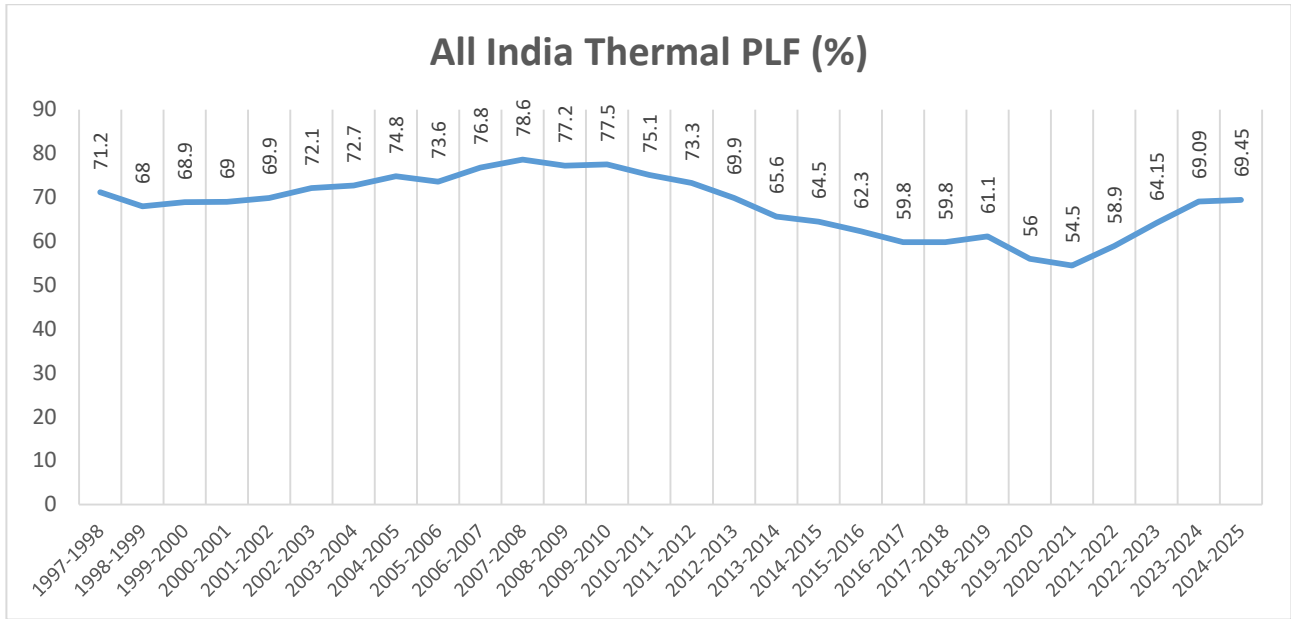
**List of Thermal Power Stations (Coal and Lignite based) which have achieved PLF  
above National Average of 69.45 % during the year 2024-25**

Sl. No.	Station Name	Capacity (MW)	Sector	State	PLF (%)
1	SANTALDIH TPS	500.00	STATE SECTOR	West Bengal	94.38
2	BAKRESWAR TPS	1050.00	STATE SECTOR	West Bengal	93.32
3	BANDEL TPS	270.00	STATE SECTOR	West Bengal	91.28
4	HALDIA TPP	600.00	IPP SECTOR	West Bengal	91.14
5	SAGARDIGHI TPS	1600.00	STATE SECTOR	West Bengal	90.85
6	KORBA STPS	2600.00	CENTRAL SECTOR	Chhatisgarh	90.76
7	SASAN UMTTP	3960.00	IPP SECTOR	Madhya Pradesh	90.59
8	TAMNAR TPP	2400.00	IPP SECTOR	Chhatisgarh	90.28
9	LARA TPP	1600.00	CENTRAL SECTOR	Chhatisgarh	90.24
10	SINGRAULI STPS	2000.00	CENTRAL SECTOR	Uttar Pradesh	89.37
11	RIHAND STPS	3000.00	CENTRAL SECTOR	Uttar Pradesh	89.14
12	SIPAT STPS	2980.00	CENTRAL SECTOR	Chhatisgarh	88.06
13	VINDHYACHAL STPS	4760.00	CENTRAL SECTOR	Madhya Pradesh	87.55
14	DHARIWAL TPP	600.00	IPP SECTOR	Maharashtra	87.30
15	KAMALANGA TPS	1050.00	IPP SECTOR	Odisha	86.37
16	DARLIPALI STPS	1600.00	CENTRAL SECTOR	Odisha	86.30
17	DERANG TPP	1200.00	IPP SECTOR	Odisha	86.03
18	DSPM TPS	500.00	STATE SECTOR	Chhatisgarh	85.23
19	BARADARHA TPS	1200.00	IPP SECTOR	Chhatisgarh	84.83
20	GMR WARORA TPS	600.00	IPP SECTOR	Maharashtra	84.71
21	KHURJA TPP	660.00	CENTRAL SECTOR	Uttar Pradesh	84.36
22	AMARKANTAK EXT TPS	210.00	STATE SECTOR	Madhya Pradesh	84.04
23	KODARMA TPP	1000.00	CENTRAL SECTOR	Jharkhand	84.00
24	NORTH KARANPURA TPP	1320.00	CENTRAL SECTOR	Jharkhand	83.96
25	IB VALLEY TPS	1740.00	STATE SECTOR	Odisha	83.77
26	BUDGE BUDGE TPS	750.00	PVT SECTOR	West Bengal	83.55
27	OP JINDAL TPS	1000.00	IPP SECTOR	Chhatisgarh	83.25
28	ADANI POWER LIMITED RAIGARH TPP	600.00	IPP SECTOR	Chhatisgarh	83.16
29	BHILAI TPS	500.00	CENTRAL SECTOR	Chhatisgarh	82.51
30	WARDHA WARORA TPP	540.00	IPP SECTOR	Maharashtra	82.30
31	RAJPURA TPP	1400.00	IPP SECTOR	Punjab	82.24
32	MAHADEV PRASAD STPP	540.00	IPP SECTOR	Jharkhand	82.15
33	PATHADI TPP	600.00	IPP SECTOR	Chhatisgarh	82.10
34	SGPL TPP	1320.00	IPP SECTOR	Andhra Pradesh	82.03
35	MUZAFFARPUR TPS	390.00	CENTRAL SECTOR	Bihar	82.02
36	CHHABRA-I PH-2 TPP	500.00	STATE SECTOR	Rajasthan	81.98
37	NEYVELI ( EXT) TPS	420.00	CENTRAL SECTOR	Tamil Nadu	81.73
38	TALCHER STPS	3000.00	CENTRAL SECTOR	Odisha	81.36
39	SABARMATI (D-F STATIONS)	362.00	PVT SECTOR	Gujarat	81.31
40	KOTA TPS	1240.00	STATE SECTOR	Rajasthan	80.98
41	NABINAGAR STPP	1980.00	CENTRAL SECTOR	Bihar	80.97
42	NIGRI TPP	1320.00	IPP SECTOR	Madhya Pradesh	80.93
43	NABINAGAR TPP	1000.00	CENTRAL SECTOR	Bihar	80.90
44	D.P.L. TPS	550.00	STATE SECTOR	West Bengal	80.68
45	KAHALGAON TPS	2340.00	CENTRAL SECTOR	Bihar	80.62
46	DURGAPUR STEEL TPS	1000.00	CENTRAL SECTOR	West Bengal	80.58
47	BARSINGSAR LIGNITE	250.00	CENTRAL SECTOR	Rajasthan	80.35
48	JOJOBERA TPS	240.00	IPP SECTOR	Jharkhand	80.17
49	CHANDRAPURA(DVC) TPS	500.00	CENTRAL SECTOR	Jharkhand	79.44

50	ADANI POWER LIMITED KAWAI TPP	1320.00	IPP SECTOR	Rajasthan	79.37
51	MAHAN TPP	1200.00	IPP SECTOR	Madhya Pradesh	79.19
52	KOTHAGUDEM TPS (STAGE-7)	800.00	STATE SECTOR	Telangana	79.04
53	MAITHON RB TPP	1050.00	IPP SECTOR	Jharkhand	78.86
54	BELA TPS	270.00	IPP SECTOR	Maharashtra	78.73
55	AMRAVATI TPS	1350.00	IPP SECTOR	Maharashtra	78.46
56	ADANI POWER LIMITED RAIPUR TPP	1370.00	IPP SECTOR	Chhatisgarh	78.29
57	CHHABRA-I PH-1 TPP	500.00	STATE SECTOR	Rajasthan	77.89
58	ANUPPUR TPP	1250.00	IPP SECTOR	Madhya Pradesh	77.76
59	MARWA TPS	1000.00	STATE SECTOR	Chhatisgarh	77.68
60	ANPARA C TPS	1200.00	IPP SECTOR	Uttar Pradesh	77.63
61	NEYVELI NEW TPP	1000.00	CENTRAL SECTOR	Tamil Nadu	76.82
62	BALCO TPS	600.00	IPP SECTOR	Chhatisgarh	76.71
63	MEJIA TPS	2340.00	CENTRAL SECTOR	West Bengal	76.65
64	FARAKKA STPS	2100.00	CENTRAL SECTOR	West Bengal	76.23
65	KOLAGHAT TPS	840.00	STATE SECTOR	West Bengal	76.19
66	SINGARENI TPP	1200.00	STATE SECTOR	Telangana	75.97
67	NEYVELI TPS(Z)	250.00	IPP SECTOR	Tamil Nadu	75.70
68	KHAPARKHEDA TPS	1340.00	STATE SECTOR	Maharashtra	75.06
69	JSW RATNAGIRI TPP	300.00	IPP SECTOR	Maharashtra	75.03
70	PRAYAGRAJ TPP	1980.00	IPP SECTOR	Uttar Pradesh	74.88
71	ADANI POWER LIMITED TIRODA TPP	3300.00	IPP SECTOR	Maharashtra	74.71
72	BANDAKHAR TPP	300.00	IPP SECTOR	Chhatisgarh	74.51
73	MEJA STPP	1320.00	CENTRAL SECTOR	Uttar Pradesh	74.36
74	TELANGANA STPP PH-1	1600.00	CENTRAL SECTOR	Telangana	74.23
75	ANPARA TPS	2630.00	STATE SECTOR	Uttar Pradesh	73.82
76	HIRANMAYE TPP	300.00	IPP SECTOR	West Bengal	73.59
77	NAWAPARA TPP	600.00	IPP SECTOR	Chhatisgarh	73.42
78	DAHANU TPS	500.00	PVT SECTOR	Maharashtra	73.08
79	BONGAIGAON TPP	750.00	CENTRAL SECTOR	Assam	72.86
80	BOKARO TPS `A` EXP	500.00	CENTRAL SECTOR	Jharkhand	72.80
81	ADANI POWER LIMITED MUNDRA TPP - I & II	2640.00	IPP SECTOR	Gujarat	72.48
82	LALITPUR TPS	1980.00	IPP SECTOR	Uttar Pradesh	72.36
83	UNCHAHAHAR TPS	1550.00	CENTRAL SECTOR	Uttar Pradesh	72.29
84	SURAT LIG. TPS	500.00	IPP SECTOR	Gujarat	72.26
85	PANIPAT TPS	710.00	STATE SECTOR	Haryana	72.19
86	BARH STPS	2640.00	CENTRAL SECTOR	Bihar	72.07
87	CHAKABURA TPP	30.00	IPP SECTOR	Chhatisgarh	72.04
88	KALISINDH TPS	1200.00	STATE SECTOR	Rajasthan	71.97
89	SANJAY GANDHI TPS	1340.00	STATE SECTOR	Madhya Pradesh	71.94
90	JALIPA KAPURDI TPP	1080.00	IPP SECTOR	Rajasthan	71.46
91	KORADI TPS	2190.00	STATE SECTOR	Maharashtra	70.94
92	KORBA-WEST TPS	1340.00	STATE SECTOR	Chhatisgarh	70.72
93	BINJKOTE TPP	600.00	IPP SECTOR	Chhatisgarh	70.48
94	ROSA TPP Ph-I	1200.00	IPP SECTOR	Uttar Pradesh	70.42
95	PAINAMPURAM TPP	1320.00	IPP SECTOR	Andhra Pradesh	70.35
96	MAHATMA GANDHI TPS	1320.00	IPP SECTOR	Haryana	70.33
97	MAUDA TPS	2320.00	CENTRAL SECTOR	Maharashtra	70.19
98	TORANGALLU TPS(SBU-I)	260.00	IPP SECTOR	Karnataka	70.05
99	SIMHADRI	2000.00	CENTRAL SECTOR	Andhra Pradesh	69.82
100	TANDA TPS	1760.00	CENTRAL SECTOR	Uttar Pradesh	69.58

**Note:** Based on 2024-25 Actual Generation (Up to March, 25) from conventional sources Thermal/Hydro/Nuclear) with station capacity > 25 MW

The trend in All India PLF of coal and Lignite based thermal power stations from 1997-98 onwards is shown below:



All India Sector-wise/ Organization-wise target, actual generation and PLF (%) for the year 2024-25 is at the **Annexure-10A**.

Annexure-10A**All India Sector wise/ Utility-wise Target, Actual Generation & PLF (%) for the year 2024-25**

Category /	APRIL 2024 - MAR-2025		
	TARGET (MU)	ACTUAL (MU)	PLF %
<b>THERMAL</b>			
<b>CENTRAL SECTOR</b>			
APCPL	8100.00	8711.53	66.30
BRBCL	7350.00	7087.23	80.90
DVC	46350.00	43373.22	75.71
JHAPL	3800.00	3216.46	61.20
K.B.U.N.L	3075.00	2802.01	82.02
MUNPL	9000.00	8598.70	74.36
NEEPCO.	3450.00	2611.03	
NLC	22200.00	19330.53	60.62
NPGCL	15500.00	14044.14	80.97
NSPCL	4050.00	3613.86	82.51
NTECL	10200.00	8660.91	65.91
NTPC Ltd.	382696.00	351648.98	76.96
NTPL	7600.00	5236.46	59.78
NUPPL	6600.00	1053.22	54.95
ONGC	4400.00	3882.76	
PVUNL	1500.00	0.00	0.00
RGPPL	1375.00	1443.14	
SJVNL	3000.00	0.00	0.00
THDC	3000.00	870.80	84.36
<b>CENTRAL SECTOR</b>	<b>543246.00</b>	<b>486184.98</b>	<b>75.32</b>
<b>STATE SECTOR</b>	<b>452967.00</b>	<b>409553.02</b>	<b>63.23</b>
<b>PVT SECTOR</b>	<b>19345.00</b>	<b>18076.83</b>	<b>59.85</b>
<b>IPP SECTOR</b>	<b>429385.00</b>	<b>450074.93</b>	<b>70.19</b>
<b>TOTAL THERMAL</b>	<b>1444943.00</b>	<b>1363889.76</b>	<b>69.45</b>
<b>NUCLEAR</b>			
<b>CENTRAL SECTOR</b>			
BHAVINI	540.00	0.00	0.00
DAE	0.00	0.00	0.00
NPCIL	54808.00	56680.83	80.08
<b>CENTRAL SECTOR</b>	<b>55348.00</b>	<b>56680.83</b>	<b>79.10</b>
<b>TOTAL NUCLEAR</b>	<b>55348.00</b>	<b>56680.83</b>	<b>79.10</b>

<b>HYDRO</b>			
<b>CENTRAL SECTOR</b>			
BBMB	9650.00	10748.49	
DVC	286.00	273.39	
NEEPCO.	5247.00	5248.73	
NHDC	3265.00	5463.61	
NHPC	0.00	0.00	
NHPC	25401.00	19730.33	
NTPC Ltd.	3100.00	3353.15	
SJVNL	9145.00	9810.33	
THDC	5269.00	4618.58	
<b>CENTRAL SECTOR</b>	<b>61363.00</b>	<b>59246.61</b>	
<b>STATE SECTOR</b>	<b>69543.00</b>	<b>73831.17</b>	
<b>PVT SECTOR</b>	<b>1480.00</b>	<b>1561.12</b>	
<b>IPP SECTOR</b>	<b>15323.00</b>	<b>13995.08</b>	
<b>TOTAL HYDRO</b>	<b>147709.00</b>	<b>148633.98</b>	
<b>BHUTAN IMP</b>			
	8000.00	5484.18	
<b>ALL INDIA TOTAL</b>	<b>1656000.00</b>	<b>1574688.75</b>	

**Note:** PLF is calculated for Coal & Lignite based power station only. Based on 2024-25 Actual Generation (Up to March, 25) from conventional sources Thermal/Hydro/Nuclear) with station capacity > 25 MW.

## CHAPTER – 11

## POWER DEVELOPMENT IN NORTH-EASTERN REGION

## 11.1 Hydro-electric Potential in N.E. Region

As per Re-assessment studies of 2017-23 carried out by CEA, hydro potential of the North Eastern Region in terms of installed capacity has been estimated as 55929.7 MW (above 25 MW

capacity). Out of the above, 2027 MW (above 25 MW capacity) have been harnessed so far while projects amounting to 5000 MW (above 25 MW capacity) are under construction. State-wise identified hydro-electric potential (above 25 MW) of North-Eastern Region and its status of development is given below:

Region / State	Identified potential as per Re-assessment Study of 2017-23 (Above 25 MW)	H. E. Schemes Developed (Above 25 MW)	H.E. Schemes Under Construction (Above 25 MW)
Meghalaya	2026	322	0
Tripura	0	0	0
Manipur	615	105	0
Assam	643	350	120
Nagaland	325	75	0
Ar. Pradesh	50394	1115	4880
Mizoram	1926.7	60	0
<b>Total(NER):</b>	<b>55929.7</b>	<b>2027</b>	<b>5000</b>

Region / State	H. E. Schemes Concurred by CEA (MW)	H. E. Schemes Under Examination in CEA (MW)	H. E. Schemes Returned to Project authorities (MW)	H. E. Schemes under S&I (MW)*
Meghalaya	85	0	0	270
Tripura	0	0	0	0
Manipur	0	0	0	0
Assam	0	0	60	0
Nagaland	186	0	0	0
Ar. Pradesh	13798	1990	3523	16524
Mizoram	0	0	0	0
<b>Total(NER)</b>	<b>14069</b>	<b>1990</b>	<b>3583</b>	<b>16794</b>

\* Including two multipurpose projects namely Upper Siang (11200 MW) in Arunachal Pradesh and Simsang Dam (60 MW) in Meghalaya

## 11.2 Survey & Investigation of Hydro Projects

As on 31.03.2025, 8 No. of schemes aggregating to 16749 MW are under Survey

and Investigation in the North Eastern Region.

## 11.3 Status of development

Hydro Electric Projects being planned in the North Eastern Region (including Sikkim) are as under:

S. No.	Name of Project	Agency	State	Present Status
1.	Teesta-IV (520 MW)	NHPC Ltd	Sikkim	Concurrence accorded by CEA on 20.11.2009.
2.	Demwe Lower (1750 MW)	Athena Energy Venture (P) Ltd.	Arunachal Pradesh	Concurrence accorded by CEA on 20.11.2009. MoP vide letter dated 22.12.2021 indicated that Demwe Lower HEP to be pursued by THDC.
3.	Dibbin (120 MW)	KSK Dibbin Hydro Power Limited	Arunachal Pradesh	Concurrence accorded by CEA on 04.12.2009. Installed capacity of the project is likely to be revised. Accordingly, DPR needs to be re-casted. MoP vide letter dated 22.12.2021 indicated that Dibbin HEP will be pursued by NEEPCO
4.	Lower Siang (2700 MW)	Jaiprakash Associates Ltd.	Arunachal Pradesh	Concurrence accorded by CEA on 16.02.2010. MoP vide letter dated 22.12.2021 indicated that Lower Siang HEP to be pursued by NHPC.
5.	Nafra (120 MW)	NEEPCO	Arunachal Pradesh	Concurrence accorded by CEA on 11.02.11. MoU between NEEPCO and Govt of Arunachal Pradesh signed on 14.08.2021.
6.	Tawang-I (600 MW)	NHPC Ltd.	Arunachal Pradesh	Concurrence accorded by CEA on 10.10.2011. MoP vide letter dated 22.12.2021 indicated that Tawang-I HEP to be pursued by NEEPCO.
7.	Tawang-II (800 MW)	NHPC Ltd.	Arunachal Pradesh	Concurrence accorded by CEA on 22.09.2011. MoP vide letter dated 22.12.2021 indicated that Tawang-II HEP to be pursued by NEEPCO.
8.	Tato-II * (186 MW)	NEEPCO.	Arunachal Pradesh	Concurrence accorded by CEA on 22.05.12. MoA signed by NEEPCO with GoArP on 12.08.2023.
9.	Hirong* (500 MW)	NEEPCO	Arunachal Pradesh	Concurrence accorded by CEA on 10.04.2013. MoA signed by NEEPCO with GoArP on 12.08.2023.
10.	Etalin* (3097 MW)	SJVNL	Arunachal Pradesh	Concurrence accorded by CEA on 12.07.2013. MoA signed by SJVNL with GoArP on 12.08.2023.
11.	Talong Londa (225 MW)	GMR	Arunachal Pradesh	Concurrence accorded by CEA on 16.08.2013. MoP vide letter dated 22.12.2021 indicated that Talong Londa HEP to be pursued by NEEPCO.
12.	Naying* (1000 MW)	NEEPCO	Arunachal Pradesh	Concurrence accorded by CEA on 11.09.2013. MoA signed by NEEPCO with GoArP on 12.08.2023.
13.	Siyom (1000 MW)	Siyota Hydro power Pvt. Ltd	Arunachal Pradesh	Concurrence accorded by CEA on 17.12.13 DPR need to be re-casted. There is no need to change in IC but as per recommendations in BSR, FRL needs to be reduced for free flow stretch and hence there may be change in other parameters including shift in location of Dam/ Barrage etc..
14.	Dikhu (186 MW)	Naga Manu Power Private Ltd.	Nagaland	Concurrence accorded by CEA on 31.03.14.
15.	Kalai-II* (1200 MW)	THDCIL	Arunachal Pradesh	Concurrence accorded by CEA on 27.03.2015. MoA signed by THDCL with GoArP on 30.12.2023.

16.	Kynshi – I (270 MW)	Athena Kynshi power Pvt.Ltd.	Meghalaya	Concurrence accorded by CEA on 31.3.2015. Revised DPR has to be submitted
17.	Heo * (240 MW)	NEEPCO	Arunachal Pradesh	Concurrence accorded by CEA on 28.07.15. MoA signed by NEEPCO with GoArP on 12.08.2023. Investment approval accorded on 11.12.2024
18.	Tato-I * (186 MW)	NEEPCO	Arunachal Pradesh	Concurrence accorded by CEA on 28.10.15. MoA signed by NEEPCO with GoArP on 12.08.2023. Investment approval accorded on 11.12.2024
19.	Attunli* (680 MW)	SJVNL	Arunachal Pradesh	Concurrence accorded by CEA on 15.03.2018. MoA signed by SJVNL with GoArP on 12.08.2023.
20.	Wah-Umiam Stage-III (85 MW)	NEEPCO	Meghalaya	Concurrence accorded by CEA on 26.07.2021
21.	Ranganadi St-II (130MW)	NEEPCO	Arunachal Pradesh	DPR was returned to developer for re-submission after tying-up of requisite inputs.
22.	Karbi Langpi (U. Borpani) (60 MW)	Assam State Electricity Board	Assam	DPR was returned to developer for re-submission after tying-up of requisite inputs.
23.	Yamne St-II (84 MW)	SS Yamne Energy Ventures Private Ltd.	Arunachal Pradesh	DPR was returned to developer for re-submission after tying-up of requisite inputs.
24.	Pemashelphu (90 MW)	Mechuka Hydro Power pvt. Ltd.	Arunachal Pradesh	DPR was returned to developer for re-submission after tying-up of requisite inputs.
25.	Sissiri (100 MW)	Soma Sissiri Hydro Pvt. Ltd.	Arunachal Pradesh	DPR was returned to developer for re-submission after tying-up of requisite inputs.
26.	Gimliang (80 MW)	SKI Pvt. Ltd.	Arunachal Pradesh	DPR was returned to developer for re-submission after tying-up of requisite inputs.
27.	Raigam (141 MW)	SKI Pvt. Ltd.	Arunachal Pradesh	DPR was returned to developer for re-submission after tying-up of requisite inputs.
28.	Kangtang Shiri (80 MW)	Kangtang Shiri Hydro Project Pvt. Ltd	Arunachal Pradesh	DPR was returned to developer for re-submission after tying-up of requisite inputs.
29.	Nyukcharang Chu (96 MW)	Sew Energy Ltd.	Arunachal Pradesh	DPR was returned to developer for re-submission after tying-up of requisite inputs.
30.	Magochu (96 MW)	Sew MagoChu Power Corporation Limited	Arunachal Pradesh	DPR was returned and all the partial clearances issued till date were rescinded as no progress has been made by the Developer towards resolving the issues pending with various appraising groups.
31.	Hutong- II (1200 MW)	Mountain Fall India Pvt. Ltd.	Arunachal Pradesh	DPR was returned to developer for re-submission after tying-up of requisite inputs.
32.	Kalai-I (1352 MW)	Mountain Fall India Pvt. Ltd.	Arunachal Pradesh	DPR was returned to developer for re-submission after tying-up of requisite inputs.
33.	Tagurshit (74 MW)	Larsen & Toubro Arunachal Hydro power Ltd.	Arunachal Pradesh	Developer vide letter dated 28.08.2018 informed that the company has decided not to go ahead with implementation of the project. In view of this, CEA returned the DPR vide its letter dated 20.06.2019 as the scheme is no more under consideration for CEA's concurrence

\*MoP vide letter dated 22.12.2021 indicated that projects to be pursued by central PSUs.

## 11.4 Status of Various Hydro Power Projects in North-Eastern Region Appraised by CEA.

### 11.4.1 Revised Cost Estimates

#### (i) Kameng (4x150=600 MW), Ar. Pradesh by NEEPCO

RCE submitted by NEEPCO on 27.12.2023 at completion cost. The RCE is under finalization.

### 11.4.2 CEA concurred Projects, yet to be taken under construction.

#### (A) Central Sector Projects:

#### (i) Tawang H.E Project St-I (3x200= 600 MW) in Ar. Pradesh by NHPC Ltd.

Project was accorded concurrence by CEA on 10.10.2011 at an estimated cost of ₹4824.01 Crores (including IDC & FC) at May, 2010 price level. MOP vide letter dated 22.12.2021 indicated that Tawang-I HEP to be pursued by NEEPCO.

Environment clearance was accorded on 10.06.2011. Forest clearance Stage-I & II yet to be obtained.

#### (ii) Tawang H.E Project St.-II (4x200=800 MW) in Ar. Pradesh by NHPC Ltd.

The project was concurred by CEA on 22.9.2011 at an estimated cost of ₹ 6112.3 crores (including IDC & FC) at May, 2010 price level. MOP vide letter dated 22.12.2021 indicated that Tawang-II HEP to be pursued by NEEPCO.

Project was accorded environment clearance on 10.06.2011. MoEF&CC vide letter dated 08.01.2014 has accorded Forest Clearance (Stage- I) for diversion of 116.62 ha forest land for the project. Forest clearance stage-II yet to be obtained.

#### (iii) Hirong HE Project (4x125 =500MW) in Arunachal Pradesh by NEEPCO.

Hirong H.E. Project was accorded concurrence by CEA on 10<sup>th</sup> April, 2013 at an estimated completed cost of ₹ 5532.63 Crores.

Environment clearance and Forest clearance are yet to be obtained. EIA/EMP report being revised as per Siang BSR. Project allotted to NEEPCO.

#### (iv) Wah-Umum Stage-III (Erstwhile Mawphu Stage-II) H.E. Project (2x42.5= 85 MW)- Meghalaya

The project was concurred by CEA on 26.07.2021 at an estimated cost of ₹ 965.40 crores at January, 2019 price level.

Environment clearance recommended by EAC on 26.02.2018. However, Environment clearance will be issued immediately on submission of Stage-I Forest Clearance. Forest Clearance yet to be obtained.

#### (v) Naying HE Project (4x250 =1000MW) in Arunachal Pradesh by NEEPCO

Naying H.E. Project was accorded concurrence by CEA on 11<sup>th</sup> Sept, 2013 at an estimated completed cost of ₹

9301.11 Crores. Environment clearance and Forest clearance are yet to be obtained. Environment clearance is linked with Siang Basin Study Report. MoEF&CC stated that developer needs to apply afresh for EC online as old proposal is not valid anymore. Project allotted to NEEPCO.

Govt. of Arunachal Pradesh has approved the allotment of Naying HEP to NEEPCO Ltd. on 13.01.2023. Application through PARIVESH portal for diversion of forest land submitted on 21.08.2024

**(vi) Nafra HE Project (2x60= 120 MW) in Arunachal Pradesh by NEEPCO**

The project was concurred by CEA on 11.02.2011 at an estimated cost of ₹ 848.22 crores at completion cost. Project was accorded Environmental Clearance on 19.08.2013. Forest Clearance-I accorded on 12.07.2011 & Forest Clearance-II accorded on 26.06.2012.

MoU between NEEPCO and Govt of Arunachal Pradesh signed on 14.08.2021. Project is subjudice in Hon'ble Guwahati High Court.

**(vii) Etalin HE Project (10x307+1x9.6+1x7.4 = 3097MW) in Arunachal Pradesh by SJVNL**

Etalin H.E. Project was accorded concurrence by CEA on 12<sup>th</sup> July, 2013 at an Estimated completed cost of ₹ 25296.95 Crores. MoP vide letter dated 22.12.2021 indicated that Etalin HEP to be pursued by SJVNL.

Environment clearance recommended by EAC on 31.01.17. Letter will be issued

after Forest clearance stage-I. Forest clearance stage-I & II are yet to be obtained. Project allotted to SJVNL. Fresh application for FC made on Parivesh portal on 15.02.2024. Proposal is in process.

**(viii) Kalai – II HE Project (6x200 = 1200MW) in Arunachal Pradesh by THDCIL**

Kalai – II H.E. Project was accorded concurrence by CEA on 27<sup>th</sup> March, 2015 at an estimated completed cost of ₹ 14199.64 Crores. MOP vide letter dated 22.12.2021 indicated Kalai-II HEP to be pursued by THDC. MoA with state govt. signed on 30.12.2023.

EAC Meeting held on 27.06.2024 and recommended for ToR. Fresh forest proposal submitted in Parivesh portal on 23.01.2024.

**ix) Heo HE Project (3x80 = 240MW) in Ar. Pradesh by NEEPCO**

Heo H.E. Project was accorded concurrence by CEA on 28.07.2015 at an estimated completed cost of ₹ 1614.35 Crores. MOP vide letter dated 22.12.2021 indicated that Heo HEP to be pursued by NEEPCO. Project allotted to NEEPCO. MoA has been signed between developer and Govt. of Arunachal Pradesh on 12.08.2023. Investment approval accorded on 11.12.2024

Environmental Clearance accorded on 10.11.15. Forest clearance stage-I accorded on 27.10.15.

EC & FC-I transferred to NEEPCO.

Forest clearance stage-II accorded on

05.12.2024.

**(x) Tato – I HE Project (3x62 = 186MW) in Ar. Pradesh by NEEPCO**

Tato – I H.E. Project was accorded concurrence by CEA on 28.10.2015 at an estimated completed cost of ₹1493.55 Crores. MOP vide letter dated 22.12.2021 indicated that Tato-I HEP to be pursued by NEEPCO. Investment approval accorded on 11.12.2024

Environmental Clearance accorded on 10.11.15. Forest clearance stage-I accorded on 27.10.15. Forest clearance stage-II accorded on 05.12.2024. Project allotted to NEEPCO. Land Acquisition under process. Award of contracts under progress.

**(xi) Attunli HE Project (4x170 = 680MW) in Ar. Pradesh by SJVNL**

Attunli H.E. Project was accorded concurrence by CEA on 15.03.2018 at an estimated completed cost of ₹ 6111.28 Crores. MOP vide letter dated 22.12.2021 indicated that Attunli HEP to be pursued by SJVNL. Environmental Clearance and Forest clearance are yet to be obtained.

**(xii) Tato – II HE Project (4x175 = 700 MW) in Ar. Pradesh by NEEPCO**

Tato – II H.E. Project was accorded concurrence by CEA on 22.05.2012 at an estimated completed cost of ₹5616.20 Crores. MOP vide letter dated 22.12.2021 indicated that Tato-II HEP to be pursued by NEEPCO. Project allotted to NEEPCO.

Environmental Clearance accorded on 27.06.11. FC is linked to Cumulative Impact Assessment Study of Siang Basin

which has been carried out and accepted by MoEF&CC.

**(B) State Sector Projects**

**NIL**

**(C) Private Sector Projects**

**1) Demwe Lower HE Project (5x342 + 1x40=1750 MW), Arunachal Pradesh by ADPL**

Demwe Lower HE Project was accorded concurrence by CEA on 20.11.2009 for an estimated cost of ₹ 13144.91 Crores (Completion Cost). MOP vide letter dated 22.12.2021 indicated that Demwe lower HEP to be pursued by THDC.

MoEF&CC has accorded Environmental clearance to the project on 12.2.10. Forest clearances stage-II has been accorded on 03.05.2013. As per NGT order dated 24.10.2017, NBWL issue to be reconsidered by MoEF&CC.

Project was under litigation at NCLT. THDC had filed the Intervention Application in NCLAT. The arguments of CoC, RP, and THDCIL have been concluded. Navayuga has been requested to submit their counter reply on THDCIL's submission and the matter heard for adjudicating the reply of Navayuga on 24.01.2024. Hon'ble NCLAT has reserved the judgment.

**ii) Lower Siang HE Project (9x300=2700 MW), Ar. Pradesh by JAPL**

Lower Siang HE Project was accorded concurrence by CEA on 15.02.2010 for an estimated cost of ₹ 19990.74 Crores (Completion Cost).

Environment clearance & Forest clearance

are yet to be obtained. MoP vide letter dated 22.12.2021 indicated that Lower Siang HEP to be pursued by NHPC. Techno-commercial aspects of Siang Lower are un-certain at this stage and shall only be firmed up after fixing the parameters of Siang Upper. clearance stage-I & II are yet to be obtained. Project allotted to SJVNL.

**iii) Talong Londa HE Project (3x75 = 225MW) in Arunachal Pradesh by GMR**

Talong Londa H.E. Project was accorded concurrence by CEA on 16<sup>th</sup> Aug, 2013 at an estimated completed cost of ₹2172.88 Crores. MOP vide letter dated 22.12.2021 indicated that Talong Londa HEP to be pursued by NEEPCO.

Environment clearance accorded on 07.08.15. Forest clearance stage-I& II are yet to be obtained.

**iv) Dikhu HE Project (3x62= 186 MW) in Nagaland by NMPPL**

Dikhu H.E. Project was accorded concurrence by CEA on 31.03.2014 at an estimated completed cost of ₹1994.74 Crores.

Environmental Clearance yet to be obtained. FC not applicable as forest land is not involved.

**11.5 Status of Under Construction Hydro Power Projects in North Eastern Region including Sikkim:**

**11.5.1 Central Sector Projects**

• **NHPC Projects (Hydro)**

**(i) Subansiri Lower HEP (8x250 = 2000 MW), Arunachal Pradesh**

The project is located in the districts Lower Subansiri/Dhemaji in Arunachal Pradesh/Assam on river Subansiri. The project was Techno- Economically cleared by CEA on 13.01.2003. The CCEA clearance was accorded on 09.09.2003 for an estimated cost of Rs. 6285.33 crores with the schedule commissioning of the project in September, 2010. The design energy is 7421.59 Gwh. The anticipated cost of the project is Rs. 19992.43 crores at January-2020 price level.

The Project envisages construction of concrete gravity dam, horse shoe type head race tunnels, circular steel lined pressure shaft and surface power house having Francis turbine driven generatingsets.

Major civil works have been awarded to M/s. BGS-SGS-Soma Joint Venture and Larsen & Toubro. Ltd. Chennai on 19.12.2003. E&M works has been awarded to Consortium of M/s Alstom Power Hydraulique, France and Alstom Projects IndiaLtd. New Delhi on 11.02.2005. Hydro-Mechanical Package awarded to Texmaco on 19.06.2006.

All work except safety works were stalled from December, 2011 to October, 2019 due to agitation launched by various activists against construction of Subansiri Lower HE Project and as per directions of NGT. Works restarted w.e.f. 15.10.2019 after clearance from NGT. However, work initially remained suspended w.e.f. 24.03.2020 to 20.04.2020 due to COVID-19 lockdown and further got affected due to Monsoon Period from May 2020.

Power House Civil works package has been re- awarded to M/s Patel Engineering Ltd on

01.09.2020.

A massive landslide occurred near the inlet of the DT-1 & DT-2 on 27.10.2023. This land slide washed out both the inlets. The muck of the landslides blocked the river flow through DT-1.

The project is in advance stage of construction. 3 Units (3x250 MW) are ready for commercial operation as soon as clearance from National Dam Safety Authority (NDSA) is received.

Five units (5x250 MW) of project are likely to be to be commissioned in FY 2025-26 and remaining three units in FY 2026-27.

**(ii) Teesta-VI HEP (4x125=500 MW),  
Sikkim**

The project is located in South Sikkim district of Sikkim state on river Teesta. The project was Techno-Economically cleared by CEA on 27.12.2006 to M/s Lanco Teesta Hydro Power Ltd (LTHPL), at an estimated cost of Rs 3283.08 Crs. The project envisages construction of 23.5m high Barrage, 2 nos. of HRT of 9.5m diameter and 11.8 Km long, 4 nos. Pressure shaft each of 5.40m dia and Power House to generate 2441 MU.

Major Civil works were awarded to M/s Lanco Infrastructure Ltd in March, 2007 and E&M works to M/s Alstom Projects, India in April, 2009. About 50% projects works were completed till March, 2014. Since April 2014, project was stalled due to financial crunch with the developer.

Accordingly, the Corporate Insolvency Resolution Process (CIRP) was initiated vide order dated 16.03.2018 of Hon'ble NCLT,

Hyderabad Bench. In the Bidding process, NHPC emerged as successful bidder for acquisition of LTHPL. Subsequently, the investment proposal for an estimated cost of Rs 5748.04 crore (Jul'18 PL), which includes Bid amount of Rs 907 crore for acquisition of LTHPL; was approved by the CCEA on 08.03.2019 for investment, acquisition of M/s LTHPL and execution of balance works of Teesta- VI HE Project by NHPC.

Regarding, tendering, LOT-I (Civil works of Barrage, Desilting Basins, SFT, Intake, Part of HRT-I & HRT-II and other associated structure) awarded to M/s. Jaypee Associate Ltd on 31.03.2020 and LOT-II (Civil works of Part of

HRT-I & HRT-II, Surge shaft, Pressure shaft, Powerhouse, TRT & other associated structure) awarded to M/s. Patel Engineering Limited on 22.09.2021. HM works were awarded on 27.10.2020. EM works were awarded on 28.08.2020.

Overall Physical and financial progress of project is 68.17% and 52.65% respectively upto June 2025. The Project is expected to be commissioned by Dec, 2027.

**(iii) Rangit-IV HEP (3x40=120 MW),  
Sikkim**

The project is located in West Sikkim district of Sikkim state on river Rangit. The project was Techno-Economically cleared by CEA on 06.07.2007 to M/s Jal Power Corp. Ltd (JPCL), at an estimated cost of Rs 726.16 Crs with the schedule commissioning of the project in January, 2012. The design energy is 513 Gwh. The project envisages construction of 44m high and 112.95m long Dam, 1 no. of HRT of 6.40m diameter and 6.453 Km long, Surge Shaft 16m dia and 57m height, 1 no.

Pressure shaft of 5.50m dia and 241m long.

Major Civil works were awarded to M/s Coastal Project Pvt. Ltd in Nov, 2007 and E&M works to M/s Andritz, India in Aug, 2009. About 50% projects works were completed till Oct, 2013. Since Nov. 2013, project was stalled due to financial crunched with the developer. The project Lenders file application in court of Hon'ble National Company Law Tribunal (NCLT), on 24<sup>th</sup> April, 2018. Last hearing of NCLT held on 29.03.2019 and order pronounced on 9.04.2019. As per the order, IRP has been appointed. NHPC Ltd. submitted EOI on dated 08.07.2019 and was shortlisted under final list of Prospective Resolution Applicants on dated 23.08.2019. The Resolution Plan submitted by NHPC on 04.12.2019.

Lot-I balance Civil works (Diversion Channel, Coffor Dams, Dam, Spillway & Stilling Basin, Intake Structure, Desilting Channel, SFT, HRT, Surge Shaft, Pressure Shaft, Power House, TRC and other associated structures.) was awarded to to M/s PES Engg. Pvt. Ltd on 28.06.2021 and to M/s Andritz Hydro Pvt. Ltd. on 08.07.2021 respectively.

Overall Physical and financial progress of project is 89.45% and 83.73% respectively upto June 2025. The Project is expected to be commissioned by December, 2025.

**(iv) Dibang Multipurpose Project  
(12x240= 2880MW)-Arunachal  
Pradesh:**

The project is in initial stage of construction. The Project is expected to be commissioned by 2031-32.

**11.5.2 Sector Projects**

**APGCL Project  
(Hydro)**

**Lower Kopili (2x55+2x2.5+1x5 = 120**

**MW)**

The project is located in Dima Hasao & Karbi Anglong districts of Assam on Kopili river. Concurrence of project was given by CEA on 24.5.2016 at an estimated cost of Rs. 1115.91 crore (at Januaray, 2015 PL). The design energy of project is 469.58 MU and scheduled to be commissioned in 48 months from Zero date. The project has been delayed as there was delay in getting the Stage-II Forest Clearance for handing over the forest land. The Forest department of Karbi Anglong handed over the Forest land to APGCL on 3rd July, 2021. The revised cost as estimated by developer is Rs. 1795 crore. The project achieved the financial closure and loan agreement has been signed with ADB on 30th December, 2020. The Civil and Hydro-mechanical packages was awarded to L&T Ltd. and agreement was signed on 21.8.2020. The Electro-mechanical packages was awarded to Andritz Hydro Pvt. Ltd. on 9.9.2021.

The project envisages construction of concrete gravity dam with 1 no. of HRT of 7.0m diameter and 3.64 Km long, Surge Shaft of Restricted Orifice type 25m dia, Pressure shaft of 6.10m dia and 451.20m length. One surface power house for two units of 55 MW with rated head of 114 meter and one Auxilary power house for remaining capacity of 10 MW (2x2.5=5 MW + 1x5 MW). Switchyard to main power house is at voltage level of 220 kV.

Overall Physical and financial progress of project is 89.5% and 95.12% respectively upto April 2025. The expected COD of the project is December, 2025.

## 11.6 Hydro Power Generation Performance

Hydro Power generation during the year 2022-24 (as on 31.03.2024) in the North Eastern Region was 6.28 BU against a target of 12.16 BU, which is about 48.31 % less.

## 11.7 R&M Schemes (Hydro) of North Eastern Region

Twelve (12) existing hydro schemes of North Eastern Region with an aggregate installed

capacity of 770 MW have been identified for R&M works to accrue a benefit of 538 MW. The R&M activities of nine (9) schemes having an aggregate installed capacity of 559 MW have already been completed at an actual expenditure of about Rs. 1461 Crores to accrue a benefit of 321 MW. The remaining three (3) schemes having an aggregate installed capacity of 211 MW are under various stages of implementation and are likely to accrue a benefit of 417 MW at an estimated cost of about Rs. 959.33 Crores. The scheme-wise status of the R&M works of the hydro schemes of North Eastern Region as on 31.03.2025 is given hereunder:

### A. Schemes Completed

S. No.	Name of Scheme, Agency, State	Installed Cap. (MW)	Actual cost (Rs. Crs.)	Benefits (MW)	Status
1.	Khandong, U-1, NEEPCO, Assam	1x25	0.62	25 (Res.)	U-1 Restoration works completed in 1991-92
2.	Gumti, TPGL, Tripura	3x5	17.50	-	R&M works completed in 1994-95
3.	Khandong, NEEPCO, Assam	2x25	3.35	-	R&M works completed in 2003-04
4.	Umium St.I, MePGCL, Meghalaya	4x9	84.21	36 (LE)	RM&LE works completed in 2002-03
5.	Loktak, NHPC, Manipur	3x30 (Derated)	17.88	15(Res.)	R&M works completed in 2011-12
6.	Umium St.II, MePGCL, Meghalaya	2x9	55.67	18(LE) + 2 (U)	R&M works completed in 2011-12
7.	Kopili, NEEPCO, Assam	2x50	50.92	-	R&M works completed in 2014-15
8.	Khandong, NEEPCO, Assam	1x25	29.18	25(LE)	R&M works completed in 2014-15
9.	Kopili Power Station, NEEPCO, Assam	4x50	1201.65	200(LE)	R&M and LE works completed in 2024-25
	<b>Sub Total(A)</b>	<b>559</b>	<b>1460.98</b>	<b>321</b>	

### B. Ongoing–Under Implementation

S. No.	Name of Scheme, Agency, State	Installed Cap. (MW)	Est. cost (Rs. Crs.)	Benefits (MW)	Status
10.	Khandong Power Station, NEEPCO, Assam	2x23	277.74	46(LE)	<b>E&amp;M works:</b> Refurbishment works in U#1 & 2 completed, Erection works under progress. Unit#1 boxing up started. Unit#2 Turbine erection and stator/rotor build up is under progress. Erection works in Switchyard under progress.  <b>Civil &amp; HM works:</b> 80 % Civil and HM works completed.
11.	Kyrdemkulai (Umiam St.III),	2x30	408	60(LE) + 6(U)	<b>Electro &amp; Mechanical Equipments (Package-I)</b> Reverse engineering of Unit-1

	MePGCL, Meghalaya				completed. At present the work in Design for E&M is completed and 60% of manufacturing of E&M equipment has been completed. <b>Hydro Mechanical &amp; Civil facility (Package-2)</b> – LOA issued on 2nd January, 2025 and Signing of Contract was made on 27th January 2025.
12.	Loktak, NHPC, Manipur	3x35	273.59	105 (LE)	<b>E&amp;M:</b> Out of four packages, EM-2(Bus Duct) is awarded, the work under package EM-3 (EOT Crane) has been completed & work of EM-4 (DG Set) and supply under EM-1 (Main) package is in progress. <b>Civil:</b> Three out of five Civil packages have been awarded. The work under package C1 and C2 has been completed and work under package C4 is in progress. Tendering of remaining two civil packages is under process. <b>HM:</b> HM Package has been awarded and work is in progress.
	<b>Sub Total(B)</b>	<b>211</b>	<b>959.33</b>	<b>217</b>	
	<b>Total(A+B)</b>	<b>770</b>	<b>2420.31</b>	<b>538</b>	

**Abbreviations: MW – Mega Watt; Res. – Restoration; U – Uprating; LE – Life Extension**

## CHAPTER-12

### HUMAN RESOURCE DEVELOPMENT

#### 12.0 Training of Manpower in CEA

Human Resource is essential for carrying out any business or service by an organization and the same is required to be developed through technical, functional and behavioral training. Keeping this in view, HRD Division of CEA has been organizing various training programs in technical, functional, managerial and behavioral areas to keep officers abreast of the latest technological developments as well as to bring about attitudinal changes.

Training Policy for Group A & B officers of CPES Cadre of CEA broadly covers the various training needs for officers of all levels in CEA. The broad objectives of the Training Policy are as under: -

- To enable CPES officers of CEA to discharge their functions effectively.
- To provide practical exposure to the CPES officers in the area of construction and Operation & Maintenance (O&M) of various types of Power Plants as well as Transmission & Distribution facilities, Grid Operation, Tariff related issues, Power Market etc. which would enhance their technical competencies.
- To enable the officers to draw plans, advise and monitor Power Sector projects with the strong background knowledge/experience of the sector.
- To familiarize the officers with the best practices in the application of advanced technologies in Power Sector.
- To develop and enhance the capabilities in the CPES officers to deal with rapid developments and challenges encountered by the Power Sector from time to time.
- To enhance the managerial competencies of the officers to enable them to play a leading role in the Power Sector so that the management can channelize the expertise of CEA officers in an effective manner.

#### 12.1 Induction Training programme

A 13-week training programme for 30 newly recruited Assistant Directors of the CPES Cadre was conducted during 2024–25 to provide exposure to various aspects of the power sector. The programme covered areas such as power generation (both conventional and non-conventional), transmission and distribution systems, the role and functioning of the Central Electricity Authority (CEA), renewable energy technologies, grid interface technology, energy storage systems including pumped storage projects (PSPs), and the regulatory framework governing the Indian power sector. The training was held across four campuses of the National Power Training Institute (NPTI): NPTI Faridabad, NPTI Nangal, NPTI Neyveli, and NPTI Bengaluru.

#### 12.2 Mid-Career/ Refresher Training Programmes

1. In 2024-25, a one-week mid-career training program was conducted for 20 Chief Engineers at THDC, Rishikesh. This training was aimed to enrich their existing knowledge with the latest insights and trends in the power sector, preparing the officers of CEA for leadership roles.
2. A two-week mid-career training program for 12 Directors of CEA, was conducted at NPTI Alappuzha, Kerala. The training focused on conflict resolution, project planning & Delegating, Contract Management, managing effective meetings, leadership innovation, and emerging technology in the power sector.
3. A two-week mid-career training program for 15 Deputy Directors of CEA, conducted at PSTI, Bengaluru. The training focused on the regulatory framework in the power sector, flexible operation of thermal power plants, Financial Management, innovations in distribution networks, Integration of Renewable Energy & Non-Renewable Energy strategies in

Indian context, carbon trading and other related topics.

4. 33 domain-related training programs for CEA officers were conducted at professional institutes such as NTPC School of Business, IRPRI, ASCI, ESIC, NPTI, NAHRD, National Solar Institute of Wind Energy and LBSNAA etc. During the year 2024-25, a total of 166 officers attended these programs, which included technical courses, workshops, seminars, and conferences.

### **12.3 Training under Apprentice Act, 1961 (Amendment rules 2015)**

As per Apprentice Act 1961, (amendment rules 2015), Apprenticeship Training is being imparted at CEA to Graduate/Diploma Engineers. As per the requirement of the Board of Apprentice Training (BOAT), six modules namely Planning of Power sector, Thermal Power Projects, Hydroelectric Power Project, Power System Planning, Power Grid Operation and Power Distribution System were developed and the Apprenticeship Training is being imparted as per these modules. During the year 2024-25, 1 apprentice trainee has joined & completed the apprenticeship under the Apprentice Act 1961.

### **12.4 Summer / Winter Internship Training**

During the financial year 2024-25, Internship training were given to a total 32 number of students in CEA from reputed institutes of India.

### **12.5 In-house Presentations**

In-house presentations are organized time to time in collaboration with various industries and organizations to keep CEA officers updated on the latest technologies. During the year 2024-25, a total of 21 technical presentations were conducted for CEA officers at Headquarters & officers posted in all 14 Sub-Offices of CEA joined via video conferencing. A Five day Vigilance Awareness Week, in compliance with the direction of CVC, was conducted for officers of CEA to provide general overview on Conduct Rules, Procurement, Ethics

and Governance, System and Procedures of the Organization and Cyber hygiene and Security in which 359 officers of CEA participated.

### **12.6 Annual Capacity Building Plan (ACBP):**

Under the direction of the Ministry of Power a Capacity Building Unit (CBU) was formed within the Central Electricity Authority in July 2023 to prepare the Annual Capacity Building Plan (ACBP) for CEA. The ACBP aims to identify gaps in manpower capacity, infrastructure, training needs, and other areas to effectively carry out the work of the CEA's divisions/wings.

The ACBP is being prepared in collaboration with the consultant M/s CRISIL and the Capacity Building Commission, under the guidance of the CBU.

### **12.7 Recognition of Training Institutes**

To fulfill its statutory duty specified under Section 73(g) of Electricity Act 2003 and Central Electricity Authority (measures relating to safety and electric Supply) Regulations 2023, CEA has been assessing the Power Sector training institutes in terms of infrastructure, utilization and quality of training programmes and facilitating CEA's accreditation for them in line with the following Guidelines

- (i) CEA Guidelines for Recognition of Training Institutes in the field of Generation of Electricity including details of Training Curriculum for Engineers, Supervisors and Technicians January 2024.
- (ii) CEA Guidelines for Recognition of Training Institutes in the field of Transmission of Electricity including details of Training Curriculum for Engineers, Supervisors and Technicians January 2024.
- (iii) Revised CEA Guidelines for Recognition of Training Institutes in the field Distribution of Electricity including details of Training Curriculum for Engineers, Supervisors and Technicians December 2024.

(iv) Revised Statutory Guidelines for Training and Certification of Load Despatchers & Recognition of Training Institutes, December, 2024.

CEA has been advising /recommending various measures to the training institutes for improvement in the training infrastructure and methodologies

for enhancing the skills and productivity of the personnel.

During the period 2024-25, the following 16 nos. Training institutes were granted recognition in imparting training to the personal engaged in O&M of Generation / Transmission / Distribution / Load Despatch fields of Power Sector.

S.No.	Name of the Institute	Field (Duration of Recognition)
1	TTMDC, Hindalco industries Ltd., Renusagar, Sonebhadra, Uttar Pradesh.	Thermal Generation (for 5 years)
2	OMS Power Training & Research Institute, Bhubaneswar, Odisha.	Thermal Generation (for 3 years)
3	Power Plant Training Simulator Centre, Bakreswar TPP, Birbhum, West Bengal.	Thermal Generation (for 3 years)
4	Hydro Power Training Centre, Nangal, Ropar, Punjab.	Hydro Generation (for 4 years)
5	Engineering Staff College of India(ESCI), Gachi Bowli, Hyderabad, Telengana.	Thermal Generation (for 3 years), Hydro Generation (for 3 years), Transmission (for 3 years), Distribution (for 3 years)
6	Nashik Training Centre, Chummary No. II, Eklahare, Nashik, Maharashtra.	Thermal Generation (for 4 years)
7	Power Generation Training Institute of CSPGCL, Korba East, Chhattisgarh.	Thermal Generation (for 4 years)
8	JSW Energy Centre of Excellence, Bellary, Karnataka.	Thermal Generation (for 4 years)
9	Central Board of Irrigation & Power, New Delhi.	Thermal Generation (for 4 years), Hydro Generation (for 4 years), Renewable Energy Generation (for 3 years), Transmission (for 5 years), Distribution (for 5 years)

10	APGENCO Training Institute, APPGCL, Ibrahimpatnam, Vijaywada, Andhra Pradesh.	Thermal Generation (for 4 years), Hydro Generation (for 4 years), Transmission (for 4 years)
11	Regional Learning Institute, NTPC Ltd., Solapur, Maharashtra.	Thermal Generation (for 4 years)
12	Thermal Trg. Institute & Research Centre, Vallur Camp, NCTPS, Chennai, Tamil Nadu.	Thermal Generation (for 4 years), Power Management (4 years)
13	Hindalco School of Excellence, Renukoot, Uttar Pradesh.	Thermal Generation (for 5 years)
14	Adani Electricity Management Institute, Goregaon, Mumbai, Maharashtra.	Distribution (for 3 years)
15	Training Centre, Torrent Power Limited 362 MW AMGEN Thermal Power Plant, Sabarmati, Ahmedabad, Gujarat.	Thermal Generation (for 3 years)
16	Centre of Excellence for Training and Development, CETD, Paloncha, Bhadradi, Kothagudem, Telangana.	Thermal Generation (for 3 years)

## 12.8 Revision of Guidelines for Recognition of Training Institute in Power Sector.

In accordance with the provisions of the Central Electricity Authority (Measures relating to Safety and Electric Supply), 2023, the following guidelines have been updated and reissued in December 2024. These revised guidelines supersede the earlier versions published in January 2024:

1. Revised Statutory Guidelines for Training and Certification of Load Despatchers & Recognition of Training Institutes, December 2024.
2. Revised Guidelines for Recognition of Training Institutes in the Field of Distribution of Electricity, Including Detailed Training Curriculum for Engineers, Supervisors, and Technicians, December 2024.

Further CEA is in the process of developing a portal within the National Single Window Clearance System. This portal will enable training institutes to submit their applications online for grant of recognition.

## 12.9 Foreign Visits/Training programmes for CEA Officers

The CEA officers were deputed to the Foreign visits/ training programmes to give them exposure to technological trends in the developed countries.

During the period of 2024-25, a total of 25 distinct number of officers of CEA at various levels visited foreign nations under 20 programme. The details of the foreign visits undertaken by the CEA officers is as follows:-

**Central Electricity Authority**

<b>S.No.</b>	<b>Purpose of Visit</b>	<b>Country of Visit</b>	<b>Name of Officer</b>	<b>Designation</b>
1	33rd Clean Coal Day International Symposium	Tokyo, Japan	BC Mallick	PCE-II
2	3rd Meeting of the Neutral Expert on IWT(Indus Water Treaty) matter	Vienna, Austria	Sharvan Kumar	Chief Engineer
3	5th JTT Meeting	Bhutan	Ajay Talegaonkar	Member
			Praveen Kumar Sahukari	Deputy Director
4	6th JWG & 5th JSC meeting between India and Myanmar	Myanmar	BS Bairwa	Chief Engineer
			Om Kant Shukla	Director
5	8th annual Energy Storage Safety & Reliability Forum, U.S.-India workshop and formal meeting of the U.S.-India Energy Storage Task Force (ESTF)	USA	Annepu Suresh	Director
			Rajesh Kumar	Chief Engineer
6	ASPIRE Programme	UK	Dhiraj Kumar Srivastava	Chief Engineer
7	Attend the commissioning of the Unit-I of Punatsangchhu-II (1020 MW) Hydroelectric Project	Bhutan	Hanuman Suman	Assistant Director-I
			Mukesh Kumar	Deputy Director
			Virendra Pal	Deputy Director
			Vontela Aravind Reddy	Assistant Director-I
8	CIGRE session	Paris	Ghanshyam Prasad	Chairperson
9	Clean Energy Ministerial and Mission Innovation Senior Officials' Meeting 2024	Indonesia	Dhiraj Kumar Srivastava	Chief Engineer
10	COP 29	Azerbaijan	Vijay Menghani	Chief Engineer
11	EAPP Regional Power Trade conference	Kenya	Subhro Paul	Director
12	Expert Level Mechanism between Indian and China	China	Sharvan Kumar	Chief Engineer
13	Indian Delegation to the 62nd Session of the Intergovernmental Panel on Climate Change	China	Vijay Menghani	Chief Engineer
14	Institutional Capacity Building Programme on “Regulatory Framework in the Power Sector Learnings from Experiences in Europe”	UK, Belgium	Arvind Kumar Meena	Deputy Director
15	Site visit and technical discussion regarding recent seepage in the Power House Complex of Punatsangchhu-II HE Project in Bhutan from 16h - 19th October, 2024 (including journey time)	Bhutan	Budhbir Singh	Deputy Director
			Jitendra Dhakad	Assistant Director-I

**Central Electricity Authority**

16	South Asia Sub-Regional Economic Cooperation (SASEC) Program's Energy Working group meeting and senior officials meeting	Bhutan	BS Bairwa	Chief Engineer
17	Thermal flexibility study tour to Denmark	Denmark	Alok Dwivedi	Deputy Director
			Aman Khare	Deputy Director
			Vikalp Saini	Assistant Director-II
18	UNFCCC meeting 2024-25	Bonn, Germany	Sachin K. Bhise	Director
19	Visit Arun III and lower Arun Hydroelectric projects in Nepal	Nepal	MG Gokhale	Member
20	Visit Punatsangchhu - I & II HE Project	Bhutan	MG Gokhale	Member
			Pradeep Kumar Shukla	Chief Engineer

# Annexures

Annexure-3ADetails of Inter-regional Transmission lines as on 31.03.2025

<b>Details of Inter-regional transmission lines</b>	<b>Transmission Capacity in MW (As on 31.03.2025)</b>
<b>EAST-NORTH</b>	
Dehri-Sahupuri 220 kV S/c	130
Muzaffarpur-Gorakhpur 400 kV D/c (with Series Cap+TCSC)	2,000
Patna – Balia 400kV D/c (Quad)	1,600
Biharshariff – Balia 400kV D/c(Quad)	1,600
Barh – Balia 400kV D/c (Quad)	1,600
Gaya - Balia 765kV S/c	2,100
Sasaram-Allahabad/Varanasi 400kV D/C line (Sasaram HVDC back to back has been bypassed)	1,000
Sasaram - Fatehpur 765kV2x S/c	4,200
Barh-II-Gorakhpur 400kV D/c (Quad) line	1,600
Gaya-Varanasi 765 kV S/c line	2,100
LILO of Biswanath Chariali - Agra +/- 800 kV, 3000 MW HVDC Bi-pole at new pooling station in Alipurduar and addition of second 3000 MW module	3,000
Biharsharif-Varanasi 400kV D/c line (Quad)	1,600
<b>Sub-total</b>	<b>22,530</b>
<b>EAST-WEST</b>	
Budhipadar-Korba 220 kV 3 ckts.	390
Rourkela-Raipur 400 kV D/c with series comp.+TCSC	1,400
Ranchi –Sipat 400 kV D/c with series comp.	1,200
Rourkela-Raipur 400 kV D/c (2 <sup>nd</sup> ) with series comp.	1,400
Ranchi - Dharamjayagarh - WR Pooling Station 765kV S/c line	2,100
Ranchi - Dharamjayagarh 765kV 2nd S/c	2,100
Jharsuguda-Dharamjayagarh 765kV D/c line	4,200

Jharsuguda-Dharamjaygarh 765kV 2nd D/c line	4,200
Jharsuguda- Raipur 765kV D/c line	4,200
<b>Sub-total</b>	<b>21,190</b>
<b>WEST- NORTH</b>	
Auriya-Malanpur 220 KV D/c	260
Kota - Ujjain 220 KV D/c	260
Vindhyachal HVDC back-to-back	500
Gwalier-Agra 765 kV 2 x S/c	4,200
Zerda-Kankroli 400kV D/c	1,000
Champa Pool- Kurukshetra HVDC Bipole	3,000
Gwalior-Jaipur 765kV 2xS/c lines	4,200
RAPP-Sujalpur 400kV D/c	1,000
Adani(Mundra) - Mahendranagar HVDC bipole	2,500
Upgradation of Champa Pool- Kurukshetra HVDC Bipole	3,000
Jabalpur - Orai 765kV D/c line	4,200
LILO of Satna - Gwalior 765kV 2xS/c line at Orai	4,200
Banaskantha-Chhittorgarh 765kV D/c line	4,200
Vindhyachal-Varanasi 765kV D/c line	4,200
Neemuch PS – Chhittorgarh (PG) s/s 400 kV D/C line	1,600
<b>Sub-total</b>	<b>38,320</b>
<b>EAST- SOUTH</b>	
Balimela-Upper Sileru 220kV S/c	130
Gazuwaka HVDC back-to-back	1,000
Talcher-Kolar HVDC bipole	2,000
Upgradation of Talcher-Kolar HVDC Bipole	500
Angul - Srikakulum	4,200
<b>Sub-total</b>	<b>7,830</b>
<b>WEST- SOUTH</b>	

Chandrapur HVDC back-to-back	1,000
Kolhapur-Belgaum 220kV D/c	260
Ponda – Nagajhari 220kV D/c	260
Raichur - Sholapur 765kV S/c line (PG)	2,100
Raichur - Sholapur 765kV S/c line (Pvt. Sector)	2,100
Narendra - Kolhapur 765kV D/c (ch at 400kV)	2,200
Wardha - Hyderabad 765kV D/c line(Part of Wardha – Nizamabad line)	4,200
Raigarh –Pugalur HVDC line with with Raigarh and Pugalur Station HVDC Terminal (Pole-I, Pole-II, Pole-III & Pole-IV each 1500 MW charged )	6,000
Warora Pool - Warangal (New) 765kV D/c line	4,200
<b>Sub-total</b>	<b>22,320</b>
<b>EAST- NORTH EAST</b>	
Birpara-Salakati 220kV D/c	260
Malda - Bongaigaon 400 kV D/c	1,000
Siliguri - Bongaigaon 400 kV D/c (Quad) line	1,600
Reconductoring of Alipurduar (ER) - Salakati (NER) 220 KV D/C Line	90
Re-conductoring of Siliguri – Bongaigaon 400kV D/c line with Twin HTLS conductor under North Eastern Region Strengthening Scheme-XII (NERSS-XII)	600
<b>Sub-total</b>	<b>3,550</b>
<b>NORTH EAST-NORTH</b>	
Biswanath Chariali - Agra +/- 800 kV, 3000 MW HVDC Bi-pole\$	3,000
<b>Sub-total</b>	<b>3,000</b>
<b>TOTAL (CUMULATIVE)</b>	<b>118,740</b>

Annexure – 3B**Names of the Schemes notified through Tariff Based Competitive Bidding (TBCB) as on 31.03.2025****a) Schemes already commissioned/ready for commissioning by Transmission Service Providers:**

<b>Sl. No.</b>	<b>Transmission Scheme</b>
1.	Transmission system associated with IPPs of Nagapattinam/ Cuddalore Area- Package A
2.	Transmission system for Strengthening in SR for Import of Power from ER.
3.	ATS of Unchahar TPS
4.	NR System strengthening Scheme- NRSS-XXXI(Part-A)
5.	Transmission System associated with Gadawara STPS (2x800 MW) of NTPC (Part-A)
6.	Transmission System associated with Gadawara STPS (2x800 MW) of NTPC (Part-B)
7.	Transmission System Strengthening associated with Vindhyaachal – V
8.	Strengthening of Transmission system beyond Vemagiri
9.	Transmission system associated with LTA applications from Rajasthan SEZ Part-A
10.	New WR-NR 765 kV Inter- Regional Corridor
11.	Transmission system associated with LTA applications from Rajasthan SEZ Part-B
12.	Transmission system associated with LTA applications from Rajasthan SEZ Part-C
13.	System Strengthening Scheme in Eastern Region ERSS XXI
14.	765 kV System Strengthening Scheme in Eastern Region ERSSXVIII
15.	Transmission System for providing connectivity to RE Projects at Bhuj-II (2000 MW ) in Gujarat
16.	Transmission system strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under “Phase-II Part-F
17.	Transmission system strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II –Part A
18.	Transmission system for evacuation of power from Neemuch SEZ (1000 MW)
19.	System strengthening for WR
20.	System strengthening common for WR and NR
21.	Scheme for enabling import of NER/ER surplus by NR
22.	Part ATS for RAPP U-7&8 in Rajasthan
23.	Eastern Region System Strengthening Scheme-VII
24.	Northern Regional System Strengthening Scheme, NRSS-XXIX

Sl. No.	Transmission Scheme
25.	Connectivity lines for Maheshwaram 765/400 kV S/S
26.	Common Transmission system for phase-II generation projects in Orissa and immediate evacuation system for OPGC project (Orissa)
27.	Creation of new 400 kV GIS substations in Gurgaon area and Palwal as a part of ISTS
28.	NER System Strengthening Scheme II
29.	Connectivity system for Khargone TPP (2x660MW)
30.	WRSS – 21 Part – B – Transmission System Strengthening for Relieving Over Loadings Observed in Gujarat Intra-State System Due to RE injections in Bhuj PS
31.	Eastern Region System Strengthening Scheme-VI
32.	Northern Region System Strengthening Scheme, NRSS-XXXI (Part-B)
33.	Western Region System Strengthening – II under Project – B (Maharashtra)
34.	Western Region System Strengthening – II under Project – C (Gujarat)
35.	Additional system strengthening for Sipat STPS
36.	Additional system strengthening for Chhattisgarh (B)
37.	System strengthening for IPPs in Chhattisgarh and other generation projects in Western Region
38.	Transmission System for Ultra Mega Solar Park in Fatehgarh, Distt. Jaisalmer Rajasthan
39.	Transmission System Associated with LTA applications from Rajasthan SEZ Part-D
40.	Transmission System for Western Region Strengthening Scheme – 21 (WRSS – 21) Part – A – Transmission System Strengthening for Relieving Over Loadings Observed in Gujarat Intra-State System Due to Re-injections in Bhuj PS
41.	Transmission System for Transmission System Associated with RE Generations at Bhuj-II, Dwarka & Lakadia
42.	Transmission System for Jam Khambaliya Pooling Station and Interconnection of Jam Khambaliya Pooling Station for Providing Connectivity to RE Projects (1500 MW) in Dwarka (Gujarat) and Installation of 400/220 kV ICT along with associated bays at CGPL switchyard
43.	Additional inter- Regional AC link for import into Southern Region i.e Warora - Warangal and Chilakaluripeta Hyderabad- Kurnool 765 kV link
44.	Transmission Scheme for Evacuation of power from RE sources in Karur/Tirrupur Wind Energy Zone (Tamil Nadu) (1000 MW) - Phase I
45.	Transmission scheme for evacuation of 3 GW RE injection at Khavda Pooling Station 1 (KPS 1) under Phase I
46.	Transmission System required for evacuation of power from Kudgi TPS (3x800 MW in Phase-I) of NTPC Ltd.
47.	Transmission System for Patran 400 kV S/S
48.	Transmission System Associated with Krishnapattnam UMPP - Synchronous interconnection between SR and WR (Part-B)
49.	Transmission system strengthening in Indian system for transfer of power from new HEP's in Bhutan
50.	North Eastern Region Strengthening Scheme (NERSS-VI)
51.	Evacuation of Power from RE Sources in Koppal Wind Energy Zone (Karnataka) (2500 MW)

Sl. No.	Transmission Scheme
52.	Transmission system for evacuation of power from RE projects in Rajgarh (1500 MW) SEZ in Madhya Pradesh: Phase-I
53.	Transmission system for evacuation of power from RE projects in Osmanabad area (1 GW) in Maharashtra
54.	Transmission system strengthening for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II-Part B
55.	Transmission Scheme for Solar Energy Zone in Gadag (1000 MW), Karnataka-Phase-I
56.	Western Region Strengthening Scheme-XIX (WRSS-XIX) and North Eastern Region Strengthening Scheme-IX (NERSS-IX)
57.	Transmission system strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase-II-Part D
58.	Establishment of new 220/132 kV substation at Nangalbibra
59.	Transmission system strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase-II-Part C
60.	Western Region Expansion Scheme XXVIII & XXIX
61.	Western Region Expansion Scheme XXVII
62.	Transmission scheme for evacuation of 4.5 GW RE injection at Khavda P.S. under Phase-II-Part A
63.	Transmission scheme for injection beyond 3 GW RE power at Khavda PS1 (KPS1)

**b) Transmission Schemes under implementation by the Transmission Service Providers:**

Sl. No.	Transmission Scheme
1.	Immediate evacuation for North Karanpura (3x660 MW) generation project of NTPC alongwith creation of 400/220 kV sub-station at Dhanbad (ERSS-XIX)
2.	ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region
3.	Transmission System for evacuation of additional 7 GW RE Power from Khavda RE Park under Phase-III: Part A
4.	Transmission system for evacuation of power from REZ in Rajasthan (20 GW) under Phase- III Part A1
5.	Transmission system for evacuation of power from REZ in Rajasthan (20 GW) under Phase- III Part A3
6.	Western Region Expansion Scheme XXXIII (WRES-XXXIII): Part B
7.	400 kV Khandukhal (Srinagar) - Rampura (Kashipur) D/c line
8.	System Strengthening Scheme for Eastern and North Eastern Regions: A. Eastern Region Strengthening Scheme-XXV (ERSS-XXV) B. North Eastern Region Strengthening Scheme-XV (NERSS-XV)
9.	Transmission system strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase-II- Part G
10.	Transmission Network Expansion in Gujarat associated with integration of RE projects from Khavda potential RE zone
11.	Establishment of Khavda Pooling Station-2 (KPS 2) in Khavda RE Park
12.	Establishment of Khavda Pooling Station-3 (KPS 3) in Khavda RE Park

Sl. No.	Transmission Scheme
13.	Transmission system for evacuation of power from REZ in Rajasthan (20 GW) under Phase- III Part B1
14.	Transmission scheme for evacuation of 4.5 GW RE injection at Khavda P.S. under Phase-II – Part C
15.	Transmission scheme for evacuation of 4.5 GW RE injection at Khavda P.S. under Phase-II – Part B
16.	Transmission scheme for Solar Energy Zone in Ananthpuram (Ananthapur) (2500 MW) and Kurnool (1000 MW), Andhra Pradesh
17.	Transmission system strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase-II- Part E
18.	Inter-regional ER-WR Interconnection (Jeypore- Jagdalpur 400 kV D/c line)
19.	Transmission system for evacuation of power from REZ in Rajasthan (20 GW) under Phase- III: Part C1
20.	Transmission system for evacuation of power from REZ in Rajasthan (20 GW) under Phase- III: Part H
21.	Transmission system for evacuation of power from REZ in Rajasthan (20 GW) under Phase- III: Part D
22.	Transmission Scheme for Solar Energy Zone in Bidar (2500 MW), Karnataka
23.	Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part 1) (Bikaner Complex)- Part-A
24.	Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part 1) (Bikaner Complex)- Part-D
25.	Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Koppal-II (Phase-A & B) and Gadag-II (Phase- A) in Karnataka
26.	Transmission System for evacuation of additional 7 GW RE Power from Khavda RE Park under Phase-III: Part B
27.	Transmission Scheme for Solar Energy Zone in Gadag (1500 MW), Karnataka: Phase-II
28.	System Strengthening Scheme in Northern Region (NRSS-XXXVI)” along with LILO of Sikar-Neemrana 400 kV D/C line at Babai (RRVPNL)
29.	Transmission system for evacuation power from Pakal Dul HEP in Chenab Valley HEPs - Connectivity System
30.	Transmission System for 400 kV Udupi (UPCL) – Kasargode D/C Line
31.	Transmission system for evacuation of power from REZ in Rajasthan (20 GW) under Phase- III: Part F
32.	Additional 400 kV feed to Goa and additional system for power evacuation from generation projects pooled at Raigarh (Tamnar) Pool
33.	Transmission system for evacuation of power from REZ in Rajasthan (20 GW) under Phase- III: Part G
34.	Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part I) (Bikaner Complex)- Part B
35.	Transmission System for Evacuation of Power from RE Projects in Rajgarh 1000 MW SEZ in Madhya Pradesh Phase-II
36.	Transmission scheme for evacuation of power from Dhule 2 GW REZ
37.	Western Region Expansion Scheme XXXIII (WRES-XXXIII): Part C
38.	Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part1) (Bikaner Complex)- Part-C
39.	Transmission system for evacuation of power from RE projects in Solapur (1500 MW) SEZ in Maharashtra
40.	North Eastern Region Expansion Scheme-XVI (NERES-XVI)

Sl. No.	Transmission Scheme
41.	Transmission system for evacuation of power from REZ in Rajasthan (20 GW) under Phase-III: Part I
42.	Provision of Dynamic Reactive Compensation at KPS1 and KPS3
43.	Eastern Region Expansion Scheme-XXXIV (ERES-XXXIV)
44.	Western Region Network Expansion scheme in Kallam area of Maharashtra
45.	Transmission System for Evacuation of Power from potential renewable energy zone in Khavda area of Gujarat under Phase-IV (7 GW): Part A
46.	Transmission System for Evacuation of Power from potential renewable energy zone in Khavda area of Gujarat under Phase-IV (7 GW): Part B
47.	Transmission System for Evacuation of Power from potential renewable energy zone in Khavda area of Gujarat under Phase-IV (7 GW): Part C
48.	Transmission System for Evacuation of Power from potential renewable energy zone in Khavda area of Gujarat under Phase-IV (7 GW): Part D
49.	Transmission System for Evacuation of Power from potential renewable energy zone in Khavda area of Gujarat under Phase-IV (7 GW): Part E2
50.	Transmission System for Evacuation of Power from potential renewable energy zone in Khavda area of Gujarat under Phase-V (8 GW): Part A
51.	Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-2 :5.5 GW) (Jaisalmer/Barmer Complex): Part A
52.	Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-2 :5.5 GW) (Jaisalmer/Barmer Complex): Part B
53.	Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-2 :5.5 GW) (Jaisalmer/Barmer Complex): Part C
54.	Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-2 :5.5 GW) (Jaisalmer/Barmer Complex): Part D
55.	Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-2 :5.5 GW) (Jaisalmer/Barmer Complex): Part E
56.	Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-2 :5.5 GW) (Jaisalmer/Barmer Complex): Part F
57.	Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-2 :5.5 GW) (Jaisalmer/Barmer Complex): Part H1
58.	Transmission Scheme for integration of Renewable Energy Zone in Tumkur area of Karnataka
59.	Network Expansion scheme in Gujarat for drawl of about 3.6 GW load under Phase-I in Jamnagar area
60.	North Eastern Region Generation Scheme-I (NERGS-I)
61.	Eastern Region Expansion Scheme-XXXIX (ERES-XXXIX)
62.	Network Expansion Scheme in Navinal (Mundra) area of Gujarat for drawal of power in the area
63.	Additional Transmission system for evacuation of power from Bhadla-III PS as part of Rajasthan REZ Phase-III scheme (20 GW)
64.	Transmission Scheme for integration of Davanagere / Chitradurga and Bellary REZ in Karnataka
65.	Transmission Scheme for integration of Bijapur REZ in Karnataka
66.	Transmission System under ISTS for evacuation of power from Kudankulam Unit - 3 & 4 (2x1000 MW)
67.	Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part 3: 6GW) (Bikaner Complex) :Part A

Sl. No.	Transmission Scheme
68.	Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part 3: 6GW) (Bikaner Complex) :Part B
69.	Augmentation of transformation capacity at Jam Khambhaliya PS
70.	Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-4 :3.5 GW): Part A
71.	Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-4: 3.5 GW): Part B
72.	System strengthening at Koppal-II and Gadag-II for integration of RE generation projects
73.	Augmentation of transformation capacity at 765/400 kV Lakadia S/s (WRSS XXI (A) Transco Ltd) in Gujarat-Part B
74.	Transmission scheme for evacuation of power from Ratle HEP (850 MW) & Kiru HEP (624 MW): Part-A
75.	Transmission system strengthening at Kurnool-III PS for integration of additional RE generation projects
76.	Augmentation of transformation capacity at Banaskantha (Raghanesda) PS (GIS)
77.	Augmentation of transformation capacity at KPS1 (GIS) Part-B1 and KPS2 (GIS) PartB2 (Phase-V) scheme
78.	Transmission system for evacuation of power from Rajasthan REZ Ph-V (Part-1: 4 GW) [Sirohi/Nagaur] Complex
79.	Augmentation at Fatehgarh-II PS, Fatehgarh-IV PS(Section-II) and Barmer-I PS
80.	Transmission System for supply of power to Green Hydrogen/Ammonia manufacturing potential in Mundra area of Gujarat under Phase-I: Part B1 scheme (3 GW at Navinal S/s)
81.	Transmission System for Integration of Anantapur-II REZ - Phase-I (for 4.5 GW)
82.	Augmentation of transformation capacity by 3x500 MVA, 400/220 kV ICTs (6th - 8th) and 1x1500 MVA, 765/400 kV ICT (4th) at Bidar PS
83.	Transmission System for Integration of Kurnool-IV (Near Aspiri) REZ (for 4.5 GW)
84.	Transmission system strengthening for interconnection of Bhadla-III and Bikaner III complex

**c) Schemes under bidding process by Bid Process Coordinators:**

Sl. No.	Transmission Schemes
1.	Creation of 400/220 kV, 2x315 MVA S/S at Siot, Jammu & Kashmir
2.	Transmission system for evacuation of power from Luhri Stage-I HEP
3.	Transmission system for evacuation of power from Shongtong Karcham HEP (450 MW) and Tidong HEP (150 MW)
4.	Transmission System for Evacuation of Power from potential renewable energy zone in Khavda area of Gujarat under Phase-V (8 GW): Part C
5.	Eastern Region Generation Scheme-I (ERGS-I)
6.	Network Expansion scheme in Western Region to cater to Pumped storage potential near Talegaon (Pune)
7.	Transmission System for evacuation of power from Mahan Energen Limited Generating Station in Madhya Pradesh

Sl. No.	Transmission Schemes
8.	Transmission System for evacuation of RE power from Raghanesda area of Gujarat -3 GW under Phase-I
9.	Transmission System for supply of power to Green Hydrogen/Ammonia manufacturing potential in Kandla area of Gujarat (Phase-I: 3 GW)
10.	North-Eastern Region Expansion Scheme XXV Part-A (NERES-XXV Part-A)
11.	Transmission system for proposed Green Hydrogen / Green Ammonia projects in Tuticorin area
12.	Transmission system for proposed Green Hydrogen / Green Ammonia projects in Kakinada area, Andhra Pradesh (Phase-I)
13.	Augmentation of transformation capacity and Implementation of line bays at Mandsaur S/s for RE Interconnection
14.	Transmission system for Evacuation of Power from RE Projects in Rajgarh (1500 MW) SEZ in Madhya Pradesh Phase III and Evacuation of Power from RE Projects in Neemuch (1000 MW) SEZ in Madhya Pradesh-Phase II
15.	Inter-regional (NR-WR) Transmission System strengthening to relieve the loading of 765 kV Vindhyachal-Varanasi D/c line
16.	Transmission system for evacuation of power from Pumped Storage Projects in Sonbhadra District. Uttar Pradesh
17.	Transmission system for Evacuation of Power from RE Projects in Morena SEZ in Madhya Pradesh-Phase I (2500MW)
18.	Transmission system strengthening at Davanagere for integration of RE generation
19.	Transmission System for Kurnool-IV REZ - Phase-II (3 GW)
20.	Transmission System for Integration of Ananthapuram-II REZ - Phase-II (3 GW)

Annexure – 3CTransmission schemes approved/recommended by National Committee on Transmission during 2024-25**1. 19<sup>th</sup> meeting of National Committee on Transmission held on 29.04.2024**

- (i). Modification in the schemes
  - a) Implementation of Jhatikara – Dwarka 400 kV (Quad) D/c line under Rajasthan REZ Ph-III, Part-D- Ph-II Scheme Establishment of State-of-Art Unified Network Management System (U-NMS) for ISTS and State Utility Communication System for Southern Region
  - b) Delinking of EHVAC System beyond Kaithal from Transmission system for evacuation of RE power from renewable energy parks in Leh (5 GW LehKaithal transmission corridor)
  - c) Change in Scope of transmission scheme "Eastern Region Expansion SchemeXXXIV (ERES-XXXIV)"
  - d) Change in implementation timeframe of Eastern Region Generation Scheme-I (ERGS-I)
- (ii). Transmission system strengthening to facilitate evacuation of power from Bhadla/Bikaner complex
- (iii). Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-4 :3.5 GW): Part A
- (iv). Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-4 :3.5 GW): Part B
- (v). System strengthening at Koppal-II and Gadag-II for integration of RE generation projects
- (vi). OPGW installation on existing 400 kV Kurukshetra - Malerkotla line alongwith FOTE at both ends Part – A and Part – B
- (vii). OPGW installation on existing 400 kV Kota – Merta line alongwith LILO portion at Shree Cement including FOTE at all 3 locations
- (viii). OPGW installation on one circuit of existing of 765 kV FatehpurAgra D/c (2x S/c) Line which is to be LILOed at new Ghiror S/s (ISTS) including FOTE at Fatehpur & Agra locations (2 Nos.)
- (ix). Supply and installation of OPGW on 400kV Fatehgarh-I (Adani) - Fatehgarh-II (PG) line (6.5 kms.) upto LILO portion of Fatehgarh-II (PG).
- (x). Additional FOTE / Cards in view of resource disjoint and critical locations (12 Nos. of FOTE)
- (xi). Supply and Installation of 11 nos. FOTE at Backup SLDCs in Northern Region & Backup NRLDC (Guwahati)

**2. 20<sup>th</sup> meeting of National Committee on Transmission held on 25.06.2024**

- (i). Modification in the schemes
  - a) Augmentation of transformation capacity at Jam Khambhaliya PS (JKTL)- PART B.
  - b) Modification in design / layout of Kurnool-III PS due to receipt of large quantum of Connectivity applications at 400 kV level
  - c) Change in Implementation time-frame of Eastern Region Expansion Scheme-XXXIX (ERES-XXXIX)
  - d) System strengthening at Koppal-II and Gadag-II for integration of RE generation
  - e) Transmission system for evacuation of power from Luhri Stage-I HEP
  - f) Augmentation with 400/220 kV, 1x500 MVA Transformer (10th) at Fatehgarh-2 PS
  - g) Modification in scope of additional 400 kV feed to Goa State and Additional system for power evacuation from generation projects pooled at Raigarh (Tamnar) Pool
- (ii). Requirement Transmission scheme for evacuation of power from Ratle HEP (850 MW) & Kiru HEP (624 MW) : Part B
- (iii). Network Expansion scheme in Western Region to cater to Pumped storage potential near Talegaon (Pune)
- (iv). Provision of ICT Augmentation and Bus Reactor at Bhuj-II PS
- (v). Transmission System for Offshore Wind Zone Phase-1 (500 MW VGF off the coast of Gujarat for Subzone B3)
- (vi). Transmission System for Offshore wind farm in Tamil Nadu {500 MW VGF}
- (vii). Transmission System for evacuation of power from Mahan Energen Limited Generating Station in Madhya Pradesh
- (viii). Transmission system for Augmentation of transformation capacity at 765/400kV Lakadia S/s (WRSS XXI(A) Transco Ltd) in Gujarat – Part B
- (ix). Transmission System for evacuation of RE power from Raghnesda area of Gujarat – 3GW under Phase-I
- (x). Transmission scheme for evacuation of power from Ratle HEP (850 MW) & Kiru HEP (624 MW): PartA
- (xi). Transmission system strengthening at Kurnool-III PS for integration of additional RE generation projects
- (xii). A: Supply and installation of 24 Fibre OPGW on PKTCL lines for providing redundant communication for Parbati Pooling (Banala) (PG) S/s, ParbatiII (NHPC) & Parbati-III (NHPC) stations.
- (xiii). Supply and installation of 24 Fibre OPGW & FOTE to providing redundant communication for Parbati Pooling (Banala) (PG) S/s , ParbatiII (NHPC) & Parbati-III (NHPC) stations.

- (xiv). Redundant Communication for Chamera-III (NHPC) & Budhil (GreenCo) using 3 pairs of fibers sharing from HPPTCL network
- (xv). Additional FOTE requirements at AGC locations in Western Region
- (xvi). Redundant OPGW communication path for Solapur STPP under AGC
- (xvii). Redundant OPGW communication path for 500 MW plant of NSPCL, Chhattisgarh.

### 3. 21<sup>st</sup> meeting of National Committee on Transmission held on 06.08.2024

- (i). Modification in the schemes
  - a) Modification of implementation schedule of one of the 400 kV bay of M/s Indosol Solar Pvt. Ltd. under the scheme “Transmission system strengthening at Kurnool-III PS for integration of additional RE generation projects”
  - b) Change in Implementation time-frame of Eastern Region Expansion Scheme-XXXIX (ERES-XXXIX)
  - c) Modification in the scope of works of the transmissions scheme "Transmission Scheme for integration of Davanagere / Chitradurga REZ.”
  - d) Modification in the Transmission scheme “Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-4: 3.5 GW): Part B”.
  - e) Denotification of the transmission scheme “Transmission system for evacuation of power from Chhatarpur SEZ (1500 MW) in Madhya Pradesh”
- (ii). Augmentation of transformation capacity by 2x500 MVA (9th & 10th), 400/220 kV ICTs at Tumkur (Pavagada) 400/220 kV Pooling Station in Karnataka and Implementation of 1 Nos. of 220 kV line bay at Tumkur (Pavagada) 400/220 kV PS for providing Connectivity to RE generation project
- (iii). North-Eastern Region Expansion Scheme-XXV Part-B (NERES-XXV Part-B)
- (iv). Augmentation of transformation capacity at Banaskantha (Raghanesda) PS (GIS)
- (v). Augmentation of transformation capacity at KPS1 (GIS) and KPS2 (GIS) (Phase-V Part B1 and Part B2 scheme)
- (vi). Augmentation at Fatehgarh-II PS, Fatehgarh-IV PS(Section-II) and Barmer-I PS
- (vii). Transmission System for supply of power to Green Hydrogen/Ammonia manufacturing potential in Kandla area of Gujarat (Ph-I: 3.0 GW)
- (viii). Transmission system for evacuation of power from Rajasthan REZ Ph-V (Part-1: 4 GW) [Sirohi/Nagaur] Complex
- (ix). North-Eastern Region Expansion Scheme-XXV Part-A (NERES-XXV Part-A)

### 4. 22<sup>nd</sup> meeting of National Committee on Transmission held on 23.08.2024

- (i). Modification in the schemes
  - a) Modification in the transmission System for Evacuation of power from Luhri stage-I HEP
  - b) Change in Implementation time-frame of Transmission system for evacuation of power from Shongtong Karcham HEP (450 MW) and Tidong HEP (150 MW)
  - c) Modification in timeframe of one of the elements in the scope of “Transmission system for offshore wind zone phase -1 (500 MW VGF off coast of Gujarat for subzone B3)
  - d) Change in the time frame for Communication Scheme “Requirement of additional FOTE of STM-16 capacity at Bhuj-II substation to cater connectivity of RE Gencos” approved in 14th NCT
- (ii). Eastern Region Expansion Scheme-43 (ERES-43)
- (iii). Additional Transmission System Proposed for redundant power supply to Dholera area
- (iv). Augmentation of transformation capacity by 3x500 MVA, 400/220 kV ICTs (6th - 8th) and 1x1500 MVA, 765/400kV ICT (4th) at Bidar PS
- (v). Transmission system for supply of power to Green Hydrogen/Ammonia manufacturing potential in Mundra area of Gujarat under Phase-I: Part B1 scheme (3 GW at Navinal S/s)
- (vi). Transmission System for Integration of Anantapur-II REZ - Phase-I (for 4.5 GW)
- (vii). Transmission system for proposed Green Hydrogen / Green Ammonia projects in Tuticorin area
- (viii). Scheme for Requirement of Additional FOTE for redundancy at AGC locations in NER: Revised
- (ix). Optical Fibre Connectivity for NLDC new building, August Kranti Marg, New Delhi

**5. 23<sup>rd</sup> meeting of National Committee on Transmission held on 02.09.2024**

- (i). Transmission system for integration of Kurnool-IV REZ Phase-I (for 4.5 GW)

**6. 24<sup>th</sup> meeting of National Committee on Transmission held on 23.10.2024**

- (i). Modification in the schemes
  - a) Revision in SCOD of 400 kV D/C Jhatikara-Dwarka line under REZ Phase-III Part-D Phase-II scheme
  - b) Change in scope of Transmission system for evacuation of power from Rajasthan REZ Ph-V (Part-1: 4 GW) [Sirohi/Nagaur] Complex

- (ii). Eastern Region Expansion Scheme-44 (ERES-44)
- (iii). Augmentation of transformation capacity at KPS3 (GIS) S/s under Khavda Phase-V Part B3 scheme
- (iv). Transmission system for Evacuation of Power from RE Projects in Rajgarh (1500 MW) SEZ in Madhya Pradesh-Phase III
- (v). Transmission system for Evacuation of Power from RE Projects in Neemuch (1000 MW) SEZ in Madhya PradeshPhase II
- (vi). Supply and Installation of additional FOTE and Ethernet cards at AGC & Critical Nodes of SR Region
- (vii). Requirement of Additional FOTE at various ISTS nodes in ER due to exhaustion of existing capacity
- (viii). Deployment of FOTE (SDH Equipment) and amplifier solutions at Alipurduar S/s end for OPGW based communication and Teleprotection for 400 kV lines from PHEP-II, PHEP-I and Jigmeling of Bhutan to Alipurduar, India

#### **7. 25<sup>th</sup> meeting of National Committee on Transmission held on 28.11.2024**

- (i). Modification in the schemes
  - a) Post facto approval for modification in the scope of work of Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part 1) (Bikaner Complex) – Part-E
  - b) Bid process for selection of Bidder as Transmission Service Provider (TSP) to establish “Transmission system strengthening to facilitate evacuation of power from Bhadla/Bikaner complex”
  - c) Consideration of GIS station in place of AIS station for the scheme “Transmission System for Offshore wind farm in Tamil Nadu {500 MW VGF}”
  - d) Modification in the scope of the scheme “Transmission system for proposed Green Hydrogen/ Green Ammonia projects in Tuticorin area”.
- (ii). Augmentation of transformation capacity at 765/400 kV Sipat STPS in Chhattisgarh by 1x1500 MVA, 765/400 kV ICT (3rd).
- (iii). Transmission system for proposed Green Hydrogen / Green Ammonia projects in Kakinada area, Andhra Pradesh (Phase-I)

#### **8. 26<sup>th</sup> meeting of National Committee on Transmission held on 06.01.2025**

- (i). Modification in the schemes
  - a) Transmission scheme for evacuation of power from Ratle HEP (850 MW) & Kiru (624 MW) HEP: Part B
  - b) Network Expansion in Gujarat for RE interconnection at Raghanesda PS
  - c) Revision in Implementation Schedule for Communication schemes approved in 9th, 11th and 22nd NCT meeting

- d) Modification in the scope of the scheme “Transmission system for proposed Green Hydrogen/ Green Ammonia projects in Tuticorin area”.
- (ii). Augmentation of transformation capacity & Implementation of line bays at Mandsaur S/s for RE Interconnection Transmission system for proposed Green Hydrogen / Green Ammonia projects in Kakinada area, Andhra Pradesh (Phase-I)
- (iii). Transmission system for Evacuation of Power from RE Projects in Rajgarh (1500 MW) SEZ in Madhya Pradesh-Phase III and Evacuation of Power from RE Projects in Neemuch (1000 MW) SEZ in Madhya Pradesh-Phase II
- (iv). Paradeep – Andaman – Nicobar HVDC link
- (v). Redundant Communication for Salal (NHPC) station
- (vi). Redundant Communication for Tuticorin GIS (PG) Substation
- (vii). Establishment of Communication for New SRLDC Building (at CPRI Campus)
- (viii). Upgradation of existing STM-4 equipment to STM16 equipment due to bandwidth congestion
- (ix). OPGW replacement on 132 kV Kahilipara - Umiam Stg. III -Umiam Stg. I – NEHU link & OPGW laying on 132kV Sarusujai to Umtru line and UGFO laying from NERLDC Guwahati to Gantry of Kahilipara S/s for back up NERLDC connectivity
- (x). Establishment of redundant fibre path between NERLDC, Shillong, Khelieriat and NEHU by OPGW replacement on 132kV NEHU-Khliehriat ckt-1 line and laying of UGFO cable from Tower 25 of 132 kV NEHU – Mawlyndep line to NERLDC, Shillong

#### 9. 27<sup>th</sup> meeting of National Committee on Transmission held on 06.02.2025

- (i). Inter-regional (NR-WR) Transmission System strengthening to relieve the loading of 765 kV Vindhyachal-Varanasi D/c line
- (ii). Transmission system for evacuation of power from Pumped Storage Projects in Sonbhadra District. Uttar Pradesh
- (iii). Transmission system for Evacuation of Power from RE Projects in Morena SEZ in Madhya Pradesh-Phase I (2500 MW)
- (iv). Provision of ICT Augmentation and Bus Reactor at Bhuj-II PS
- (v). OPGW installation on existing 765 kV Fatehpur-Varanasi S/c & 765 kV FatehpurSasaram S/c Lines which are proposed to be LILOed at New Prayagraj (ISTS)
- (vi). VOIP Communication system for GridOperation for all Five Regions NR, NER, SR, WR, ER as PAN India
- (vii). Establishment of Stateof-the-Art National Unified Network Management System (N-UNMS) in main & backup configuration integrating all the regional UNMSs.

- (viii). Utilization of OPGW laid by M/s BDTCL on 765 kV S/c Bhopal (BDTCL) – Indore (PG) & 765 kV S/c Vadodara (PG) - Dhule (BDTCL) – Aurangabad (PG) line by upgrading STM-1 FOTE to STM-16 FOTE at Bhopal (BDTCL), Indore (PG), Dhule (BDTCL), Aurangabad (PG) and Vadodara (PG) S/s.
- (ix). Supply and Installation of OPGW on existing 765 kV Gwalior – Satna S/c Line which is proposed to be LILOed at Karera (near Datiya) S/s under TBCB project namely “Western Region Expansion Scheme XXXIII (WRESXXXIII): Part B”.

**10. 28<sup>th</sup> meeting of National Committee on Transmission held on 06.03.2025**

- (i). Modification in the schemes
  - a) Transmission system for evacuation of power from Shongtong Karcham HEP (450 MW) in Himachal Pradesh
- (ii). Transmission System for Kurnool-IV REZ – Phase-II (3 GW)
- (iii). Transmission System for Integration of Ananthapuram-II REZ - Phase-II (3 GW)
- (iv). Augmentation of 1x500 MVA, 400/230 kV ICT (7th) at Tuticorin-II GIS Sub Station
- (v). Transmission system strengthening at Davanagere for integration of RE generation

Annexure-3D

Transmission Lines Completed During FY- 2024-25					
As on 31-Mar-2025					
	Name of Transmission Lines	Circuit Type	Executing Agency	Line Length (cKM)	Month of Completion
1.	2.	3.	4.	5.	6.
<b>765 kV</b>					
<b><u>CENTRAL SECTOR</u></b>					
1	Fatehgarh II- Bhadla II 765kV D/C Line ( 2nd Under Transmission system strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under phase-II- Part B	D/C	PGCIL	405	AUG-24
2	Sikar II - Aligarh 765kV D/C line (Rajasthan (8.1 GW) under phase-II- Part D)	D/C	PGCIL	513	OCT-24
3	Bhadla II - Sikar II 765 kV D/C line (Rajasthan (8.1 GW) under phase-II- Part C)	D/C	PGCIL	618	DEC-24
4	765 kV D/C Kurnool III (PS) - Kurnool (New) line Part-A and Part-B	D/C	PGCIL	226	MAR-25
<b>Total of CENTRAL SECTOR</b>				<b>1762</b>	
<b><u>PRIVATE SECTOR</u></b>					
5	KPS2(GIS)-Lakadia 765kV D/C line (355ckm)	D/C	ADANI	355	MAR-25
6	765kV D/C KPS1 to KPS2 GIS (41ckm)	D/C	MEGHA	41	MAR-25
<b>Total of PRIVATE SECTOR</b>				<b>396</b>	
<b>Total of 765 kV</b>				<b>2158</b>	
<b>400 kV</b>					

<b>CENTRAL SECTOR</b>					
7	Sikar II - Neemrana 400kV D/C line (Twin HTLS) (Rajasthan (8.1 GW) under phase-II- Part C)	D/C	PGCIL	270	OCT-24
8	RIL (Oil Refinery Jamnagar) GIS Jam Khabaliya (GIS) PS line (Antitheft charged in April-2024)	D/C	PGCIL	90	JAN-25
9	400 kV D/C Banaskantha - Sankhari Line (2nd Ckt.) under Project - Transmission Network Expansion in Gujarat to increase its ATC from ISTS Part-C	S/C	PGCIL	44	MAR-25
10	Navsari (New) (South Gujarat) (GIS)-Magarwada (GIS) 400 kV D/C Line under Project - Transmission Network Expansion in Gujarat to increase its ATC from ISTS Part-B	D/C	PGCIL	192	MAR-25
11	Raipur Pool - Dhamtari 400 kV D/C line under Project WRES-XXVII (SPV Name POWERGRID Raipur Pool Dhamtari Transmission Limited)	D/C	PGCIL	176	MAR-25
<b>Total of CENTRAL SECTOR</b>				<b>772</b>	
<b>STATE SECTOR</b>					
12	LILO of Ckt-I of 400kV Varanasi (PG (Thathra) - Biharshariff DC Line at 400kV Sahupuri	D/C	UPPTCL	52	APR-24
13	LILO of Ckt.II of 400 KV DC Quad Varanasi (PG) (Thathra) -Biharsharif at 400 kV Sahupuri SS (charged	D/C	UPPTCL	53	JUN-24
	on 18-05-2024 however late reported by UPPTCL)				
14	YTPP Switchyard - 400kV Dindi SS	D/C	TSTRANSCO	208	JUN-24
15	LILO of one Ckt. of 400kV Ludhiana PGCIL-Koldam at proposed 400kV s/s Ropar	D/C	PSTCL	14	JUL-24
16	400kV Shamli - Aligarh Line	D/C	UPPTCL	482	JUL-24

17	LILO of Kayathar - Thennampatti 400 kV line Virudhunagar 765/400 KV SS	D/C	TANTRANSCO	140	AUG-24
18	LILO of 400kV VTS-IV Sattenapalli TMDC line at Thallayapalem and Temporary diversion of PGCIL VTS/Nunna-Nellore 3 and 4 Ckts. to avoid aerial passage over 400/220kV GIS Thallayapalem	D/C	APTRANSCO	2	OCT-24
19	Vemagiri - Kamavarapukota	D/C	APTRANSCO	116	OCT-24
20	LILO of Talegaon -Kalwa at Vikroli (Intra State TBCB)	D/C	MSETCL	24	OCT-24
21	Chandwa - Latehar (JUSNL) line	D/C	JUSNL	83	DEC-24
22	LILO of 400 kV Rajwest-Kankani line at 400 kV Pachpadra GSS	D/C	RVPNL	72	DEC-24
23	LILO of CKT-I of Patna (PG) - Barh (NTPC) at Bakhtiyarpur SS	D/C	BSPTCL	21	JAN-25
24	LILO of CKT-II of Patna (PG) - Barh (NTPC) at Bakhtiyarpur SS	D/C	BSPTCL	21	FEB-25
25	400 kV Vemagiri-Kamavarapukota TMDC line from 400 kV Sub-Station Kamavarapukota from Loc No. AP 1/0 to Loc.No.AP 42/0 (102 Locations) (Balance portion)	D/C	APTRANSCO	71	MAR-25
26	LILO of 400kV Shamli-Aligarh Line at THDC Khurja Power Plant	D/C	UPPTCL	23	MAR-25
<b>Total of STATE SECTOR</b>				<b>1382</b>	
<b><u>PRIVATE SECTOR</u></b>					
27	400 kV D/C Gadag PS-Narendra (New) line (Trans. Scheme for Solar Energy Zone in Gadag (1000MW) Karnataka-Part-A Phase-I)	D/C	RENEW	187	SEP-24

28	LILO of Padghe (PG)-Ghatkopar/Vikroli 400 kV S/C line at Navi Mumbai GIS(PG) (WRSS-XIX and NERS-IX)	S/C	STERLITE	38	SEP-24
29	Padghe (PG) - Kharghar 400 kV D/C (Quad) line (WRSS-XIX and NERS-IX)	D/C	STERLITE	140	SEP-24
30	Bongaigaon (POWERGRID) - Nangalbibra (Twin ACSR Moose) line	D/C	STERLITE	246	OCT-24
31	Xeldem - Mapusa (quad) line (G-TTPL -TBCB)	D/C	STERLITE	106	OCT-24
32	ACME Solar Holdings limited PS at Jaisalmer-Fatehgarh (ISTS SS) line (Late Reported Commissioned Oct-24)	S/C	ACME	16	MAR-25
33	AGEL (PSS-04) - KPS-1 (Section-2) 400 kV S/c line (Late Reported Commissioned Feb-25)	S/C	ADANIGREEN	10	MAR-25
34	AGEL (PSS-05) - KPS-1 (Section-2) 400 kV S/c line (Late Reported Commissioned April-24)	S/C	ADANIGREEN	8	MAR-25
35	AGEL (PSS-13)-KPS-1 (Section-2 kV S/c line (Late Reported Commissioned Jan-25)	S/C	ADANIGREEN	11	MAR-25
36	Adani Renewable Energy Holding Four Limited Power Plant -Bhadla-II PS 400 kV S/c line (Late Reported Commissioned Sep-24)	S/C	AREHFL	11	MAR-25
37	RGESL PSS-4 at Solapur Konhali-Limbi Chincholi (PGCIL) Solapur S/S (Late Reported Commissioned Jan-25)	S/C	Renew Green Energy Solutions	13	MAR-25
38	SRPL (PSS-09) -KPS-1 (Bus Section-II) 400 kV S/c line (Late Reported Commissioned Nov-24)	S/C	Sarjan Realities	14	MAR-25
<b>Total of PRIVATE SECTOR</b>				<b>800</b>	
<b>Total of 400 kV</b>				<b>2954</b>	
<b>230 kV</b>					

<b><u>STATE SECTOR</u></b>					
39	Extension of Shoolagiri Karimangalam line (from location no. 6 of Shoolagiri Karimangalam line) to Udanapally 230 KV SS	S/C	TANTRANSCO	2	APR-24
40	UG Cable from Basin Bridge to TNEB Head Quarters	S/C	TANTRANSCO	6	APR-24
41	LILO of 230 kV Basin Bridge -TNEB Head Quarters feeder at Pulianthope 400 KV GIS SS (230KV UG Cable)	D/C	TANTRANSCO	1	JUL-24
42	LILO of Pudhansandhai - Pugalur 230 kV Feeder at Nallur SS	D/C	TANTRANSCO	12	JAN-25
43	LILO of Ottiyambakkam - Omega 2 at proposed 230/110 kV Mambakkam SS (by Laying of 230 kV DC UG cable for a route length of 2.30KM)	D/C	TANTRANSCO	5	MAR-25
44	LILO of Ottiyambakkam - Omega 2 at proposed 230/110kV Mambakkam SS (by overhead 230kV D/C line on M/C tower with zebra conductor (Loc 24 to Loc.150) for a route length of 19.918 km (OH portion)	D/C	TANTRANSCO	40	MAR-25
<b>Total of STATE SECTOR</b>				<b>66</b>	
<b>Total of 230 kV</b>				<b>66</b>	
<b>220 kV</b>					
<b><u>CENTRAL SECTOR</u></b>					
45	LILO of CTPS (A) - Kalyaneswari line at RTPS	D/C	DVC	52	JUN-24
<b>Total of CENTRAL SECTOR</b>				<b>52</b>	
<b><u>STATE SECTOR</u></b>					
46	BTPP - Karmnasa GSS line (twin moose conductor)	D/C	BSPTCL	59	APR-24

47	LILO of both circuits of 220kV D/C Mota - Ambheta (Chikhli) line at proposed 220kV Mahuva	M/C	GETCO	44	APR-24
48	LILO of 220kV Sarna Wadala -Granthian at Gurdaspur	D/C	PSTCL	16	APR-24
49	LILO of 220 KV Balimela Jayanagar Circuit III at 220/33 KV GSS Govindpali	D/C	OPTCL	2	MAY-24
50	BTPP - Dumraon (New) GSS	D/C	BSPTCL	129	MAY-24
51	Kudligi (Badeladaku) line from existing 220 kV Itagi SS to the proposed Station at Kudligi	D/C	KPTCL	65	MAY-24
52	LILO of 220 kV line New Duburi - Paradeep Circuit I at 220/33 KV GSS Balichandrapur Palei	D/C	OPTCL	2	MAY-24
53	LILO of 220kV VTS-Tallapally-1 at 220/132 kV SS Rentachintala	D/C	APTRANSCO	3	MAY-24
54	400/220 kV GIS of POWERGRID at Airendwala to 220/132/33 kV AIS of HPPTCL at Andheri Kala Amb Distt. Sirmaur	D/C	HPPTCL	11	MAY-24
55	Pusouli (New) - Dehri	D/C	BSPTCL	125	JUN-24
56	LILO of both circuits of Satna-Chhatarpur 220kV line at Ajaygarh (TBCB)	D/C	MPPTCL	14	JUN-24
57	Patan (Upgradation of existing 132/33 KV S/s by 220/132 KV S/s )	D/C	CSPTCL	45	JUN-24
58	LILO of 220 kV S/Stn Mansa - Sunam at 400 kV S/Stn Patran	D/C	PSTCL	85	JUN-24
59	220 kV Brandix - Atchuthapuram	D/C	APTRANSCO	7	JUL-24
60	220kV DC line from 400kV Kamavarapukota to 220kV SS Bhimadole SS	D/C	APTRANSCO	37	JUL-24
61	220 kV D/C Choraniya - Salejada line	D/C	GETCO	136	JUL-24

62	Conversion of 220 kV Bidnal-Soundatti-Mahalingapura S/C line - 220 kV Bidnal - Mahalingapur D/C line	D/C	KPTCL	125	JUL-24
63	LILO of 2nd circuit of 220kV Bidnal -Mahalinapur DC Line at Soundatti SS	D/C	KPTCL	21	JUL-24
64	Sagar - Begamganj 220 kV line (TBCB) (charged on 24-04-2024 however late reported by MPPTCL)	D/C	MPPTCL	125	JUL-24
65	220 kV Koradi-II to Butibori-III DCMC line	D/C	MSETCL	109	JUL-24
66	Connecting 220 kV PGCIL Ludhiana-Doraha SC line with 220 kV Lalton Kalan-Dhandari Kalan forming PGCIL Ludhiana- Dhandari Kalan SC line (charged in June-2024 however late reported by PSTCL)	S/C	PSTCL	10	JUL-24
67	Darshan Nagar GIS to Sohawal (Tower NO. 152 of Gonda line)	S/C	UPPTCL	1	JUL-24
68	LILO of KTPP- Jangalpur 220 kV D/C line at Food Park 220 kV Substation	D/C	WBSETCL	2	JUL-24
69	Damaracherla -Huzurnagar line	D/C	TSTRANSCO	77	AUG-24
70	LILO of 220 kv ongole-Racherlpadu line at 220 kv ss Kandukur	D/C	APTRANSCO	7	AUG-24
71	Devanahalli Hardware Park (WORK-A) from 400 kV DWHP to CTT for Double LILO of 220 kV Nelamanagal -Hoody DC line (Vidyanagar 66kV line corridor)	M/C	KPTCL	21	AUG-24
72	LILO on 220kV Bhigwan Kurkumb line at 400kV Karjat s/s	D/C	MSETCL	34	AUG-24
73	220 kV Modipuram-II - Shamli Line	D/C	UPPTCL	150	AUG-24

74	LILO of KTPP-Howrah 220 kV D/C Line at Proposed Food Park 220/132 KV GIS S/S	M/C	WBSETCL	2	AUG-24
75	LILO of Mysandra-Yeradanahalli at Keonics (Electronic City)	D/C	KPTCL	7	SEP-24
76	LILO of 220 kV Shendra- Chitepimpalgaon line at 220 kV Shendra DMIC GIS s/s (UG cable)	D/C	MSETCL	12	SEP-24
77	220kV D/C line from 220kv Meerpur Kurali to TSS Rundhi as a deposit work of Indian Railway	D/C	HVPNL	25	OCT-24
78	Jerur- Karjat line	D/C	MSETCL	101	OCT-24
79	LILO of Badaun(400 kV)- C.B. Ganj line at Badaun Road	D/C	UPPTCL	1	OCT-24
80	220 kV Krishnagiri- Nansuralla Line	S/C	APTRANSCO	24	NOV-24
81	Jammalamadugu (400 kV SS) to proposed Bethamcherla (220 kV SS) in Kurnool District	D/C	APTRANSCO	151	NOV-24
82	Banka(PG)-Goradih Transmission line	D/C	BSPTCL	65	NOV-24
83	220 kV U/G cable from Kashmiri Gate SS to 220 kV Timarpur (GIS) SS	D/C	DTL	10	NOV-24
84	Sonepat to GIS Rai line (late reported commissioned in May-2024)	D/C	HVPNL	51	NOV-24
85	LILO of 220 kV Allipura-Ragalapadu line at Somasamudra SS	D/C	KPTCL	12	NOV-24
86	LILO of Somanahalli-hoody line at Keonics (Electronic City)	D/C	KPTCL	14	NOV-24
87	220 kV D/C Surpura-Banar line (late reported commissioned in October-2024)	D/C	RVPNL	20	NOV-24
88	LILO of 220 kV Durgapur -DPL unit-8 line at AB Zone 220 kV Substation.	D/C	WBSETCL	8	NOV-24

89	LILO of Sec -72 Gurugram (PGCIL 400 kV SS) to Sec -72 Gurugram (HVPNL 220 kV SS) ckt - IV at 220 kV Sec 15-II Gurugram 220kV Sec 15-II Gurugram	D/C	HVPNL	16	DEC-24
90	LILO of existing 220 kV Madanapalli-Palamaner line to 220 kV Punganur S/S	D/C	APTRANSCO	5	DEC-24
91	LILO of both circuits of 220 kV D/C Jambuva - Karamsad line at Dhuvaran CCPP	D/C	GETCO	18	DEC-24
92	LILO of 220 kV D/C Bajoli Holi to Lahal Transmission Line at 220/66 kV Heiling S/S	D/C	HPPTCL	1	DEC-24
93	Powerloom metta to Parambayi	M/C	KSEB	1	DEC-24
94	LILO of both circuits of Sidhi - Hindalco 220 kV line at Bargawan (220 kV) S/s (TBCB)(late reported commissioned in Nov-2024)	D/C	MPPTCL	8	DEC-24
95	LILO of 220 kV Jalna - Chikhali line at 220 kV Nagewadi S/s	D/C	MSETCL	3	DEC-24
96	LILO of 220 kV Balotra-Boranada line at 400 kV Pachpadra GSS	D/C	RVPNL	18	DEC-24
97	Tajpur - Samastipur line (late reported antitheft charged in Dec-24)	D/C	BSPTCL	41	JAN-25
98	Thakurganj-Kishanganj line (Antitheft Charged)	D/C	BSPTCL	95	JAN-25
99	220 kV D/C Motigop Babarzar line (Babarzar gantry to AP 7) - (charged by connecting to stopgap SS)	D/C	GETCO	5	JAN-25
100	LILO of both circuits of Sidhi - Hindalco line at Bargawan 220 kV S/s (Intrastate TBCB) (8 ckm reported earlier however revised to 17 ckm hence additional length considered in Jan-2025)	D/C	MPPTCL	9	JAN-25

101	LILO of 220kV Eklahare - Navsari line (ckt-I) at 220 kV Reliance Life science GIS SS	S/C	MSETCL	1	JAN-25
102	Pachpadra (400kV GSS)- HRRL (Hindustan Rajasthan Refinery Limited) line Ckt-I and Ckt-II	D/C	RVPNL	30	JAN-25
103	LILO of STPS - J K NAGAR line at 220 kV Asansol SS	D/C	WBSETCL	63	JAN-25
104	LILO of Kamavarapukota (220 kV) - Nuziveedu line at Kamavarapukota SS (400 kV)	S/C	APTRANSCO	3	FEB-25
105	Kurud-Rajim line (Ckt-I)	D/C	CSPTCL	33	FEB-25
106	Ghangapura (Nimbarga) SS to Sindagi (Aheri) SS in Vijayapura Dist	D/C	KPTCL	112	FEB-25
107	Halabarga SS to Santhpur SS	D/C	KPTCL	57	FEB-25
108	Narsapur - Bowrampet line	MC+D/C	TSTRANSCO	149	FEB-25
109	Shatabdinagar- NCRTC RSS line	D/C	UPPTCL	5	FEB-25
110	Sirsira (Raebareli 400 kV SS )- Bachhrawan (220 kV SS) line	D/C	UPPTCL	161	FEB-25
111	Unnao(400)- Ajpgain TSS Line	S/C	UPPTCL	12	FEB-25
112	220 kV AP Carbides - Settipalli D/C Line in Kurnool Dist	D/C	APTRANSCO	57	MAR-25
113	220 kV D/C Wagra - Bharuch TSS (NHSRCL) line	D/C	GETCO	30	MAR-25
114	LILO of both circuit of 220 kV PTPS-Jind D/C line at 220 kV Nain SS	M/C	HVPNL	32	MAR-25
115	LILO of one ckt of 220kV D/C Samaypur-Palwal at 220kV Harfali	D/C	HVPNL	19	MAR-25
116	400/220 kV BTPS(Kudithini) to Somasamudra S/s for a distance of 20.387 Kms	D/C	KPTCL	41	MAR-25

117	LILO of both circuit of 220KV B.Bagewadi-Lingasagur DC line to the proposed 220/110KV Basarkod Sub-station for a distance of 9.623 kms	M/C	KPTCL	39	MAR-25
118	220KV DC Kalmeshwar-Warud Phase-III	D/C	MSETCL	45	MAR-25
119	220 kV Kumbhargaoon - Kurunda line (Pkg-B)	D/C	MSETCL	57	MAR-25
120	220 kV line from 400 kV Solapur PG to 220 kV Bale S/S (Balance M/C works from loc 37A to Bale SS)	D/C	MSETCL	27	MAR-25
121	Balance work of 220 kV SC Karad- Koyna line (from loc 144 to 157)	S/C	MSETCL	4	MAR-25
122	LILO of 220 kV M/C Tarapur-Borivali and Boisar-Ghodbandar line at Kudus (400 kV SS)	M/C	MSETCL	126	MAR-25
123	220 kV D/C Baram-Jauljivi Line	D/C	PTCUL	25	MAR-25
<b>Total of STATE SECTOR</b>				<b>3313</b>	
<b><u>PRIVATE SECTOR</u></b>					
124	Vapi-II-Sayali 220 kV D/C line (WRSS-XIX and NERSS-IX)	D/C	STERLITE	45	SEP-24
125	Xeldem (Existing) - Xeldem (New) Transmission line	D/C	STERLITE	45	OCT-24
126	LILO of Apta-Kalwa/Taloja at Navi Mumbai (PG)	D/C	STERLITE	5	OCT-24
127	AREH4L 500 MW Power Plant S/s -Fatehgarh-II PS 220 kV D/c line (Late Reported Commissioned Nov-24)	S/C	AREHFL	24	MAR-25
128	RSRPL at Gadag - Gadag SS (ISTS) (Late Reported Commissioned Sept-24)	S/C	Renew Surya Roshni	30	MAR-25
129	Renew Surya Vihaan Private Limited Solar Power Plant at Jaisalmer-PGCIL Fatehgarh-III PS	S/C	Renew Surya Vihaan	13	MAR-25

130	M/s Sembcorp Green Infra Private Limited generation pooling Station at Koppa-Gadag PS (ISTS SS) line (Late Reported Commissioned Sep-24)	S/C	Sembcorp Green Infra	54	MAR-25
131	Serentica Renewables India Private Limited (SRIPL) PS (Jaimalsar)-Bikaner II PS (ISTS) (Late Reported Commissioned Apr-24)	S/C	Serentica Renewables India	8	MAR-25
132	Serentica Renewables India 1 Private Limited (SRI1PL) PS at Koppal to Koppal PS (ISTS) (Late Reported Commissioned May-24)	S/C	Serentica Renewables India 1	5	MAR-25
133	Vena Energy Vidyuth Private Limited PS at Koppal-Gadag (ISTS PS) line (Late Reported Commissioned Oct-24)	S/C	Vena Energy Vidyuth	58	MAR-25
<b>Total of PRIVATE SECTOR</b>				<b>287</b>	
<b>Total of 220 kV</b>				<b>3652</b>	
<b>Grand Total</b>				<b>8830</b>	

Annexure-3E

Sub-Stations Completed During FY - 2024-25					
As on 31-Mar-25					
SI No	Name of Sub Stations	Voltage Ratio (kV/kV)	Executing Agency	Capacity (MW/MVA)	Month of Completion
1.	2.	3.	4.	5.	6.
<b>765 kV</b>					
<b><u>CENTRAL SECTOR</u></b>					
1	1x1500MVA ICT at Padghe (GIS) Trans. Network Expansion in Gujarat to increase ATC from ISTS Part B	765/400	PGCIL	1500	JUN-24
2	1X1500 MVA 765/400 KV (5th) ICT at Fatehgarh-II PS (Rajasthan (8.1 GW) under Phase II- Part- A1)	765/400	PGCIL	1500	JUL-24
3	1X1500 MVA 765/400 kV ICT (4th) at 765/400 kV Bhadla-II PS under (Phase - II Part -BI)	765/400	PGCIL	1500	SEP-24
4	1x1500 MVA 765/400kV ICT-2 at Sikar-II s/s (Rajasthan (8.1 GW) under phase-II- Part C)	765/400	PGCIL	1500	OCT-24
5	1X1500MVA 765/400 KV ICT-3rd at Raigarh Kotra Section-A)	765/400	PGCIL	1500	OCT-24
6	1x1500 MVA 765/400kV ICT-1 at Sikar-II s/s (Rajasthan (8.1 GW) under phase-II- Part C)	765/400	PGCIL	1500	OCT-24

7	Banaskantha SS (Transmission network expansion in Gujarat to increase its ATC from ISTS Part C)	765/400	PGCIL	1500	NOV-24
8	1x1500 MVA 765/400 kV ICT (3rd) at Pune (PG) GIS under Western Region Expansion Scheme-XXXI Part C	765/400	PGCIL	1500	FEB-25
9	Kurnool-III (ICT1&2)(Trans. Sys. for Kurnool Wind Energy Zone/Solar Energy Zone (AP)-Part-A & B)	765/400	PGCIL	3000	MAR-25
10	Kurnool-III (ICT3)(Trans. Sys. for Kurnool Wind Energy Zone/ Solar Energy Zone (AP)-Part-A & Part-B)	765/400	PGCIL	1500	MAR-25
	<b>TOTAL CENTRAL SECTOR</b>			<b>16500</b>	
<b><u>STATE SECTOR</u></b>					
11	Ariyalur (1500 MVA ICT-II)	765/400	TANTRANSCO	1500	DEC-24
	<b>TOTAL STATE SECTOR</b>			<b>1500</b>	
<b><u>PRIVATE SECTOR</u></b>					
12	Aug. of Khavda PS1 by 2X1500 MVA,765/400kV ICT (MVA:6000) (Late reported-commisioned in Feb 2025)	765/400	MEGHA	3000	MAR-25
	<b>TOTAL PRIVATE SECTOR</b>			<b>3000</b>	
	<b>TOTAL 765 kV</b>			<b>21000</b>	
<b>400 kV</b>					
<b><u>CENTRAL SECTOR</u></b>					
13	1X500 MVA 400/220 kV ICT-3rd at Bikaner-II PS (Phase-IV (Part 1) Bikaner Complex- PART E	400/220	PGCIL	500	MAY-24

14	Shifting of ICT from Ludiana to Bhinmal(PG) SS (Aug. of T/F capacity at Bhinmal (PG) SS by ICT 3rd)	400/220	PGCIL	315	JUN-24
15	1X500MVA ICT(4TH) at ARASUR s/s (Aug. of T/F Capacity by 500 MVA ICT(4th) at Arasur)	400/230	PGCIL	500	JUN-24
16	1X500 MVA, 400/220 kV ICT-4th at Bikaner-II PS (Phase-IV (Part 1) Bikaner Complex- PART E)	400/220	PGCIL	500	JUL-24
17	220KV GIS Infrastructure at MTPS	400/220	DVC	315	AUG-24
18	1X500 MVA 400/220 kV (2nd) ICT at Shikrapur (PG) GIS under Western Region Expansion Scheme-XXVI	400/220	PGCIL	500	AUG-24
19	1x500 MVA 400/220 kV ICT 3rd at Bikaner PS to Cater N-1 Contingency at Bikaner PS (Rajasthan)	400/220	PGCIL	500	AUG-24
20	Aug. by 1x500 MVA 400/220 kV ICT (3rd )at 400/220 kV Jind (PG) S/s under Aug. of ISTS for HVPNL TS	400/220	PGCIL	500	SEP-24
21	1X500 MVA, 400/220 kV (1st) ICT at Raipur Pool S/s ( WRES XXVIII (Project: WRES-XXVIII & WRES-XXIX)	400/220	PGCIL	500	SEP-24
22	1X500 MVA, 400/220 kV (1st) ICT at Shikrapur (PG) GIS under Western Region Expansion Scheme-XXVI	400/220	PGCIL	500	SEP-24
23	1X500 MVA, 400/220 kV (2nd) ICT at Raipur Pool S/s (WRES XXVIII (Project: WRES-XXVIII & WRES-XXIX)	400/220	PGCIL	500	SEP-24

24	1X500 MVA 400/220 kV (4th) ICT at Mysore under Augumentation of Transformation capacity at Mysore	400/220	PGCIL	500	SEP-24
25	1x500 MVA ICT (3rd ) at 400/220 kV Bahadurgarh (PG) S/s under Aug. of ISTS of HVPNL TS	400/220	PGCIL	500	SEP-24
26	1X500MVA ICT-1 at Banka S/S along with Extn. of 400KV AIS Switch. and creation of 220KV GIS at Banka	400/220	PGCIL	500	OCT-24
27	1X500MVA ICT-2 at Banka S/S along with Extn. of 400KV AIS Switch. and creation of 220KV GIS at Banka	400/220	PGCIL	500	OCT-24
28	220 kV GIS Infrastructure at RTPS	400/220	DVC	630	NOV-24
29	1X500 MVA 400/220 kV ICT-5th at Bikaner II PS (Phase-IV (Part 1) Bikaner Complex- PART E)	400/220	PGCIL	500	NOV-24
30	1X500 MVA, (3rd) ICT at Raipur Pool S/s (WRES XXVIII {Project name: WRES-XXVIII & WRES-XXIX)	400/220	PGCIL	500	DEC-24
31	1X500 MVA, ICT-1 at Dharamjaigarh S/s (WRES XXIX {Project name: WRES-XXVIII & WRES-XXIX)	400/220	PGCIL	500	DEC-24
32	1X500 MVA 400/220kV ICT-6th at Bikaner-II PS (Phase-IV (Part 1) Bikaner Complex- PART E)	400/220	PGCIL	500	DEC-24
33	1X500 MVA, 400/220 kV ICT-2 at Dharamjaigarh S/s under WRES XXIX	400/220	PGCIL	500	JAN-25

34	1X500 MVA 400/220 kV ICT-7th at Bikaner-II PS REZ (Phase-IV (Part 1) Bikaner Complex- PART E)	400/220	PGCIL	500	FEB-25
35	1x500 MVA 400/220 kV ICT (6th) at Fatehgarh-II	400/220	PGCIL	500	FEB-25
	PS (PG) to cater the N-1 Contingency				
36	Navsari SS (ICT 1 & 2) (Trans. Network Expansion in Gujarat to increase its ATC from ISTS Part B)	400/220	PGCIL	1000	MAR-25
37	1X500 MVA, 400/220 kV ICT (3rd) ICT at Bikaner-II PS (8th ICT) (Aug. at Bikaner-II PS ICT(3rd)-PBTSL	400/220	PGCIL	500	MAR-25
38	Kurnool-III (ICT-1to4, 6&7)(Trans. Sys. for Kurnool Wind Energy Zone/Solar Energy Zone(AP)-Part-A&B)	400/220	PGCIL	3000	MAR-25
	<b>TOTAL CENTRAL SECTOR</b>			<b>15760</b>	
<b><u>STATE SECTOR</u></b>					
39	Vellalaviduthi (T/F-I) (400/110 (2X200 MVA)	400/110	TANTRANSCO	200	APR-24
40	400 kV S/s Dahi Chaoki Unnao (Capacity Aug.) (500-315)	400/220	UPPTCL	185	APR-24
41	Kamalapuram Substation (3rd ICT)	400/220	TSTRANSCO	315	APR-24
42	Sriperumbudhur 400/230-110 kV SS-capacity enhancement from 3x315 MVA to 3x315MVA+ 1x500MVA	400/230	TANTRANSCO	500	MAY-24
43	400 kV S/s Machhalishahar Jaunpur (New) T/F-III	400/220	UPPTCL	315	MAY-24

44	Thiruvalem 400/230 KV SS- Capacity enhancement from 2x315 to 2x315 + 1x500 MVA	400/230	TANTRANSCO	500	MAY-24
45	Alamathy 400/230-110 kV SS (enhancement of capacity at from 2x200 MVA to 3x200 MVA	400/110	TANTRANSCO	200	JUN-24
46	400 kV S/s Motiram Adda Gorakhpur Capacity Aug. (500-240) T/F-II	400/220	UPPTCL	260	JUN-24
47	Kayathar 400/230-110 KV SS	400/110	TANTRANSCO	200	JUL-24
48	400 kV S/S Ropar (1x500 MVA ) 1st T/F	400/220	PSTCL	500	AUG-24
49	400 kV S/S Ropar (1x500 MVA ) 2nd T/F	400/220	PSTCL	500	AUG-24
50	New Chanditala (4th ICT)	400/220	WBSETCL	315	OCT-24
51	400 kV S/S Nakodar	400/220	PSTCL	500	NOV-24
52	Sriperumbudur 400/230 kV SS (enhancement from 3x315+1x500 MVA to 2x315+2x500 MVA)	400/230	TANTRANSCO	185	NOV-24
53	Vellalaviduthi (400/110 kV T/F-II)	400/110	TANTRANSCO	200	NOV-24
54	Bhopal 400 kV SS (replacement of 315 MVA by 500 MVA T/F)	400/220	MPPTCL	185	NOV-24
55	Jammalamadugu SS in Kadapa Dist	400/220	APTRANSCO	500	DEC-24
56	Latehar SS (2X315 MVA T/F)	400/220	JUSNL	630	DEC-24
57	400 kV Khadka S/s (3x105 MVA ICT)	400/220/33	MSETCL	315	DEC-24
58	400 kV GSS Pachpadra	400/220	RVPNL	500	DEC-24
59	400 kV S/s Sahupuri, Chandauli T/F-I	400/220	UPPTCL	500	JAN-25
60	Asupaka LI Substation T/F-II (late reported, commissioned in Oct-2024)	400/220	TSTRANSCO	315	JAN-25

61	400 kV S/s Sector-123 Noida, GB Nagar (T/F-III)	400/220	UPPTCL	200	JAN-25
62	400 kV GSS Hindaun (Augmentation)	400/220	RVPNL	500	JAN-25
63	400 kV GIS Thallayapalem in Guntur Dist (T/F-I)	400/220	APTRANSCO	500	FEB-25
64	KTPP Bhupalapally SS (2x500 MVA)	400/220	TSTRANSCO	1000	FEB-25
65	Augmentation of 400 kV SS Maradam at Vizianagaram Dist	400/220	APTRANSCO	500	MAR-25
66	400 kV Padghe substation ( 3x167 MVA, 400/220/33 kV ICT )	400/220/33	MSETCL	500	MAR-25
67	400 kV Kharghar substation (3x167 MVA, 400/220/33 kV ICT)	400/220/33	MSETCL	500	MAR-25
68	400/220/132 kV GIS Bakhtiyarpur (2x500 MVA)	400/220/132	BSPTCL	1000	MAR-25
69	Kurud (Dhamtari)	400/220	CSPTCL	315	MAR-25
70	Augmentation of 400 kV SS Narnoor at Kurnool Dist	400/220	APTRANSCO	500	MAR-25
71	400 kV GSS Jaisalmer-2 (Bhensara) (MVA, 3x500)	400/220/33	RVPNL	1500	MAR-25
<b>TOTAL STATE SECTOR</b>				<b>14835</b>	
<b><u>PRIVATE SECTOR</u></b>					
72	Gadag PS (Trans Scheme for Solar Energy Zone in Gadag (1000 MW) Karnataka Part-A Phase-I)	400/220	RENEW	1000	SEP-24
73	Vapi -II (Western Region Strengthening Scheme-XIX (WRSS-XIX and NERSS - IX)	400/220	STERLITE	1000	SEP-24
74	Xeldem New SS (GTTPL - TBCB)	400/220	STERLITE	1000	OCT-24

75	Augmentation of transformation capacity 1X500 MVA ICT (3rd ) at patran (GIS) S/s (RTM)	400/220	INDIGRID	500	DEC-24
76	Aug. of transformation capacity at Kallam PS by 2x500 MVA, 400/220 kV ICTs (3rd & 4th)(ISTS_RTM)	400/220	INDIGRID	1000	JAN-25
77	Adani Renewable Energy Holding Four Limited at Badi Sid,Rajasthan (Late Reported Comm. Sep-24)	400/33	AREHFL	660	MAR-25
78	Sarjan Realities Private Limited at (PSS-09) Khavda RE Park Gujarat ((Late Reported Comm. Nov-24)	400/33	Sarjan Realities	660	MAR-25
79	RGESL Pooling S/S at Solapur, Maharashtra (Late Reported Commissioned Jan-25)	400/33	Renew Green	225	MAR-25
80	Adani Green Energy Limited (PSS-13) at Khavda RE Park Gujarat (Late Reported Commissioned Jan-25)	400/33	ADANIGREEN	1320	MAR-25
81	Adani Green Energy Limited (PSS-05) at Khavda RE Park Gujarat (Late Reported Comm. Apr-24)	400/33	ADANIGREEN	660	MAR-25
82	Adani Green Energy Limited (PSS-04) at Khavda RE Park Gujarat (Late Reported Comm. Feb-25)	400/33	ADANIGREEN	660	MAR-25
83	ACME Solar Holdings limited PS at Jaisalmer (4x315 MVA) (Late reported, commissioned in Oct-24)	400/33	ACME	1260	MAR-25
	<b>TOTAL PRIVATE SECTOR</b>			<b>9945</b>	
	<b>TOTAL 400 kV</b>			<b>40540</b>	

<b>230 kV</b>					
<b><u>STATE SECTOR</u></b>					
84	Siruseri 230 KV SS (enhancement of capacity from 2x100MVA to 3x100MVA)	230/110	TANTRANSCO	100	JUN-24
85	Karuppur (T/F- II)	230/110	TANTRANSCO	100	JUN-24
86	Selvapuram 230/110 kV SS (T/F-I)	230/110	TANTRANSCO	100	JUL-24
87	Karakudi 230/110 kV SS (50 MVA to 100MVA enhancement)	230/110	TANTRANSCO	50	AUG-24
88	Mondipatty SS (replacement of 80 MVA T/F with 100 MVA)	230/110	TANTRANSCO	20	NOV-24
89	Tiruppur 230/110 kV SS (Enhancement from 100 MVA to 160 MVA)	230/110	TANTRANSCO	60	JAN-25
90	Selvapuram T/F-II	230/110	TANTRANSCO	100	JAN-25
91	Kumbakonam SS (Additional 100 MVA)	230/110	TANTRANSCO	100	JAN-25
92	Kadapperi 230/110 kV SS (Enhancement from 100 MVA to 160 MVA)	230/110	TANTRANSCO	60	JAN-25
93	Oragadam 230 kV SS (160-100 MVA)	230/110	TANTRANSCO	60	FEB-25
94	Kavanoor 230 kV SS (100-50 MVA)	230/110	TANTRANSCO	50	FEB-25
95	Kadalangudi 230/110 kV SS (enhancement from 100 MVA to 160 MVA)	230/110	TANTRANSCO	60	MAR-25
96	Cuddalore 230/110 kV S/S(Enhancement from 100 MVA to 160 MVA)	230/110	TANTRANSCO	60	MAR-25
	<b>TOTAL STATE SECTOR</b>			<b>920</b>	
	<b>TOTAL 230 kV</b>			<b>920</b>	
<b>220 kV</b>					
<b><u>CENTRAL SECTOR</u></b>					

97	1X200 MVA 220/132 kV (4th) ICT at Ara POWERGRID S/S under ER Expansion Scheme-XXXVI (ERES-XXXVI)	220/132	PGCIL	200	AUG-24
	<b>TOTAL CENTRAL SECTOR</b>			<b>200</b>	
<b><u>STATE SECTOR</u></b>					
98	Jakkanpur (GIS) s/s (160 MVA T/F-II)	220/132	BSPTCL	160	APR-24
99	220/132 kV SS Madanapalli in Chittoor Dist. (3X100-2X100)	220/132	APTRANSCO	100	APR-24
100	GIS Timarpur (100 MVA T/F)	220/33	DTL	100	APR-24
101	220 kV S/s Kanpur South (Capacity Augmentation 60 MVA T/F-III)	220/33	UPPTCL	60	APR-24
102	220KV Chormar (100 MVA T/F)	220/132	HVPNL	100	APR-24
103	220kV I.A. Hisar (160-100)	220/132	HVPNL	60	APR-24
104	220 kV S/S Bhari (Addl. 100 MVA 220/66 kV PT/f)	220/66	PSTCL	100	APR-24
105	220 kV S/S Botianwala (Addl. 100 MVA 220/66 kV PT/f)	220/66	PSTCL	100	APR-24
106	220 kV S/s Khurja (Capacity Augmentation 160 MVA T/F-III)	220/132	UPPTCL	160	APR-24
107	220 kV S/s Sangipur (New) 160 MVA T/F-II	220/132	UPPTCL	160	APR-24
108	220 kV S/s Sirathu (Capacity Aug. 160 MVA T/F-III)	220/132	UPPTCL	160	APR-24
109	Bairagarh (Bhopal) 220 KV S/s Addl. 1x160MVA X-mer	220/132	MPPTCL	160	MAY-24
110	220 kV S/s Bhadaura Ghazipur (New) T/F-II	220/132	UPPTCL	100	MAY-24
111	220kV Jambhul (Additional T/F)	220/22	MSETCL	50	MAY-24
112	HSIIDC Rai Sonapat 220/132 kV T/F-II	220/132	HVPNL	160	MAY-24

113	HSIIDC Rai Sonepat 220/33 kV T/F-I	220/33	HVPNL	100	MAY-24
114	220 kV S/s Mainpuri (Capacity Augmentation) T/F-III (160-100)	220/132	UPPTCL	60	MAY-24
115	220 kV S/s Khorabar Gorakhpur (New) T/F-II	220/33	UPPTCL	60	MAY-24
116	Sonta ss (160-100 MVA)	220/66	HVPNL	60	MAY-24
117	220kV GSS Bap (Additional T/F)	220/132	RVPNL	160	MAY-24
118	220 kV S/S Banur (Aug. of 1x100 MVA T/F with 1x160 MVA T/F)	220/66	PSTCL	60	MAY-24
119	Addl 100 MVA 220/66 KV T/F at 220 KV S/S Naraingarh (N-1)	220/66	PSTCL	100	MAY-24
120	220KV SS Pallantla in West Godavari Dist. (2 x100-1x100)	220/132	APTRANSCO	100	MAY-24
121	220 kV S/s Maharajganj (New) T/F-II	220/132	UPPTCL	160	MAY-24
122	Addl 100 MVA 220/66 KV T/F at 220 KV S/S Badshahpur	220/66	PSTCL	100	MAY-24
123	220/33 KV GSS Balichandrapur Palei	220/33	OPTCL	20	MAY-24
124	Jakkanpur (GIS) s/s (160 MVA T/F-III)	220/132	BSPTCL	160	MAY-24
125	220 kV S/s Jahangirabad Bulandshahr (Capacity Augmentation) T/F-III	220/132	UPPTCL	160	MAY-24
126	220kV Chalisgaon Substation(1x200 MVA Additional T/F)	220/132	MSETCL	200	MAY-24
127	Aug. of 100MVA 220/66kV T/F to 160MVA 220/66kV T/F at 220kV S/Stn Bajakhana	220/66	PSTCL	60	MAY-24
128	220 kV S/s Hata Kushinagar (Capacity Augmentation) (160-100)	220/132	UPPTCL	60	MAY-24
129	Penukonda (Gorantla) (GEC-I)	220/132	APTRANSCO	160	MAY-24

130	220/132/33 kV AIS at Andheri (Kala Amb) District Sirmaur H.P.	220/132	HPPTCL	200	MAY-24
131	220 kV S/s Knowledge Park-5 Gr. Noida GB Nagar (New) T/F-II	220/132	UPPTCL	160	JUN-24
132	Patan (Upgradation of existing 132/33 KV S/s by 220/132 KV S/s )	220/132	CSPTCL	320	JUN-24
133	220kV SS Kuppam in Chittoor District (3x100-2x100)	220/132	APTRANSCO	100	JUN-24
134	Krishnagiri S/s (T/F-II)	220/33	APTRANSCO	50	JUN-24
135	220/33kV New Timber Market GIS (Panvel -II )(50 MVA T/F)	220/33	MSETCL	50	JUN-24
136	Aug 100 to 160 MVA at 220 KV S/S Kartarpur	220/66	PSTCL	60	JUN-24
137	220/132/33kV Ajaygarh S/s (TBCB)	220/132	MPPTCL	320	JUN-24
138	220kV GIS Substation at Timarpur (100 MVA T/F-II)	220/33	DTL	100	JUL-24
139	220 kV S/s Metro Depot Gr. Noida GB Nagar (New) T/F-I and T/F-II	220/132	UPPTCL	320	JUL-24
140	220 kV S/s Kanduni Sitapur (New) T/F-II	220/132	UPPTCL	200	JUL-24
141	220 kV S/s Darshan Nagar Ayodhya (New) T/F-I	220/132	UPPTCL	160	JUL-24
142	HSIIDC Rai Sonapat (220/33 kV 100 MVA T/F-II)(charged on 02-05-2024 however late reported by HVPNL)	220/33	HVPNL	100	JUL-24
143	220 kV GSS Khinvsar (replacement of 100 MVA T/F with 160 MVA T/F)	220/132	RVPNL	60	JUL-24
144	220/132/33KV Turmunga GSS (1st 160 MVA Auto Transformer)	220/132	OPTCL	160	JUL-24

145	220/132/33kV Kuarnmunda GSS (2nd 160 MVA Auto transformer)	220/132	OPTCL	160	JUL-24
146	220kV Walchandnagar substation (replacement of 100 MVA by 200 MVA T/F)	220/132	MSETCL	100	JUL-24
147	Construction of Begamganj SS (TBCB) (charged on 24-04-2024 however late reported by MPPTCL)	220/132	MPPTCL	320	JUL-24
148	220 kV SS AP Carbides in Kurnool District (3x160+1x100 - 2x160 +1x100)	220/132	APTRANSCO	160	JUL-24
149	220 kV Talangpor	220/66	GETCO	60	JUL-24
150	220 kV S/S Gurdaspur (1x100 MVA) (Upgraded from 132 KV to 220 KV)	220/66	PSTCL	100	JUL-24
151	Aug. of 100 MVA T/F to 160 MVA T/F at 220 kV SS Mandi Gobindgarh G-3	220/66	PSTCL	60	JUL-24
152	220 kV Tembhorni substation (replacement of 25 MVA by 100 MVA T/F)	220/33	MSETCL	25	AUG-24
153	220 kV Besan	220/66	GETCO	320	AUG-24
154	Food Park (T/F-II) 220 KV GIS	220/132	WBSETCL	160	AUG-24
155	220 kV GSS Heerapura (replacement of 100 MVA T/F with 160 MVA)	220/132	RVPNL	60	AUG-24
156	220 kV S/s Pahadi Chitrakoot (Capacity Augmentation)	220/132	UPPTCL	160	AUG-24
157	Food Park (T/F-I) 220 KV GIS	220/132	WBSETCL	160	AUG-24
158	220 kV Nalasopara substation (additional 100 MVA T/F)	220/22	MSETCL	100	AUG-24
159	220kV Samain	220/33	HVPNL	100	AUG-24
160	220 kV Sandhwan S/s	220/66	PSTCL	100	SEP-24

161	220 kV GSS Nimbahera (replacement of existing 100 MVA T/F with 160 MVA T/F)	220/132	RVPNL	60	SEP-24
162	220 kV Jeur (Replacement of 100 MVA T/F with 200 MVA T/F)	220/132	MSETCL	100	SEP-24
163	220 kV GIS Transport Hub, Sector-8 IMT Manesar	220/66	HVPNL	100	SEP-24
164	Keonics (Electronic City): 2x150 MVA ICT	220/66	KPTCL	300	SEP-24
165	220/33 kV Shendra GIS (DMIC)(2X50 MVA T/F)	220/33	MSETCL	100	SEP-24
166	220 kV S/s Debai Bulandshaher (Capacity Augmentation)	220/132	UPPTCL	160	SEP-24
167	Banar GIS (Distt. Jodhpur)	220/132	RVPNL	200	OCT-24
168	Bhimadole Aug. (100 to 160MVA)	220/132	APTRANSCO	60	OCT-24
169	Sawai Madhopur (100 to 160 MVA)	220/132	RVPNL	60	OCT-24
170	Bharatpur (100 to 160 MVA)	220/132	RVPNL	60	OCT-24
171	220 kV GIS S/s Badaun Road Bareilly (New) GIS	220/33	UPPTCL	60	OCT-24
172	Somasamudra SS (2X100 MVA T/F)	220/110	KPTCL	200	NOV-24
173	Bethamcherla in Kurnool District (GEC-I)	220/132	APTRANSCO	160	NOV-24
174	Parchanpal (Jagdalpur) SS (late reported, commissioned in October-2024)	220/132	CSPTCL	160	NOV-24
175	Augmentation at 220 kV Masudpur SS	220/132	HVPNL	100	NOV-24
176	Nagda 220 kV SS (replacement of 160 MVA by 200 MVA T/F)	220/132	MPPTCL	40	NOV-24
177	220 kV SS Civil line Amritsar (late reported, commissioned in October-2024)	220/132	PSTCL	100	NOV-24

178	220 kV GSS Balotra (replacement of 100 MVA T/F with 160 MVA T/F)	220/132	RVPNL	60	NOV-24
179	AB Zone 220 KV GIS (upgraded to 220 kV from 132 kV)	220/132	WBSETCL	320	NOV-24
180	220 kV SS Nansuralla in Kurnool District (Additional 50 MVA T/F)	220/33	APTRANSCO	50	NOV-24
181	220/33 kV New Timber Market GIS (Panvel -II )	220/33	MSETCL	50	NOV-24
182	220 kV GIS SS Badaun Road Bareilly (T/F-II)	220/33	UPPTCL	60	NOV-24
183	220 kV Jambuva (Augmentation from 260 MVA to 420MVA)	220/66	GETCO	160	NOV-24
184	220 kV Suva (late reported, commissioned in October-2024)	220/66	GETCO	160	NOV-24
185	220 kV SS Sandhaur (late reported, commissioned in October-2024)	220/66	PSTCL	100	NOV-24
186	Addl. 100 MVA 220/66 kV T/F at 220 kV Badni Kalan SS	220/66	PSTCL	100	NOV-24
187	220 kV Gurdaspur SS (T/F-II)	220/66	PSTCL	100	DEC-24
188	220 kV Vairag S/s (replacement of 2X25 MVA by 2X50 MVA T/F)	220/33	MSETCL	50	DEC-24
189	Balichandarpur Palei GSS (T/F-II)	220/33	OPTCL	40	DEC-24
190	Sirsaganj Firozabad S/s (Capacity Augmentation)	220/132	UPPTCL	160	DEC-24
191	GIS Sector-15 II Gurugram (T/F-I)	220/66	HVPNL	160	DEC-24
192	220 kV Rangala Rajpur (additional 100 MVA)	220/66	HVPNL	100	DEC-24
193	220/66 kV Heiling Sub-Station	220/66	HPPTCL	100	DEC-24

194	Mera (Mithi Paldi) (T/F-II) (late reported commissioned in Nov-2024)	220/66	GETCO	160	DEC-24
195	220 kV Jamla (Aug. from 410 MVA to 520 MVA)	220/66	GETCO	110	DEC-24
196	220 kV Chandrapura (Aug. from 360 to 470 MVA)	220/66	GETCO	110	DEC-24
197	220 kV Jhunjhunu GSS (replacement of 100 MVA T/F by 160 MVA)	220/132	RVPNL	60	DEC-24
198	Construction of 220/132 kV substation at Bargawan (TBCB) (late reported commissioned in Sept-2024)	220/132	MPPTCL	320	DEC-24
199	Lohardaga GSS	220/132	JUSNL	300	DEC-24
200	220 kV Rohtak (augmentation from 100 to 160 MVA)	220/132	HVPNL	60	DEC-24
201	220 kV Fatehabad (augmentation from 100 to 160 MVA)	220/132	HVPNL	60	DEC-24
202	Punganur SS in Chittoor Dist. (T/F-I)	220/132	APTRANSCO	100	DEC-24
203	220 kV Bhigwan S/s (replacement of 25 MVA by 50 MVA T/F)	220/33	MSETCL	25	DEC-24
204	220 kV Rajpura SS (Aug. of 100 MVA by 160 MVA)	220/66	PSTCL	60	DEC-24
205	220 kV Ichhapore (Augmentation from 410 MVA to 520 MVA)	220/66	GETCO	110	JAN-25
206	220 kV Anjar (Augmentation from 300 MVA to 360 MVA)	220/66	GETCO	60	JAN-25
207	220/132/33 kV Turmunga GSS (20 MVA T/F-I)(late reported, commissioned in August-2024)	220/33	OPTCL	20	JAN-25

208	400 kV Nawada	220/33	HVPNL	100	JAN-25
209	400 kV S/s Sector-148 Noida, GB Nagar (Capacity Augmentation) T/F-II	220/132	UPPTCL	160	JAN-25
210	220 kV S/s Sector-129 Noida, GB Nagar (Capacity Augmentation) T/F-IV	220/132	UPPTCL	160	JAN-25
211	220 kV S/s Jewar Extn., GB Nagar T/F-I	220/132	UPPTCL	160	JAN-25
212	220 kV S/s Hardoi Road, Lucknow (Capacity Augmentation) T/F-III	220/132	UPPTCL	160	JAN-25
213	220 kV GSS Udyog Vihar, Sriganganagar (Augmentation)	220/132	RVPNL	160	JAN-25
214	220 kV GSS MIA, Alwar (Augmentation)	220/132	RVPNL	100	JAN-25
215	220 kV Jalna substation (Replacement of 50 MVA T/F with 100 MVA T/F)	220/132	MSETCL	50	JAN-25
216	Pithampur (sector III) 220 kV S/s (agumentation of 160 MVA by 200 MVA X-mer)	220/132	MPPTCL	40	JAN-25
217	Nepanagar 220 kV S/s (agumentation of 160 MVA by 200 MVA X-mer)	220/132	MPPTCL	40	JAN-25
218	Indore II (Jaitpura) 220 kV S/s (additional T/F)	220/132	MPPTCL	160	JAN-25
219	220 kV Sampla	220/132	HVPNL	100	JAN-25
220	220 kV Mehna Khera	220/33	HVPNL	100	JAN-25
221	Addl 100 MVA T/F at 220 kV S/S Majitha (N-1)	220/66	PSTCL	100	JAN-25
222	400 kV Vav (Augmentation from 660 MVA to 720 MVA)	220/66	GETCO	60	JAN-25
223	220 kV Kim (Aug. from 560 to 620 MVA)	220/66	GETCO	60	FEB-25

224	220 kV A-5 Faridabad	220/66	HVPNL	60	FEB-25
225	220 kV Ghulal SS (Aug. 100 MVA to 160 MVA)	220/66	PSTCL	60	FEB-25
226	220 kV Jurala SS (160-100 MVA)	220/132	TSTRANSCO	60	FEB-25
227	220 kV GSS Sayla	220/132	RVPNL	160	FEB-25
228	220 kV Palghar SS (ICT-II)	220/132	MSETCL	100	FEB-25
229	Rajim SS (T/F-I)	220/132	CSPTCL	160	FEB-25
230	Somayajulapalli SS in kurnool Dist	220/132	APTRANSCO	100	FEB-25
231	Betamcherla SS in Kurnool District (T/F-II) (GEC-I)	220/132	APTRANSCO	160	FEB-25
232	220 kV Nirmal SS (160-100 MVA)	220/132	TSTRANSCO	60	FEB-25
233	220 kV Mohali-2 SS (Aug of 100 MVA to 160 MVA )	220/66	PSTCL	60	FEB-25
234	Narsapur SS (late reported, charged in October-2024)	220/132	TSTRANSCO	160	FEB-25
235	220 kV Kursi Road SS, Lucknow (160-100 MVA)	220/132	UPPTCL	60	FEB-25
236	Tivim SS	220/33	ED-GOA	63	FEB-25
237	Santhpur SS (2X100 MVA T/F at Kappakera village, Santapur Hobli, in Bidar Dist.) (GEC-II)	220/110	KPTCL	200	FEB-25
238	Hial SS (50-20 MVA)(Late reported, charged in July 2024)	220/33	TSTRANSCO	30	FEB-25
239	220 kV Babarzar	220/66	GETCO	320	FEB-25
240	220 kV GSS Aspur	220/132	RVPNL	100	MAR-25
241	220 kV Tappar	220/66	GETCO	160	MAR-25
242	400 kV Vadavi	220/66	GETCO	60	MAR-25
243	220 kV Harfali ( New)	220/66	HVPNL	200	MAR-25

244	220 kV Sector-15-II Gurugram ( 2nd T/F)	220/66	HVPNL	160	MAR-25
245	220 kV Sector-32 Panchkula	220/66	HVPNL	100	MAR-25
246	220 kV Tepla	220/66	HVPNL	60	MAR-25
247	Hosakote (Ekarajapura) Providing Additional 1X100 MVA, 220/66 kV Transformer	220/66	KPTCL	100	MAR-25
248	220 kV Sarigam (Upgradation 66kV)	220/66	GETCO	320	MAR-25
249	220 kV Mitha	220/66	GETCO	100	MAR-25
250	220 kV Kukma	220/66	GETCO	100	MAR-25
251	220 kV Jangral	220/66	GETCO	160	MAR-25
252	220 kV Ghodasar	220/66	GETCO	160	MAR-25
253	220 kV Deodar (Vakha)	220/66	GETCO	60	MAR-25
254	220/132/33 kV S/S, Bowrampet	220/33	TSTRANSCO	50	MAR-25
255	220 kV GIS S/s Baram	220/33	PTCUL	50	MAR-25
256	400 kV Lonikand-I substation (1x50 MVA, 220/33 kV T/F )	220/33	MSETCL	50	MAR-25
257	220 kV Nagewadi substation ( 1X 50 MVA, 220/33 kV T/F )	220/33	MSETCL	50	MAR-25
258	220 kV Five star MIDC substation ( 1x50 MVA, 220/33kV T/F )	220/33	MSETCL	50	MAR-25
259	220 kV Tilwani substation ( 1X 100 MVA, 220/33 kV T/F)	220/22	MSETCL	100	MAR-25
260	220 kV Jambhul substation ( 1 x50 MVA, 220/22 kV T/F )	220/22	MSETCL	50	MAR-25
261	220 kV Colourchem substation (1x(100-50) MVA, 220/22-22 kV)	220/22	MSETCL	50	MAR-25
262	220 kV Colourchem substation ( 1 x(100-50) MVA, 220/22-22 kV)	220/22	MSETCL	50	MAR-25

263	220 kV Anand Nagar substation (1x(100-50) MVA, 220/22-22 kV)	220/22	MSETCL	50	MAR-25
264	220 kV S/s Pratap Vihar, Ghaziabad (Capacity Augmentation) (160-100)	220/132	UPPTCL	60	MAR-25
265	220 kV S/s Faridpur, Bareilly (New T/F-II)	220/132	UPPTCL	100	MAR-25
266	220 kV S/s Boner, Aligarh (Capacity Augmentation) (160-100)	220/132	UPPTCL	60	MAR-25
267	220 kV Mahabubabad S/S	220/132	TSTRANSCO	100	MAR-25
268	220 kV GSS Suratgarh (160-100) =60	220/132	RVPNL	60	MAR-25
269	220 kV GSS, Ratangarh	220/132	RVPNL	100	MAR-25
270	220 kV GSS IG Nagar (160-100) =60	220/132	RVPNL	60	MAR-25
271	220 kV GSS, Bhiwadi	220/132	RVPNL	100	MAR-25
272	220 kV GSS, Bansur	220/132	RVPNL	100	MAR-25
273	220 kV Sisrana	220/66	GETCO	160	MAR-25
274	Malanpur 220 kV s/s Repl of 160 MVA by new 200 MVA X-mer	220/132	MPPTCL	40	MAR-25
275	400/220/132 kV GIS Bakhtiyarpur (1x160 MVA)	220/132	BSPTCL	160	MAR-25
276	220/132/33 kV GSS Thakurganj (1x160 MVA)	220/132	BSPTCL	160	MAR-25
277	Augmentation of 400 kV SS Rachaganneri at Chittoor Dist	220/132	APTRANSCO	160	MAR-25
278	220 kV SS Nidadavole at West Godavari Dist	220/132	APTRANSCO	60	MAR-25
279	220 kV SS Narasaraopeta at Guntur District	220/132	APTRANSCO	60	MAR-25
280	220 kV GIS Pathnamthitta	220/110	KSEB	100	MAR-25

281	Basarkod ( Establishing 2x100 MVA, 220/110 kV Sub-station )	220/110	KPTCL	100	MAR-25
	<b>TOTAL STATE SECTOR</b>			<b>21013</b>	
<b>PRIVATE SECTOR</b>					
282	Nangalbibra 220/132 kV (2x160MVA)	220/132	STERLITE	320	OCT-24
283	RSVPL Pooling S/S at Jaisalmer	220/33	Renew Surya	200	MAR-25
284	M/s Sembcorp Green Infra Private Limited's generation (PS) at Koppal (Late Reported Comm. Sep-24)	220/33	Sembcorp Green	320	MAR-25
285	Serentica Renewables India Private Limited(SRIPL)PS at Bikaner,Rajasthan(Late Reported Apr- 24)	220/33	Serentica	550	MAR-25
286	Vena Energy Vidyuth Private Limited PS in Jumlapura Village,Koppal (Late Reported, Comm. Oct-24)	220/132	Vena Energy	160	MAR-25
287	Serentica Renewables India1 Private Limited(SRI1PL)PS atKoppal,Karnataka (Late Reported Comm.May-24)	220/33	Serentica	300	MAR-25
288	Adani Renewable Energy Holding Four Limited at Bhimsar, Rajasthan ((Late Reported Comm. Nov-24)	220/33	AREHFL	500	MAR-25
289	RSRPL Pooling S/S (Late Reported Commissioned May-24)	220/33	Renew Surya	200	MAR-25
290	RSJPL Pooling S/S at Jaisalmer	220/33	Renew Surya Jyoti	210	MAR-25
	<b>TOTAL PRIVATE SECTOR</b>			<b>2760</b>	
	<b>TOTAL 220 kV</b>			<b>23973</b>	
	<b>GRAND TOTAL</b>			<b>86433</b>	

Annexure – 4A**Power Supply Position for 2024-25 (Revised)**

Power Supply Position for 2024-25 (Revised)								
State /System /Region	Energy				Peak			
	April,2024 - March,2025				April,2024 - March,2025			
	Energy Requirement	Energy Supplied	Energy not Supplied		Peak Demand	Peak Met	Demand not Met	
	( MU )	( MU )	( MU )	( % )	( MW )	( MW )	( MW )	( % )
Chandigarh	1,952	1,952	0	0.0	449	449	0	0.0
Delhi	38,255	38,243	12	0.0	8,656	8,656	0	0.0
Haryana	70,149	70,120	30	0.0	14,662	14,662	0	0.0
Himachal Pradesh	13,566	13,526	40	0.3	2,273	2,273	0	0.0
UT of J&K and Ladakh	20,374	20,283	90	0.4	3,236	2,836	400	12.4
Punjab	77,423	77,423	0	0.0	16,058	16,058	0	0.0
Rajasthan	1,13,833	1,13,529	304	0.3	19,165	19,165	0	0.0
Uttar Pradesh	1,65,090	1,64,786	304	0.2	30,618	30,618	0	0.0
Uttarakhand	16,770	16,727	43	0.3	2,863	2,863	0	0.0
<b>Northern Region (##)</b>	<b>5,18,869</b>	<b>5,17,917</b>	<b>952</b>	<b>0.2</b>	<b>91,592</b>	<b>90,747</b>	<b>845</b>	<b>0.9</b>
Chhattisgarh	43,208	43,180	28	0.1	6,511	6,511	0	0.0

Power Supply Position for 2024-25 (Revised)								
State /System /Region	Energy				Peak			
	April,2024 - March,2025				April,2024 - March,2025			
	Energy Requirement	Energy Supplied	Energy not Supplied		Peak Demand	Peak Met	Demand not Met	
	( MU )	( MU )	( MU )	( % )	( MW )	( MW )	( MW )	( % )
Gujarat	1,51,878	1,51,875	3	0.0	25,588	25,588	0	0.0
Madhya Pradesh	1,04,445	1,04,312	133	0.1	19,371	19,183	188	1.0
Maharashtra	2,01,816	2,01,757	59	0.0	30,675	30,675	0	0.0
Dadra & Nagar Haveli and Daman & Diu	10,852	10,852	0	0.0	1,390	1,390	0	0.0
Goa	5,411	5,411	0	0.0	810	810	0	0.0
<b>Western Region (##)</b>	<b>5,28,924</b>	<b>5,28,701</b>	<b>223</b>	<b>0.0</b>	<b>80,861</b>	<b>80,523</b>	<b>338</b>	<b>0.4</b>
Andhra Pradesh	79,028	79,025	3	0.0	13,712	13,712	0	0.0
Telangana	88,262	88,258	4	0.0	17,162	17,162	0	0.0
Karnataka	92,450	92,446	4	0.0	18,398	18,395	3	0.0
Kerala	31,624	31,616	8	0.0	5,904	5,631	274	4.6
Tamil Nadu	1,30,413	1,30,408	5	0.0	20,784	20,784	0	0.0
Puducherry	3,549	3,549	0	0.0	549	549	0	0.0
Lakshadweep (#)	68	68	0	0.0	13	13	0	0.0
<b>Southern Region (##)</b>	<b>4,25,373</b>	<b>4,25,349</b>	<b>24</b>	<b>0.0</b>	<b>69,938</b>	<b>69,934</b>	<b>4</b>	<b>0.0</b>

Power Supply Position for 2024-25 (Revised)								
State /System /Region	Energy				Peak			
	April,2024 - March,2025				April,2024 - March,2025			
	Energy Requirement	Energy Supplied	Energy not Supplied		Peak Demand	Peak Met	Demand not Met	
	( MU )	( MU )	( MU )	( % )	( MW )	( MW )	( MW )	( % )
Bihar	44,393	44,217	176	0.4	8,078	7,852	226	2.8
DVC	25,891	25,888	3	0.0	3,708	3,704	4	0.1
Jharkhand	15,203	15,126	77	0.5	2,295	2,292	3	0.1
Odisha	42,882	42,858	24	0.1	6,905	6,905	0	0.0
West Bengal	71,180	71,085	95	0.1	12,645	12,640	5	0.0
Sikkim	574	574	0	0.0	138	138	0	0.0
Andaman- Nicobar (#)	425	413	12	2.9	71	64	7	10.2
<b>Eastern Region (##)</b>	<b>2,00,180</b>	<b>1,99,806</b>	<b>374</b>	<b>0.2</b>	<b>31,488</b>	<b>31,399</b>	<b>89</b>	<b>0.3</b>
Arunachal Pradesh	1,050	1,050	0	0.0	218	191	27	12.4
Assam	12,843	12,837	6	0.0	2,812	2,687	125	4.4
Manipur	1,079	1,068	10	0.9	269	269	0	0.0
Meghalaya	2,046	2,046	0	0.0	409	408	1	0.2
Mizoram	709	709	0	0.0	168	168	0	0.0
Nagaland	938	938	0	0.0	189	188	1	0.3
Tripura (*)	1,939	1,939	0	0.0	386	386	0	0.1

Power Supply Position for 2024-25 (Revised)								
State /System /Region	Energy				Peak			
	April,2024 - March,2025				April,2024 - March,2025			
	Energy Requirement	Energy Supplied	Energy not Supplied		Peak Demand	Peak Met	Demand not Met	
	( MU )	( MU )	( MU )	( % )	( MW )	( MW )	( MW )	( % )
North-Eastern Region (##)	20,613	20,596	16	0.1	3,959	3,914	45	1.1
All India	16,93,959	16,92,369	1,590	0.1	2,49,856	2,49,854	2	0.0
(#) Lakshadweep and Andaman & Nicobar Islands are stand- alone systems, power supply position of these, does not form part of regional requirement and supply.								
(*) Excludes the supply to Bangladesh.								
<b>Note:</b>								
1. Power Supply Position Report has been compiled based on the data furnished by State Utilities/ Electricity Departments. The MU & MW figures has been rounded off to nearest unit place.								
2. (##) The Regional figures include data of other miscellaneous entities drawing power directly from ISTS.								

Annexure - 4B

## Allocation from Conventional Central Generating Stations and Bhutan Stations as on 31.03.2025

S.No.	Region / State	Firm Power	Dedicated Power	Power from Un-Allocated quota and Bhutan Stations (*)	Total Share from C.G.S. and Bhutan Stations		
		MW	MW	MW	MW	% Regional Total	% of All India Total
1	Chandigarh	169.6	0.0	130.3	299.9	1.0	0.3
2	Delhi	3805.7	0.0	30.0	3835.6	13.2	3.8
3	Haryana	2337.9	431.0	23.7	2792.6	9.6	2.8
4	Himachal Pradesh	1397.5	0.0	227.3	1624.8	5.6	1.6
5	UT of Jammu & Kashmir and Ladakh	1777.0	89.0	757.0	2623.0	9.0	2.6
6	Punjab	2560.2	0.0	75.2	2635.4	9.1	2.6
7	Rajasthan	2169.6	550.0	1213.2	3932.8	13.6	3.9
8	Uttar Pradesh	8839.8	440.0	250.6	9530.4	32.9	9.4
9	Uttarakhand	994.8	0.0	463.1	1457.9	5.0	1.4
10	PowerGrid	6.3	0.0	3.3	9.6	0.0	0.0
11	Railways NR	258.3	0.0	0.0	258.3		0.3
12	NDMC	0.0	0.0	0.0	0.0		0.0
	<b>Northern Region</b>	<b>24316.6</b>	<b>1510.0</b>	<b>3173.7</b>	<b>29000.4</b>	<b>100.0</b>	<b>28.7</b>
13	Chhattisgarh	2632.8	50.0	25.0	2707.8	9.4	2.7
14	Gujarat	6780.1	160.0	373.8	7313.9	25.3	7.2
15	Madhya Pradesh	5100.4	1520.0	624.1	7244.5	25.0	7.2
16	Maharashtra	6170.6	2028.7	755.9	8955.2	31.0	8.9
17	DNH &DD	277.7	248.7	1162.8	1689.1	5.8	1.7

S.No.	Region / State	Firm Power	Dedicated Power	Power from Un-Allocated quota and Bhutan Stations (*)	Total Share from C.G.S. and Bhutan Stations		
		MW	MW	MW	MW	% Regional Total	% of All India Total
18	Goa	534.0	19.7	114.1	667.8	2.3	0.7
19	PowerGrid	0.0	0.0	7.3	7.3	0.0	0.0
20	HWP of DAE	0.0	0.0	14.0	14.0	0.0	0.0
21	BARC Facilities	0.0	0.0	10.0	10.0	0.0	0.0
22	Railways WR	317.6	0.0	2.3	319.9	1.1	0.3
	<b>Western Region</b>	<b>21813.2</b>	<b>4027.1</b>	<b>3089.3</b>	<b>28929.5</b>	<b>100.0</b>	<b>28.6</b>
23	Andhra Pradesh	1854.3	0.0	79.3	1933.7	9.3	1.9
24	Telangana	3377.0	0.0	364.9	3741.9	18.0	3.7
25	Karnataka	4047.7	0.0	883.2	4931.0	23.7	4.9
26	Kerala	1864.5	360.0	185.8	2410.3	11.6	2.4
27	Tamil Nadu	6139.9	0.0	813.1	6952.9	33.5	6.9
28	Puducherry	338.6	0.0	219.4	558.1	2.7	0.6
29	NLC	166.0	0.0	0.0	166.0	0.8	0.2
30	PowerGrid	0.0	0.0	8.3	8.3	0.0	0.0
32	Railways	65.9	0.0	0.0	65.9	0.3	0.1
	<b>Southern Region</b>	<b>17854.0</b>	<b>360.0</b>	<b>2554.1</b>	<b>20768.0</b>	<b>100.0</b>	<b>20.5</b>
33	Bihar	5701.7	710.0	1160.5	7572.2	41.1	7.5
34	DVC	3190.8	0.0	8.0	3198.8	17.4	3.2
35	Jharkhand	1855.2	0.0	186.0	2041.2	11.1	2.0
36	Odisha	2150.4	0.0	238.2	2388.6	13.0	2.4
37	West Bengal	2292.7	292.0	194.0	2778.7	15.1	2.7
38	Sikkim	167.5	0.0	4.2	171.8	0.9	0.2
39	PowerGrid	0.0	0.0	2.5	2.5	0.0	0.0

S.No.	Region / State	Firm Power	Dedicated Power	Power from Un-Allocated quota and Bhutan Stations (*)	Total Share from C.G.S. and Bhutan Stations		
		MW	MW	MW	MW	% Regional Total	% of All India Total
40	Railways	252.8	0.0	0.0	252.8	1.4	0.2
	<b>Eastern Region</b>	<b>15611.1</b>	<b>1002.0</b>	<b>1793.5</b>	<b>18406.6</b>	<b>100.0</b>	<b>18.2</b>
41	Arunachal Pradesh	290.5	0.0	10.8	301.3	7.5	0.3
42	Assam	1920.3	0.0	301.8	2222.2	55.0	2.2
43	Manipur	221.5	0.0	26.1	247.6	6.1	0.2
44	Meghalaya	258.4	0.0	104.3	362.7	9.0	0.4
45	Mizoram	190.4	0.0	32.0	222.4	5.5	0.2
46	Nagaland	179.1	0.0	28.5	207.6	5.1	0.2
47	Tripura	464.7	0.0	2.9	467.6	11.6	0.5
48	PowerGrid	1.5	0.0	0.0	1.5	0.0	0.0
49	Railways	5.5	0.0	0.0	5.5	0.1	0.0
	<b>North-Eastern</b>	<b>3532.0</b>	<b>0.0</b>	<b>506.4</b>	<b>4038.4</b>	<b>100.0</b>	<b>4.0</b>
	<b>All India</b>	<b>83,127</b>	<b>6,899</b>	<b>11,117</b>	<b>101,143</b>	<b>100</b>	<b>100</b>
<i>Note :</i>	1. Firm share includes merchant power and capacity allocated / diverted from other stations located within / outside the region.						
	2. Total Share from C.G.S. and Bhutan Stations does not include power allocated to Bangladesh. Total Power allocated to Bangladesh = 250 MW (100 MW each from NR and WR and 50 MW from ER NTPC stations' unallocated power).						
	3. Total Share from C.G.S. and Bhutan Stations does not include surrendered power by various beneficiaries.						
	<b>(*) It includes specific allocation to various beneficiaries.</b>						

## Annexure- 5A

**PFRS under 50 000 MW Hydroelectric Initiative**  
Statewise List of Schemes

Sl. No.	Scheme	Consultant	Installed Capacity			Head (m)	Annual Energy (GWh)	Tariff (Rs/kWh)
			Nos of Units	Size (MW)	Total (MW)			
<b><u>Andhra Pradesh</u></b>								
1	Pondugala	WAPCOS	3	27	81	18.67	399.36	3.48
	<b>Total (Andhra Pradesh) - 1 Nos. scheme</b>		<b>3</b>		<b>81</b>			
<b><u>Arunachal Pradesh</u></b>								
2	Agoline	NHPC	3	125	375	163.00	1267.38	3.51
3	Amulin	NHPC	3	140	420	132.00	1716.40	3.37
4	Ashupani	NHPC	2	15	30	395.00	126.45	8.75
5	Attunli	NHPC	4	125	500	264.00	2247.32	2.35
6	Badao	NEEPCO	4	30	120	154.50	441.00	2.32
7	Bhareli-I	NEEPCO	8	140	1120	97.00	4112.40	1.85
8	Bhareli-II	NEEPCO	5	120	600	51.00	2345.00	1.67
9	Chanda	NEEPCO	4	27.5	110	175.67	401.91	2.67
10	Demwe	NHPC	12	250	3000	138.00	10823.82	1.97
11	Dengser	NHPC	4	138	552	120.00	2666.71	3.26
12	Dibbin	NEEPCO	2	50	100	151.24	335.72	2.23
13	Duimukh	NHPC	3	50	150	65.00	551.48	8.50
14	Elango	NHPC	3	50	150	363.00	583.14	5.00
15	Emini	NHPC	4	125	500	125.00	1695.45	3.51
16	Emra-II	NHPC	3	130	390	278.00	1648.09	3.02
17	Etabue	NHPC	3	55	165	378.00	683.66	3.43
18	Etalin	NHPC	16	250	4000	385.00	16071.60	1.70
19	Hirong	NHPC	4	125	500	285.00	2535.80	1.62
20	Hutong	WAPCOS	12	250	3000	166.77	9901.00	1.28
21	Kalai	WAPCOS	10	260	2600	193.21	10608.64	1.01
22	Kameng Dam	NEEPCO	5	120	600	65.00	2345.55	2.29
23	Kapakleyak	NEEPCO	4	40	160	245.00	627.95	1.74
24	KurungI&II	NHPC	3	110	330	151.00	1435.40	4.04
25	Mihumdon	NHPC	4	100	400	286.00	1451.75	3.60
26	Mirak	NHPC	3	47	141	136.40	748.44	3.42
27	Naba	NHPC	4	250	1000	221.00	3995.25	2.14
28	Nalo	NHPC	4	90	360	221.00	1733.00	3.27
29	Naying	NHPC	4	250	1000	245.00	5077.15	1.18

30	Niare	NHPC	4	200	800	205.00	3356.62	2.02
31	Oju-I	NHPC	4	175	700	257.00	3291.58	2.08
32	Oju-II	NHPC	4	250	1000	322.00	4629.93	1.46
33	Pakke	NEEPCO	2	55	110	452.50	335.26	3.33
34	Papu	NEEPCO	2	100	200	238.00	505.00	2.94
35	Phanchung	NEEPCO	2	30	60	157.13	174.83	3.24
36	Ringong	NHPC	3	50	150	166.50	659.07	3.61
37	Sebu	NEEPCO	2	40	80	123.00	227.53	3.71
38	Simang	NHPC	3	30	90	125.00	417.82	5.43
39	Talong	NEEPCO	3	100	300	171.67	915.50	2.24
40	Tarangwarang	NEEPCO	2	15	30	185.55	93.81	2.88
41	Tato-II	NHPC	4	175	700	168.00	3465.90	1.48
42	Tenga	NEEPCO	4	150	600	875.00	1046.50	3.52
43	Utung	NEEPCO	3	33.3	100	291.00	359.13	3.10
	<b>Total (Arunachal Pr. ) - 42 Nos. schemes</b>		<b>182</b>		<b>27293</b>			
<b><u>Chhattisgarh</u></b>								
44	Kotri	WAPCOS	3	50	150	36.99	330.95	5.48
45	Nugur-I	WAPCOS	5	34	170	24.54	316.13	4.89
46	Nugur-II	WAPCOS	5	42	210	16.66	787.78	4.16
47	Rehar-I	WAPCOS	3	57	171	46.84	264.38	8.70
48	Rehar-II	WAPCOS	3	49	147	38.17	290.32	5.16
	<b>Total (Chhattisgarh ) - 5 Nos. schemes</b>		<b>19</b>		<b>848</b>			
<b><u>Himachal Pradesh</u></b>								
49	Bajoli Holi	HPSEB	3	60	180	278.00	762.98	2.03
50	Bardang	HPSEB	3	38	114	55.00	438.41	2.91
51	Chamba	HPSEB	3	42	126	110.00	646.82	1.48
52	Chhatru	HPSEB	3	36	108	160.00	455.72	2.89
53	Gharopa	HPSEB	3	38	114	169.00	534.25	2.09
54	Gondhala	HPSEB	3	48	144	134.00	586.08	1.92
55	Jangi Thopan	HPSEB	3	160	480	174.14	1779.45	2.00
56	Khab-I	SJVNL	3	150	450	170.00	1551.00	2.24
57	Khab-II	SJVNL	3	62	186	70.00	640.00	3.04
58	Khoksar	HPSEB	3	30	90	99.00	351.91	2.46
59	Luhri	HPSEB	3	155	465	88.00	1825.13	2.41
60	Thopan Powari	HPSEB	3	160	480	161.14	1786.26	1.81
61	Tidong-I	HPSEB	2	30	60	511.50	211.65	2.71
62	Tidong-II	HPSEB	2	35	70	575.00	256.18	2.02
63	Yangthang	HPSEB	3	87	261	186.45	938.02	2.08
	<b>Total (Himachal Pr. ) - 15 Nos. schemes</b>		<b>43</b>		<b>3328</b>			
<b><u>Jammu &amp; Kashmir</u></b>								
64	Barinium	WAPCOS	2	120	240	117.77	1170.34	2.54
65	Bichlari	WAPCOS	2	17.5	35	462.60	148.29	1.11
66	Dumkhar	NHPC	3	15	45	27.80	219.18	4.66

67	Kanyunche	NHPC	3	15	45	28.76	223.02	4.71	
68	Karkit	NHPC	3	10	30	26.90	153.11	5.40	
69	Kawar	WAPCOS	4	80	320	74.00	1426.56	1.09	
70	Khalsi	NHPC	3	20	60	33.00	272.60	4.10	
71	Kiru	WAPCOS	4	107.5	430	105.33	1935.77	0.77	
72	Ratle	WAPCOS	4	140	560	92.33	2483.37	1.40	
73	Shamnot	WAPCOS	4	92.5	370	56.33	1650.19	1.69	
74	Shuas	WAPCOS	2	115	230	115.70	1117.87	2.94	
75	Takmaching	NHPC	3	10	30	18.53	145.52	5.54	
76	Ujh	WAPCOS	4	70	280	143.33	465.06	5.06	
<b>Total (J &amp; K ) - 13 Nos. schemes</b>			<b>41</b>		<b>2675</b>				
<b><u>Karnataka</u></b>									
77	Agnashini	KPCL	4	150	600	427.00	1431.00	1.07	
78	Gangavali	KPCL	2	200	400	378.30	759.00	1.46	
79	Gundia	KPCL	2	150	300	600.00	616.00	1.41	
80	Kalinadi Stage-III	KPCL	2	150	300	407.67	610.00	1.67	
81	Tamankal	KPCL	2	150	300	87.29	401.00	3.32	
<b>Total (Karnataka ) - 5 Nos. schemes</b>			<b>12</b>		<b>1900</b>				
<b><u>Kerala</u></b>									
82	Karappara Kuriarkutty	PH1 PH2	WAPCOS	2	18	66	390.00	126.10	7.88
				2	15		307.00		
83	Perianjakully	WAPCOS	2	30	60	282.90	86.30	6.25	
<b>Total (Kerala ) - 2 Nos. schemes</b>			<b>6</b>		<b>126</b>				
<b><u>Madhya Pradesh</u></b>									
84	Basania	NHPC	3	30	90	38.00	240.00	17.23	
85	Bauras	NHPC	3	18.33	55	17.50	248.43	3.96	
86	Hoshangabad	NHPC	3	20	60	16.50	288.21	4.10	
<b>Total (Madhya Pradesh ) - 3 Nos. schemes</b>			<b>9</b>		<b>205</b>				
<b><u>Maharashtra</u></b>									
87	Ghargaon	WAPCOS	4	13	52	9.84	74.47	15.50	
88	Hiranyakeshi	WAPCOS	2	9	18	36.10	23.76	20.26	
89	Kadvi	WAPCOS	2	11	22	36.30	29.59	34.03	
90	Kasari	WAPCOS	2	12.5	25	40.67	33.32	18.16	
91	Kumbhi	WAPCOS	2	8.5	17	37.48	22.93	35.19	
92	Kunghara	WAPCOS	4	18	72	12.77	133.40	11.34	
93	Pranhita	WAPCOS	2	24	48	25.30	135.96	10.32	
94	Samda	WAPCOS	4	13	52	10.64	83.40	14.11	
95	Wainganga	WAPCOS	5	21	105	19.74	246.15	3.86	
<b>Total (Maharashtra ) - 9 Nos. schemes</b>			<b>27</b>		<b>411</b>				
<b><u>Manipur</u></b>									
96	Khongnum Chakka st.-II	WAPCOS	2	33.5	67	281.25	192.84	4.59	
97	Nunglieban	WAPCOS	2	52.5	105	82.42	268.93	5.16	
98	Pabaram	WAPCOS	2	95	190	116.67	474.77	4.33	

	<b>Total (Manipur ) - 3 Nos. schemes</b>		<b>6</b>		<b>362</b>			
<b><u>Meghalaya</u></b>								
99	Mawblei	WAPCOS	2	70	140	400.33	303.66	4.44
100	Mawhu	WAPCOS	3	40	120	438.15	482.96	1.40
101	Mawput	WAPCOS	3	7	21	93.42	83.95	4.07
102	Nongkolait	WAPCOS	2	60	120	463	332.87	1.97
103	Nongnam	WAPCOS	2	25	50	215.17	212.59	2.44
104	Rangmaw	WAPCOS	2	32.5	65	321.00	229.60	2.32
105	Selim	WAPCOS	2	85	170	433.67	534.68	2.02
106	Sushen	WAPCOS	2	32.5	65	114.58	220.6	3.85
107	Umduna	WAPCOS	3	19	57	253.17	231.24	1.68
108	Umjaut	WAPCOS	3	23	69	375.20	276.70	1.51
109	Umngi	WAPCOS	2	27	54	304.75	89.65	2.86
	<b>Total (Meghalaya ) - 11 Nos. schemes</b>		<b>26</b>		<b>931</b>			
<b><u>Mizoram</u></b>								
110	Boinu	WAPCOS	4	160	640	158.67	1118.93	4.83
111	Lungleng	WAPCOS	5	163	815	219.67	1169.06	4.17
112	Tlawng	WAPCOS	2	22.5	45	123.67	151.67	5.84
	<b>Total (Mizoram ) - 3 Nos. schemes</b>		<b>11</b>		<b>1500</b>			
<b><u>Nagaland</u></b>								
113	Dikhu	NEEPCO	4	35	140	79.44	513.41	2.80
114	Tizu	NEEPCO	3	50	150	64.19	568.41	2.56
115	Yangnyu	NEEPCO	2	20	40	115	176.45	4.48
	<b>Total (Nagaland) - 3 Nos. schemes</b>		<b>9</b>		<b>330</b>			
<b><u>Orissa</u></b>								
116	Baljori	WAPCOS	2	89	178	165.75	479.8	5.90
117	Lower Kolab	WAPCOS	3	155	465	196.9	845.86	7.10
118	Naraj	WAPCOS	7	41	287	16.14	759.31	4.92
119	Tikarpara	WAPCOS	7	37	259	16.97	828.37	3.69
	<b>Total (Orissa ) - 4 Nos. schemes</b>		<b>19</b>		<b>1189</b>			
<b><u>Sikkim</u></b>								
120	Dikchu	NHPC	3	35	105	352	469	2.15
121	Lachen	NHPC	3	70	210	350	865.94	2.35
122	Lingza	NHPC	3	40	120	736	477.51	2.85
123	Panan	NHPC	4	50	200	312	762	2.15
124	Rangyong	NHPC	3	47	141	723.18	639.52	2.70
125	Ringpi	NHPC	2	35	70	1106.37	317.41	3.17
126	Rongni Storage	NHPC	3	65	195	442	510.35	8.60
127	Rukel	NHPC	3	11	33	537.1	149.41	5.48
128	Talem	NHPC	3	25	75	393.19	305.48	4.34
129	Teesta-I	NHPC	4	80	320	576.85	1298.12	1.80
	<b>Total (Sikkim) - 10 Nos. schemes</b>		<b>31</b>		<b>1469</b>			
<b><u>Uttaranchal</u></b>								
130	Arakot Tiuni	UJVNL	3	24	72	250.2	382.9	1.00
131	Badrinath	WAPCOS	2	70	140	459.67	702.7	0.81

132	Bagoli Dam	UJVNL	3	24	72	139.5	340.7	4.10
133	Bhaironghati	WAPCOS	2	32.5	65	108.9	293.18	1.80
134	Bogudiyar - Sirkari Bhyal	WAPCOS	2	85	170	344.47	744	1.99
135	Bokang Baling	WAPCOS	3	110	330	455.2	1124.62	1.68
136	Chhunger - Chal	WAPCOS	2	120	240	292.83	853.28	1.13
137	Deodi	WAPCOS	2	30	60	560.3	296.76	1.37
138	Devsari	WAPCOS	3	100	300	227.5	878.5	2.77
139	Gangotri	WAPCOS	1	55	55	336.33	264.76	1.62
140	Garba Tawaghat	WAPCOS	3	210	630	470.97	2483.11	0.90
141	Gohana Tal	WAPCOS	2	30	60	584.52	269.35	1.64
142	Harsil	WAPCOS	3	70	210	281.33	920.57	1.10
143	Jadh Ganga	WAPCOS	2	25	50	142.6	220.88	2.19
144	Jakhol Sankri	UJVNL	3	11	33	364	144.24	1.71
145	Jelam Tamak	WAPCOS	2	30	60	195.58	268.12	1.71
146	Kalika Dantu	WAPCOS	2	115	230	99.75	1067.3	2.95
147	Karmoli	WAPCOS	2	70	140	419.67	621.31	1.30
148	Khartoi Lumti Talli	WAPCOS	2	27.5	55	56.6	241.51	3.00
149	Lata Tapovan	UJVNL	4	77.5	310	265	1123	2.21
150	Maleri Jelam	WAPCOS	2	27.5	55	200.33	243.07	1.80
151	Mapang - Bogidiyar	WAPCOS	2	100	200	465.07	882.04	1.30
152	Naitwar-Mori	UJVNL	3	11	33	76	151	1.85
153	Nand Prayag	UJVNL	3	47	141	72	794	2.05
154	Ramganga	UJVNL	3	22	66	100.1	327	3.25
155	Rishi Ganga - I	WAPCOS	2	35	70	536.17	327.3	1.18
156	Rishi Ganga - II	WAPCOS	1	35	35	236.96	164.64	2.22
157	Rupsiabagar Khasiyabara	WAPCOS	2	130	260	449.47	1195.63	1.59
158	Sela Urthing	WAPCOS	2	115	230	255.5	816.73	1.40
159	Sirkari Bhyol Rupsiabagar	WAPCOS	3	70	210	388.97	967.97	1.55
160	Taluka Sankri	UJVNL	2	70	140	564.9	559.47	1.33
161	Tamak Lata	UJVNL	4	70	280	291.4	1040.7	2.30
162	Urthing Sobla	UJVNL	4	70	280	414.96	1360.2	1.49
	<b>Total (Uttaranchal) - 33 Nos. schemes</b>		<b>81</b>		<b>5282</b>			
	<b>Grand Total - 162 Nos. schemes</b>		<b>525</b>		<b>47930</b>			

## Annexure-5B

## Hydro Capacity Addition during the Year 2023-24

Sl. No.	Name of Project	State/ Implem. Agency	Unit No.	Capacity (MW)		Capacity Addition		Reason for slippage
				Target	Actual	As Programm ed	Actual (A)	
	<b>Central Sector</b>							
1	Naitwar Mori 2x30=60 MW	Uttarakhand /SJVNL	U-1 U-2	30 30	30 30	June'23 July'23	24.11.2023 04.12.2023	Commissioned in Dec'23
2	Subansiri Lower 8x250=2000 MW	Arunachal Pradesh/NHPC	U-1 U-2	250 250		Aug'23 Sept'23	Slipped Slipped	<b>Diversion tunnel-1 collapsed. Slope stability of left bank. Erection of balance 6 nos. of radial gates, DT plugging</b>
		<b>Sub- total (Central):</b>		<b>560</b>		<b>560</b>	<b>60</b>	
	<b>State Sector</b>							
3	Pallivasal 2x30= 60 MW	Kerala/ KSEB Ltd.	U-1 U-2	30 30		Dec'23 Dec'23	Slipped Slipped	Slow progress of works Slow progress of works
4	Thottiyar 1x30 + 1x10= 40 MW	Kerala/ KSEB Ltd.	U-1 U-2	30 10		Dec'23 Mar'24	Slipped Slipped	Slow progress of works Slow progress of works
		<b>Sub- total (State):</b>		<b>100</b>		<b>100</b>	<b>0</b>	
<b>Total (CS+SS+PS)</b>				<b>660</b>	<b>60</b>	<b>660</b>	<b>60</b>	

## Annexure-5C

## Hydro Capacity Addition during the Year 2024-25

Sl. No.	Name of Project	State/ Implem. Agency	Unit No.	Capacity (MW)		Capacity Addition		Reason for slippage
				Target	Actual	As Programmed/ Anticipated	Actual (A)	
<b>A</b>	<b>Hydro</b>							
	<b>Central Sector</b>							
1	Parbati-II /NHPC (4*200=800 MW)	Himachal Pradesh/NHPC	U-1 to U-4	800	600	Mar'25	Mar'25 (U-1 to U-3 Commissioned)	
		<b>Sub- total (Central):</b>		<b>800</b>	<b>600</b>			
	<b>State Sector</b>							
1	Pallivasal (2x30= 60 MW)	Kerala/ KSEB Ltd.	U-1 to U-2	60	60	Mar'25	Commissioned on 24.12.2024	
2	Uhl-III (3*33.3=100 MW)	Himachal Pradesh/BVPCL	U-1 to U-3	100	100	Mar'25	Commissioned on 05.03.2025	
3	Thottiyar (1x30 + 1x10 = 40 MW)	Kerala/ KSEB Ltd.	U-1 to U-2	40	40	Commissioned on 18.10.2024	Commissioned on 18.10.2024	
		<b>Sub- Total (State):</b>		<b>200</b>	<b>200</b>			
<b>Total Hydro (CS+SS+PS)</b>				<b>1000</b>	<b>800</b>			
<b>Total (PSP+Hydro) (FY 2024-25)</b>				<b>1000</b>	<b>800</b>			

## Annexure-5D

## Hydro Capacity Addition Programme for 2025-26

Sl. No.	Name of Project	State/ Implem. Agency	Unit No.	Capacity Addition	
				Target	As Programmed/ Anticipated
	<b>Central Sector</b>				
1	Parbati-II /NHPC (4*200=800 MW)	Himachal Pradesh/NHPC	U-4	200	Apr'25
2	Rangit- IV/NHPC	Sikkim/NHPC	U-1 to 3	120	Dec'2025
3	SUBANSIRI LOWER /NHPC	Arunachal Pradesh/NHPC	U-1 to 5	1250	Feb'2026
4	Tehri PSS/THDC	Uttarakhand/THDC	U-1 to U-4	1000	Oct'2025
		<b>Sub- total (Central):</b>		<b>2570</b>	
	<b>State Sector</b>				
1	Lower Sileru Extension /APGENCO)	Andhra Pradesh/APGENCO	U-1 to 2	230	Mar'2026
2	Lower Kopili /APGCL	Assam/APGCL	U-1 to 2	110	Dec'2025
3	Kundah Pumped	Tamil Nadu/	U-1 to 3	375	Mar'2026

	Storage (Phase-I, Phase-II & Phase-III) /TANGEDCO	TANGEDCO			
		<b>Sub- Total (State):</b>		<b>715</b>	
	<b>Private Sector</b>				
1	Pinnapuram 6X240+2X120 =1680 MW	Andhra Pradesh/Greenko	U-1 to 8	1680	Sept'2025
2	Kutehr/JSW	Himachal Pradesh/JSW	U-1 to 3	240	July'2025
		<b>Sub- Total (Private):</b>		<b>1920</b>	
<b>Total (CS+SS+PS)</b>				<b>5205</b>	

**Annexure-5E**

**State-wise List of Hydro RMU&LE schemes programmed for completion during 2022-27**

Sl. No		CS/ SS	Capacity Covered Under RMU&LE (No.x MW)	Est. Cost	Actual Exp.	Benefits (MW)	Capacity after RMU&LE	Category	Year of Completion
				(Rs. in Crs.)					
<b>A. COMPLETED SCHEMES</b>									
<b>Himachal Pradesh</b>									
1	Bhabha Power House, HPSEB (3x40)	SS	3x40	90.14	43.01	120(LE)	120	RM&LE	Completed in 2022-23
2	Bhakra LB, BBMB (5x108)	CS	5x108	489.77	583.86	540 (LE) + 90 (U)	630	RMU&LE	Completed in 2023-24
<b>Uttarakhand</b>									
3	Tiloth (Maneri Bhali - I), UJVNL (3x30)	SS	3x30	384.66	206.17	90 (LE)	90	RM&LE	Completed in 2022-23
4	Dhalipur, UJVNL (3x17)	SS	3x17	152.65	123.03	51 (LE)	51	RM&LE	Completed in 2023-24
<b>Uttar Pradesh</b>									
5	Rihand, UPJVNL (6x50)	SS	6x50	132.20	129.67	300 (LE)	300	RM&LE	Completed in 2022-23
<b>Telangana</b>									
6	Nagarjuna Sagar Phase-II works, TSGENCO (1x110+7x100.8)	SS	1x110+7x100.8	21.67	14.34	-	815.6	R&M	Completed in 2022-23
7	Nagarjuna Sagar Left Canal Power House, TSGENCO (2x30.6)	SS	2x30.6	30.99	1.50	-	61.2	R&M	Completed in 2022-23
<b>Karnataka</b>									
8	Munirabad Dam Power House, KPCL (2x9 + 1x10)	SS	2x9 + 1x10	4.60	2.20	-	28	R&M	Completed in 2022-23
9	Linganamakki Dam Power House, KPCL (2x27.5)	SS	2x27.5	1.34	1.34	-	55	R&M	Completed in 2022-23
10	Gerusoppa Dam Power House (Sharavathy Tail Race), KPCL (4x60)	SS	4x60	59.66	2.026	-	240	R&M	Completed in 2023-24
<b>Assam</b>									
11	Kopili Power Station, NEEPCO (4x50)	CS	4x50	1075.19	1201.65	200 (LE)	200	RM&LE	Completed in 2024-25
<b>Sub Total(A)</b>			<b>2500.80</b>	<b>2442.87</b>	<b>2308.80</b>	<b>1391 [1301(LE)+ 90(U)]</b>	<b>2590.80</b>		
<b>B. Ongoing Schemes – UNDER IMPLEMENTATION</b>									
<b>Uttarakhand</b>									
12	Dhakrani, UJVNL (3x11.25)	SS	3x11.25	137.31	70.26	33.75 (LE)	33.75	RM&LE	2026-27
<b>Uttar Pradesh</b>									

13	Obra, UPJVN (3x33)	SS	3x33	58.80	48.25	99 (LE)	99	RM&LE	2025-26
<b>Telangana</b>									
14	Pochampad HPS Stage -1, TSGENCO (3x9)	SS	3x9	17.09	-	-	27	R&M	2026-27
<b>Andhra Pradesh</b>									
15	Upper Sileru Power House, APGENCO (4x60)	SS	4x60	10.53	5.35	-	240	R&M	2026-27
16	Nagarjunasagar Right Canal Power House, APGENCO (3x30)	SS	3x30	10.1	4.54	-	90	R&M	2025-26
17	Tungabhadra Dam, APGENCO (4x9)	SS	4x9	6.65	2.517	-	36	R&M	2026-27
18	Hampi Canal PH, APGENCO (4x9)	SS	4x9	-	-	-	36	R&M	2026-27
<b>Karnataka</b>									
19	Nagjhari (Unit-1 to 3) KPCL (6x150)	SS	3x150 (U-1 to 3)	266.00	80.5	450 (LE)	450	RM&LE	2025-26
20	Shivasamudram, KPCL (6x3+4x6)	SS	6x3+4x6	169.18	3.27	42 (LE)	42	RM&LE	2025-26
21	Kadra Dam Power House,	SS	3x50	44.47	2.627	-	150	R&M	2025-26
22	Kodasalli Dam Power House,	SS	3x40	50.60	2.654	-	120	R&M	2025-26
23	Sharavathy Generating Station, KPCL (10x103.5)	SS	10x103.5	196.56	-	1035 (LE)	1035	RM&LE	2025-26
<b>Jharkhand</b>									
24	Panchet U-1, DVC (2x40)	CS	1x40 (U-1)	121.85	2.19	40 (LE) + 6 (U)	46	RMU&LE	2025-26
<b>Tamil Nadu</b>									
25	Moyar PH, TNPGL (3x12)	SS	3x12	121.127	79.49	36 (LE) + 6 (U)	42	RMU&LE	2025-26
26	Kodayar PH-I, TNPGL (1x60)	SS	1x60	80.96	24.93	60 (LE) + 10 (U)	70	RMU&LE	2025-26
<b>Kerala</b>									
27	Kuttiyadi, KSEB (3x25)	SS	3x25	377.41	58.26	75 (LE) + 7.5 (U)	82.5	RMU&LE	2025-26
<b>Odisha</b>									
28	Balimela, OHPCL (6x60)	SS	6x60	382.91	201.63	360 (LE)	360	RM&LE	2026-27
<b>Assam</b>									
29	Khandong Power Station, NEEPCO (2x23)	CS	2x23	277.74	235.74	46 (LE)	46	RM&LE	2025-26
<b>Manipur</b>									
30	Loktak, NHPC (3x35)	CS	3x35	273.59	107.44	105 (LE)	105	RM&LE	2025-26
<b>Meghalaya</b>									
31	Umiam St.III, (Kyrdemkulai) MePGCL (2x30)	SS	2x30	408.00	81.41	60 (LE) + 6 (U)	66	RMU&LE	2026-27
<b>Sub Total (B)</b>			<b>3140.75</b>	<b>3010.88</b>	<b>1011.06</b>	<b>2477.25</b> <b>[2441.75(LE)+</b> <b>35.50(U)]</b>	<b>3176.25</b>		
<b>C. Ongoing Schemes – UNDER TENDERING</b>									

<b>Rajasthan</b>									
32	Rana Pratap Sagar RRVUNL (4x43)	SS	4x43	573.76	-	172 (LE) + 6 (U)	178	RMU&LE	2026-27
<b>Karnataka</b>									
33	Supa Dam Power House, KPCL (2x50)	SS	2x50	47.91	1.5	-	100	R&M	2025-26
<b>West Bengal</b>									
34	Maithon, DVC (2x20+1x23.2-U#2)	CS	2x20 (U-1&3)	109.29	7.76	40 (LE)	40	RM&LE	2025-26
<b>Sub Total (C)</b>			<b>312</b>	<b>730.96</b>	<b>9.26</b>	<b>218 [212(LE)+6(U)]</b>	<b>318.00</b>		
<b>D. Ongoing Schemes – UNDER DPR PREPARATION/ FINALISATION/ APPROVAL</b>									
<b>Himachal Pradesh</b>									
35	Giri, HPSEBL (2x30)	SS	2x30	440.12	-	60 (LE)	60	RM&LE	2026-27
<b>Tamil Nadu</b>									
36	Kodayar PH-II, TNPGL (1x40)	SS	1x40	-	-	40 (LE) + 6 (U)	46	RMU&LE	2026-27
<b>Kerala</b>									
37	Idukki 1 <sup>st</sup> and 2 <sup>nd</sup> stage, KSEB (6x130)	SS	6x130	3.887	3.498	780 (LE)	780	RM&LE	2026-27
38	Idamalayar, KSEB (2x37.5)	SS	2x37.5	0.88	0.75	75 (LE)	75	RM&LE	2026-27
<b>Sub Total (D)</b>			<b>955.00</b>	<b>4.77</b>	<b>4.25</b>	<b>961 955(LE)+ 6(U)]</b>	<b>961.00</b>		
<b>E. Ongoing Schemes – UNDER RLA STUDIES</b>									
<b>Punjab</b>									
39	Anandpur Sahib Hydel Project, PSPCL (4x33.5)	SS	4x33.5	-	-	134 (LE)	134	RM&LE	2026-27
40	Mukerian St.I, St.II, St.III & St.IV, PSPCL (3x15, 3x15, 3x19.5& 3x19.5)	SS	3x15, 3x15, 3x19.5& 3x19.5	-	-	207 (LE)	207	RM&LE	2026-27
41	Shanan HEP, PSPCL (1x50+ 4x15)	SS	1x50+ 4x15	-	-	110 (LE)	110	RM&LE	2026-27
42	UBDC St.I & St.II, PSPCL (3x15+ 3x15.45)	SS	3x15+ 3x15.45	-	-	91.35 (LE)	91.35	RM&LE	2026-27
<b>Madhya Pradesh</b>									
43	Bansagar Ton-I, MPPGCL (3x105)	SS	3x105	-	-	315 (LE)	315	RM&LE	2026-27
<b>Maharashtra</b>									
44	Vaitarna, MSPGCL (1x60)	SS	1x60	-	-	60 (LE)	60	RM&LE	2026-27
45	Koyna Dam foot (Right Bank), MSPGCL (2x20)	SS	2x20	-	-	40 (LE)	40	RM&LE	2026-27
46	Koyna St-3, MSPGCL (4x80)	SS	4x80	-	-	320 (LE)	320	RM&LE	2026-27
<b>Karnataka</b>									
47	Varahi Underground Power House (4x115)	SS	2x115	-	-	-	230	R&M	2026-27

<b>Kerala</b>									
48	Sabarigiri, (Unit-1,2,3, 5 ) KSEB (4x55)	SS	4x55 (Unit-1,2, ,3, & 5 )	-	-	220 (LE) + 20 (U)	240	RMU&LE	2026-27
<b>Jharkhand</b>									
49	Subernrekha, JUUNL (2x65)	SS	2x65	-	-	130 (LE)	130	RM&LE	2026-27
<b>Sub Total (E)</b>			<b>1857.35</b>	<b>0.00</b>	<b>0.00</b>	<b>1647.35</b> <b>[1627.35(LE)+</b> <b>20(U)]</b>	<b>1877.35</b>		
<b>Total (A+B+C+D+E)</b>			<b>8765.90</b>	<b>6189.48</b>	<b>3333.36</b>	<b>6694.6</b> <b>[6537.10(LE)+</b> <b>157.50(U)]</b>	<b>8923.40</b>		

## Annexure- 5F

## State wise list of Hydro RMU&amp;LE schemes programed for completion during 2027-32

Sl. No	Name of Project, Agency Inst. Cap. (No.X MW)	CS/SS	Capacity Covered Under RMU&LE (No.x MW)	Est. Cost (Rs. in Crs.)	Actual Exp.	Benefit (MW)	Capacity after RMU&LE	Category	Completion Target
<b>A.Ongoing Schemes – UNDER IMPLEMENTATION</b>									
<b>Uttarakhand</b>									
1	Chilla (Ph B), UJVNL (4x36)	SS	4x36	490.56	32.24	144 (LE) + 12 (U)	156	RMU&LE	2027-28
<b>Sub Total(A)</b>			<b>144</b>	<b>490.56</b>	<b>32.24</b>	<b>156</b> <b>144 (LE) + 12 (U)</b>	<b>156</b>		
<b>B.Ongoing Schemes – UNDER TENDERING</b>									
<b>Himachal Pradesh</b>									
2	Pong Power House, BBMB (6x66)	CS	6x66	402.00	1.15	396 (LE) + 54 (U)	450	RMU&LE	2028-29
<b>Madhya Pradesh</b>									
3	Gandhi Sagar, MPPGCL (5x23)	SS	5x23	433.68	4.17	115 (LE) + 10.83 (U)	125.83	RMU&LE	2029-30
<b>Gujrat</b>									
4	Kadana PSS, GSECL (4X60)	SS	4x60	84.95	3.15	240(LE)+20(U)	260	RMU&LE	2027-32
<b>Sub Total(B)</b>			<b>751</b>	<b>920.63</b>	<b>8.47</b>	<b>835.83</b> <b>751 (LE) + 84.83(U)</b>	<b>835.83</b>		
<b>C. Ongoing Schemes – UNDER DPR PREPARATION/FINALISATION/APPROVAL</b>									
<b>Uttarakhand</b>									
5	Kulhal ,UJVNL (3x10)	SS	3x10	118.24	-	30(LE)	30	RM&LE	2027-32
6	Ramganga,UJVNL (3x66)	SS	3x66	455.2	-	198(LE)	198	RM&LE	2027-32
<b>Madhya Pradesh</b>									
7	Pench, MPPGCL (2x80)	SS	2x80	-	-	160 (LE)	160	RM&LE	2027-28
8	Bargi, MPPGCL (2x45)	SS	2x45	-	-	90 (LE)	90	RM&LE	2027-28
<b>Andhra Pradesh</b>									
9	Lower Sileru, APGENCO	SS	4x115	698.94	1.8	460 (LE)	460	RM&LE	2029-30
10	Machkund St.I & St.II, APGENCO (3x17+3x23)	SS	3x17+ 3x23	-	-	120(LE)+9(U)	129	RMU&LE	2027-32
<b>Sub Total(C)</b>			<b>1058</b>	<b>1272.38</b>	<b>1.8</b>	<b>1067</b> <b>1058(LE) + 9(U)</b>	<b>1067</b>		
<b>D. Ongoing Schemes – UNDER RLA STUDIES</b>									
<b>Jammu &amp; Kashmir (UT)</b>									
11	Salal Stage-I, (Unit 1,2 &3) NHPC (3x115)	CS	3x115	-	-	345 (LE)	345	RM&LE	2027-32
12	Salal Stage-II, (Unit 4,5 &6) NHPC (6x115)	CS	3x115	-	-	345 (LE)	345	RM&LE	2027-32
<b>Himachal Pradesh</b>									

13	Chamera-I, NHPC (3x180)	CS	3x180	-	-	540 (LE)	540	RM&LE	2027-32
<b>Uttarakhand</b>									
14	Tanakpur, NHPC (3x31.4)	CS	3x31.4	-	-	94.2 (LE)	94.2	RM&LE	2027-32
15	Chibro, UJVNL (4x60)	SS	4x60	184.88	-	240 (LE)	240	RM&LE	2027-32
16	Khodri, UJVNL (4x30)	SS	4x30	169.63	-	120 (LE)	120	RM&LE	2027-32
<b>Rajasthan</b>									
17	Jawahar Sagar Power Station, Jawahar Sagar (3x33)	SS	3x33	-	-	99(LE)	99	RM&LE	2027-32
<b>Tamil Nadu</b>									
18	Kundah-I, TNPGL (3x20)	SS	3x20	-	-	60 (LE)	60	RM&LE	2027-32
19	Kundah-II, TNPGL (5x35)	SS	5x35	-	-	175 (LE)	175	RM&LE	2027-32
20	Kundah-III, TNPGL (3x60)	SS	3x60	-	-	180 (LE)	180	RM&LE	2027-32
21	Kundah-IV, TNPGL (2x50)	SS	2x50	-	-	100 (LE)	100	RM&LE	2027-32
22	Kundah-V, TNPGL (2x20)	SS	2x20	-	-	40 (LE)	40	RM&LE	2027-32
23	Mettur Tunnel, TNPGL (4x50)	SS	4x50	-	-	200 (LE)	200	RM&LE	2027-32
24	Sarkarpathy, TNPGL (1x30)	SS	1x30	-	-	30 (LE)	30	RM&LE	2027-32
25	Sholayar-II, TNPGL (1x25)	SS	1x25	-	-	25 (LE)	25	RM&LE	2027-32
26	Suruliyar, TNPGL (1x35)	SS	1x35	-	-	35 (LE)	35	RM&LE	2027-32
27	Kadamparai PH, TNPGL (4x100)	SS	4x100	-	-	400 (LE)	400	RM&LE	2027-32
28	Aliyar, TNPGL (1x60)	SS	1x60	-	-	60 (LE)	60	RM&LE	2027-32
29	Lower Mettur-I, TNPGL (2x15)	SS	2x15	-	-	30 (LE)	30	RM&LE	2027-32
30	Lower Mettur-II, TNPGL (2x15)	SS	2x15	-	-	30 (LE)	30	RM&LE	2027-32
31	Lower Mettur-III, TNPGL (2x15)	SS	2x15	-	-	30 (LE)	30	RM&LE	2027-32
32	Lower Mettur-IV, TNPGL (2x15)	SS	2x15	-	-	30 (LE)	30	RM&LE	2027-32
<b>Sub Total (D)</b>			<b>3208.20</b>	<b>354.51</b>	<b>0.00</b>	<b>3208.20</b> [3208.20 (LE)+ 0(U)]	<b>3208.20</b>		
<b>Total (A+B+C+D)</b>			<b>5161.20</b>	<b>3038.08</b>	<b>42.51</b>	<b>5267.03</b> [5161.20 (LE)+ 105.83(U)]	<b>5267.03</b>		

Abbreviations: R&M – Renovation & Modernisation; U – Upgrading; LE – Life Extension; Res – Restoration; MW – Mega Watt; CS-Central Sector; SS- State Sector

## Annexure-6A

## Thermal Capacity Addition Programme for the year 2024-25

S.No	Project Name	Unit No.	Targeted Cap. (MW)	Commissioning Schedule at the beginning of FY 2024-25	Cap. Achieved during 2024-25 (MW)	Anticipated /Actual(A) date of capacity Addition	Remarks/ Reasons
1	Ghatampur TPP	U-1	660	Jun-2024	660	Dec-2024	U#1 trial run completed on 03-12-2024. U#2 & 3 slipped due to slow progress in CHP, AHP, NDCT and Air compressor.
		U-2	660	Nov-2024	0	Feb-2025	
		U-3	660	Mar-2025	0	Mar-2025	
2	Khurja SCTPP	U-1	660	Sep-2024	660	Jan-2025	U#1 trial run completed on 23-01-2025.
		U-2	660	Dec-2024	0	Mar-2025	U#2 Slipped due to non readiness of coal mills & ESP.
3	Buxar TPP	U-1	660	Sep-2024	0	Dec-2024	U#1 & 2 slipped due to delay in readiness of CW Pumps, AHP and critical pipings
		U-2	660	Dec-2024	0	Mar-2025	
4	Barh STPP St-I	U-3	660	Nov-2024	0	Mar-2025	Full Load achieved on 29.03.2025. However, trial run was not completed by 31 <sup>st</sup> March'2025.
5	North Karanpura STPP	U-3	660	Dec-2024	0	Mar-2025	Full load achieved on 26-03-2025. However, trial run was not completed by 31 <sup>st</sup> March'2025.
6	Patratu STPP	U-1	800	Dec-2024	0	Mar-2025	Unit#1 slipped due to delay in erection of ACC works and readiness of associated transmission system
7	North Chennai TPP St-III	U-6	800	May-2024	0	Mar-2025	Machine achieved full load on 27.06.2024. However, trial run was not completed by 31 <sup>st</sup> March'2025.
8	Jawaharpur STPP	U-2	660	Jun-2024	660	Dec-2024	U#2 trial run completed on 23-12-2024.
9	Obra-C STPP	U-2	660	Jul-2024	0	May-2025	Unit#2 slipped due to delay in AHP & CHP material supply from OEM.
10	Bhusawal TPS	U-6	660	Sep-2024	660	Feb-2025	U#6 trial run completed on 21-02-2025
11	Panki TPS Extn.	U-1	660	Sep-2024	660	Feb-2025	U#1 trial run completed on 25-02-2025
12	Yadadri TPS	U-1	800	Sep-2024	0	Dec-2025	U#1 achieved full load on 12-03-2025, however trial run not completed by 31 <sup>st</sup> Mar'25. Unit-2 trial run completed on 25-01-2025. U#3&4: slipped due to non readiness of NDCT, CHP/AHP
		U-2	800	Sep-2024	800	Jan-2025	
		U-3	800	Dec-2024	0	Mar-2025	
		U-4	800	Feb-2025	0	Feb-2025	
13	Sagardighi TPP St-III	U-5	660	Jan-2025	0	Mar-2025	Unit slipped due to delay in readiness of CW, ACW system & CHP
14	Udangudi STPP St-I	U-1	660	Oct-2024	0	Feb-2025	U#1 & 2 slipped due to slow progress in GIS switchyard, CW system, NDCTs & critical piping erection.
		U-2	660	Feb-2025	0	Mar-2025	
<b>Total</b>			<b>15360</b>		<b>4100</b>		

**Additional Capacity Achieved**

S.No	Project Name	Unit No.	Targeted Cap. (MW)	Commissioning Schedule at the beginning of FY 2024-25	Cap. Achieved during 2024-25 (MW)	Anticipated/ Actual(A) date of capacity Addition	Remarks/ Reasons
1	Maadurga Thermal Power Company Limited	U-1	-	-	30	23.09.2024	Commissioned
2	Maadurga Thermal Power Company Limited	U-2	-	-	30	19.08.2024	Commissioned
3	Yelahanka CCPP	GT+ST	-	-	370	10.01.2025	Commissioned
	<b>Total</b>				<b>430</b>		

## ANNEXURE-6B

## PLANT-WISE COAL RECEIPT AND CONSUMPTION IN 2024-25

S.No	Name of TPS	Capacity as on 31.03.2025 (MW)	Figures in Thousand Tonnes			
			Receipt			Consumption
			Indigeneous	Import	Total	
1	PANIPAT TPS	710	3411	0	3411	3310
2	RAJIV GANDHI TPS	1200	4169	0	4169	4060
3	YAMUNA NAGAR TPS	600	2452	0	2452	2441
4	INDIRA GANDHI STPP	1500	5938	75	6013	5876
5	MAHATMA GANDHI TPS	1320	4881	20	4901	5137
6	GH TPS (LEH.MOH.)	920	3059	0	3059	2961
7	ROPAR TPS	840	3027	0	3027	3019
8	RAJPURA TPP	1400	5609	0	5609	5661
9	TALWANDI SABO TPP	1980	7298	0	7298	7323
10	GOINDWAL SAHIB TPP	540	1987	0	1987	1861
11	KOTA TPS	1240	6642	0	6642	6432
12	SURATGARH STPS	1320	4748	0	4748	4350
13	SURATGARH TPS	1500	5716	0	5716	5566
14	CHHABRA-I PH-1 TPP	500	1404	0	1404	2373
15	CHHABRA-I PH-2 TPP	500	3539	0	3539	2477
16	CHHABRA-II TPP	1320	5247	0	5247	4863

17	KALISINDH TPS	1200	4828	0	4828	4654
18	DISHERGARH TPP	12	44	0	44	44
19	ADANI POWER LIMITED KAWAI TPP	1320	4049	1294	5343	5246
20	ANPARA TPS	2630	12049	0	12049	11907
21	HARDUAGANJ TPS	1265	3913	0	3913	3868
22	JAWAHARPUR STPP	1320	1941	0	1941	1591
23	OBRA TPS	1660	6147	0	6147	6060
24	PANKI TPS EXT	660	51	0	51	0
25	PARICHHA TPS	920	4156	0	4156	4115
26	DADRI (NCTPP)	1820	6525	253	6778	6795
27	RIHAND STPS	3000	14400	0	14400	14474
28	SINGRAULI STPS	2000	10698	0	10698	10408
29	TANDA TPS	1760	6900	197	7096	7138
30	UNCHA HAR TPS	1550	6571	168	6740	6829
31	ROSA TPP Ph-I	1200	4962	0	4962	4785
32	ANPARA C TPS	1200	5486	0	5486	5318
33	MAQSOODPUR TPS	90	310	0	310	323
34	KHAMBARKHERA TPS	90	305	0	305	317
35	BARKHERA TPS	90	290	0	290	312
36	KUNDARKI TPS	90	310	0	310	307
37	UTRAULA TPS	90	311	0	311	309
38	PRAYAGRAJ TPP	1980	7368	0	7368	7660
39	LALITPUR TPS	1980	7884	0	7884	7882

40	MEJA STPP	1320	5417	118	5535	5504
41	DSPM TPS	500	2823	0	2823	2765
42	KORBA-WEST TPS	1340	6778	0	6778	6548
43	KORBA STPS	2600	14138	0	14138	13832
44	SIPAT STPS	2980	16164	0	16164	15984
45	PATHADI TPP	600	2850	0	2850	3000
46	BHILAI TPS	500	2473	71	2544	2681
47	BALCO TPS	600	2832	0	2832	2884
48	MARWA TPS	1000	5476	0	5476	5261
49	AKALTARA TPS	1800	7101	0	7101	6944
50	BARADARHA TPS	1200	6401	0	6401	6041
51	ADANI POWER LIMITED RAIGARH TPP	600	3164	0	3164	3128
52	TAMNAR TPP	2400	15016	1	15017	14617
53	BANDAKHAR TPP	300	1464	0	1464	1418
54	NAWAPARA TPP	600	2885	0	2885	2786
55	OP JINDAL TPS	1000	5387	0	5387	5648
56	BINJKOTE TPP	600	2785	0	2785	2801
57	LARA TPP	1600	8231	0	8231	8371
58	ADANI POWER LIMITED RAIPUR TPP	1370	6148	32	6180	6383
59	UCHPINDA TPP	1440	5913	0	5913	5494
60	SALORA TPP	135	0	0	0	0
61	SABARMATI (D-F STATIONS)	362	1221	319	1540	1529

62	SIKKA REP. TPS	500	0	464	464	459
63	GANDHI NAGAR TPS	630	1679	72	1750	1764
64	UKAI TPS	1110	3785	81	3866	3994
65	WANAKBORI TPS	2270	6857	89	6946	6918
66	MUNDRA UMTTP	4000	0	9818	9818	9699
67	SALAYA TPP	1200	0	2597	2597	2430
68	ADANI POWER LIMITED MUNDRA TPP - I & II	2640	0	9315	9315	9195
69	ADANI POWER LIMITED MUNDRA TPP - III	1980	0	6815	6815	6778
70	AMARKANTAK EXT TPS	210	984	0	984	938
71	SANJAY GANDHI TPS	1340	5722	0	5722	5542
72	SATPURA TPS	1330	2551	0	2551	2476
73	SHREE SINGAJI TPP	2520	10253	0	10253	10205
74	VINDHYACHAL STPS	4760	23412	0	23412	23014
75	GADARWARA TPP	1600	5593	109	5702	5824
76	KHARGONE STPP	1320	4713	214	4927	5213
77	BINA TPS	500	2144	0	2144	2122
78	ANUPPUR TPP	1250	5989	0	5989	5884
79	SASAN UMTTP	3960	18035	0	18035	18202
80	NIGRI TPP	1320	5498	0	5498	5377
81	MAHAN TPP	1200	4709	0	4709	5041
82	SEIONI TPP	600	2944	0	2944	2720

83	BHUSAWAL TPS	1870	5971	380	6351	6335
84	CHANDRAPUR(MAHARASHTRA) STPS	2920	11782	863	12644	12317
85	KHAPARKHEDA TPS	1340	6840	650	7490	7490
86	KORADI TPS	2190	9906	0	9906	10073
87	NASIK TPS	630	2500	249	2749	2703
88	PARLI TPS	750	3020	0	3020	3116
89	PARAS TPS	500	2260	0	2260	2275
90	ADANI POWER LIMITED TIRODA TPP	3300	13133	74	13207	13714
91	DAHANU TPS	500	2188	47	2235	2278
92	BUTIBORI TPP	600	0	0	0	0
93	AMRAVATI TPS	1350	6112	0	6112	6192
95	GMR WARORA TPS	600	2908	0	2908	2911
96	MAUDA TPS	2320	9670	395	10065	9865
97	JSW RATNAGIRI TPP	300	0	770	770	781
98	WARDHA WARORA TPP	540	2718	0	2718	2523
99	DHARIWAL TPP	600	3061	0	3061	3069
100	TROMBAY TPS	750	0	1955	1955	1935
101	SOLAPUR STPS	1320	4499	63	4562	5005
102	MIHAN TPS	246.01	0	0	0	0
103	NASIK (P) TPS	1350	0	0	0	0
104	SHIRPUR TPP	300	1016	16	1032	1002
105	BELA TPS	270	1279	0	1279	1265

106	Dr. N.TATA RAO TPS	2560	11599	0	11599	11386
107	RAYALASEEMA TPS	1650	7863	0	7863	7813
108	SIMHADRI	2000	8584	305	8890	9161
109	DAMODARAM SANJEEVAIAH TPS	2400	7199	231	7430	7354
110	SIMHAPURI TPS	600	0	1837	1837	1722
111	THAMMINAPATNAM TPS	300	0	0	0	0
112	VIZAG TPP	1040	2929	130	3059	3147
113	PAINAMPURAM TPP	1320	2997	2302	5299	5309
114	SGPL TPP	1320	3397	2725	6122	6154
115	RAICHUR TPS	1720	6659	77	6737	6544
116	BELLARY TPS	1700	6473	130	6604	6600
117	ADANI POWER LIMITED UDUPI TPP	1200	0	2143	2143	2340
118	TORANGALLU TPS(SBU-II)	600	0	1090	1090	1082
119	TORANGALLU TPS(SBU-I)	260	0	449	449	449
120	KUDGI STPP	2400	7862	406	8268	8419
121	YERMARUS TPP	1600	3702	120	3822	3842
122	METTUR TPS	840	3941	0	3941	4052
123	NORTH CHENNAI TPS	1830	8010	550	8560	8350
124	TUTICORIN TPS	1050	5781	0	5781	5574
125	METTUR TPS - II	600	2078	0	2078	2053
126	VALLUR TPP	1500	6816	0	6816	6819
127	MUTHIARA TPP	1200	0	3516	3516	3452
128	NTPL TUTICORIN TPP	1000	3021	976	3997	3959

129	ITPCL TPP	1200	0	4236	4236	4109
130	TUTICORIN (P) TPP	300	0	0	0	0
131	TCP Limited	63.5	0	0	0	0
132	TUTICORIN TPP ST-IV	525	0	1596	1596	1589
133	BHADRADRI TPP	1080	4220	0	4220	4020
134	RAMAGUNDEM STPS	2600	10827	0	10827	10623
135	KAKATIYA TPS	1100	3909	0	3909	3907
136	RAMAGUNDEM-B TPS	62.5	17	0	17	21
137	KOTHAGUDEM TPS (NEW)	1000	4634	0	4634	4336
138	KOTHAGUDEM TPS (STAGE-7)	800	3201	0	3201	2988
139	SINGARENI TPP	1200	5142	0	5142	5005
140	TELANGANA STPP PH-1	1600	7021	0	7021	6469
141	YADADRI TPS	800	149	0	149	30
142	MUZAFFARPUR TPS	390	1820	0	1820	1795
143	KAHALGAON TPS	2340	13871	16	13887	13729
144	BARH STPS	2640	12199	41	12240	11817
145	BARAUNI TPS	710	2563	0	2563	2416
146	NABINAGAR TPP	1000	5294	0	5294	5074
147	NABINAGAR STPP	1980	9337	73	9410	9156
148	CHANDRAPURA(DVC) TPS	500	2413	0	2413	2489
149	TENUGHAT TPS	420	1932	0	1932	1684
150	BOKARO TPS `A` EXP	500	1860	0	1860	1962
151	MAITHON RB TPP	1050	4521	0	4521	4309

152	KODARMA TPP	1000	4977	12	4989	4991
153	NORTH KARANPURA TPP	1320	7693	0	7693	7348
154	MAHADEV PRASAD STPP	540	2854	0	2854	2813
155	JOJOBERA TPS	240	1248	0	1248	1064
156	IB VALLEY TPS	1740	8968	0	8968	9051
157	DARLIPALI STPS	1600	8841	0	8841	8715
158	TALCHER STPS	3000	16308	0	16308	16263
159	VEDANTA TPP	600	2059	0	2059	2003
160	KAMALANGA TPS	1050	6089	0	6089	5983
161	DERANG TPP	1200	6278	0	6278	6414
162	Maadurga Thermal Power Company Ltd.	60	77	0	77	84
163	JSW Energy Utkal Limited	350	938	0	938	812
164	BAKRESWAR TPS	1050	5413	0	5413	5401
165	MEJIA TPS	2340	10735	61	10796	10627
166	BANDEL TPS	270	1488	0	1488	1411
167	D.P.L. TPS	550	2589	0	2589	2648
168	KOLAGHAT TPS	840	3944	0	3944	3983
169	SAGARDIGHI TPS	1600	7989	0	7989	7972
170	SANTALDIH TPS	500	2650	0	2650	2717
171	BUDGE BUDGE TPS	750	3279	0	3279	3476
172	SOUTHERN REPL. TPS	135	276	0	276	308
173	TITAGARH TPS	240	0	0	0	0
174	FARAKKA STPS	2100	9430	0	9431	9376

175	DURGAPUR STEEL TPS	1000	4344	8	4352	4344
176	HALDIA TPP	600	2935	0	2935	3114
177	RAGHUNATHPUR TPP	1200	4257	8	4264	4358
178	HIRANMAYE TPP	300	1679	0	1679	1598
179	BONGAIGAON TPP	750	3056	8	3063	2980
180	SHREE CEMENT LTD TPS	300	0	562	562	589
181	OPG Power Generation Private Limited	414	248	1386	1634	1702
182	GHATAMPUR TPP	660	360	0	360	391
183	KHURJA TPP	660	397	0	397	323
184	CHAKABURA TPP	30	546	0	546	590
185	KASAIPALLI TPP	270	1297	0	1297	1397
186	KATGHORA TPP	35	0	0	0	0
187	RATIJA TPS	100	706	0	706	792
188	SVPL TPP	63	558	0	558	637
189	SWASTIK KORBA TPP	25	0	0	0	0
190	NIWARI TPP	90	461	0	461	466
191	GEPL TPP Ph-I	120	0	0	0	0
<b>TOTAL ALL INDIA</b>		<b>215193</b>	<b>825836</b>	<b>62571</b>	<b>888407</b>	<b>880167</b>

## ANNEXURE-6C

## CUMULATIVE REPORT ON FUEL SUPPLY/CONSUMPTION FOR GAS BASED POWER STATIONS FOR THE YEAR 2024-25

S. No	Name of Power Station	Installed Capacity (MW)	Name of the State	Generation (Million Unit)	Domestic Gas Allotted (MMSCMD)			RLNG (Imported) - Long Term Contracts	Gas Consumed/Supplied (MMSCMD)							Alternate fuel used (KL)	
					APM /Non-APM/ PMT	KGD-6 (Firm)	Total		Domestic			RLNG (Imported)			TOTAL	Naptha	HSD
									APM /Non-APM/ PMT	KGD-6 / Auctioned Domestic Gas	Total	Long Term	SPOT	Total			
<b>Plants connected with gas grid</b>																	
<b>A</b>	<b>Central Sector</b>																
1	FARIDABAD CCPP	431.59	HARYANA	215.37	1.46	0.35	1.81	0.20	0.00	0.00	0.00	0.10	0.04	0.14	<b>0.14</b>	0.00	0.00
2	ANTA CCPP	419.33	RAJASTHAN	423.38	1.31	0.24	1.55	0.50	0.00	0.00	0.00	0.15	0.18	0.33	<b>0.33</b>	0.00	0.00
3	AURAIYA CCPP	663.36	UTTAR PRADESH	558.31	2.17	0.30	2.47	1.00	0.00	0.00	0.00	0.27	0.18	0.45	<b>0.45</b>	0.00	0.00
4	DADRI CCPP	829.78	UTTAR PRADESH	689.25	2.39	0.86	3.25	0.30	0.00	0.00	0.00	0.32	0.18	0.50	<b>0.50</b>	0.00	0.00
5	GANDHAR CCPP	657.39	GUJARAT	676.58	2.56	0.63	3.19	0.00	0.00	0.00	0.00	0.32	0.17	0.49	<b>0.49</b>	0.00	0.00
6	KAWAS CCPP	656.2	GUJARAT	613.47	3.64	2.08	5.72	0.00	0.00	0.00	0.00	0.27	0.19	0.46	<b>0.46</b>	0.00	0.00
7	RATNAGIRI CCPP	1967.08	MAHARASHTRA	1443.14	0.90	7.60	8.50	1.75	0.00	0.00	0.00	0.68	0.14	0.82	<b>0.82</b>	0.00	0.00
	<b>Sub Total</b>	<b>5624.73</b>		<b>4619.50</b>	<b>14.43</b>	<b>12.06</b>	<b>26.49</b>	<b>3.75</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>2.11</b>	<b>1.08</b>	<b>3.19</b>	<b>3.19</b>	<b>0.00</b>	<b>0.00</b>
<b>B</b>	<b>State Sector</b>																
8	I.P.CCPP	270	DELHI	257.52	0.95	0.00	0.95	0.60	0.01	0.00	0.01	0.20	0.00	0.20	<b>0.21</b>	0.00	0.00
9	PRAGATI CCGT-III	1500	DELHI	2876.22	1.56	0.93	2.49	0.00	1.05	0.05	1.10	0.01	0.41	0.42	<b>1.53</b>	0.00	0.00

10	PRAGATI CCPP	330.4	DELHI	744.27	2.05	0.00	2.05	0.20	0.00	0.00	0.00	0.41	0.02	0.44	<b>0.44</b>	0.00	0.00
11	DHOLPUR CCPP	330	RAJASTH AN	50.07	1.50	0.10	1.60	0.00	0.00	0.00	0.00	0.00	0.05	0.05	<b>0.05</b>	0.00	0.00
12	DHUVARAN CCPP	594.72	GUJARAT	374.09	0.25	0.44	0.69	0.25	0.00	0.00	0.00	0.00	0.24	0.24	<b>0.24</b>	0.00	0.00
13	HAZIRA CCPP	156.1	GUJARAT	0.00	0.80	0.01	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>	0.00	0.00
14	HAZIRA CCPP EXT	351	GUJARAT	246.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.12	0.15	<b>0.15</b>	0.00	0.00
15	PIPAVAV CCPP	702	GUJARAT	419.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.25	<b>0.25</b>	0.00	0.00
16	UTRAN CCPP	374	GUJARAT	324.48	0.00	1.45	1.45	0.24	0.00	0.00	0.00	0.00	0.17	0.17	<b>0.18</b>	0.00	0.00
17	URAN CCPP	672	MAHARAS HTRA	2472.6 3	3.50	1.40	4.90	0.00	1.67	0.00	1.67	0.00	0.00	0.00	<b>1.67</b>	0.00	0.00
18	JEGURUPA DU CCPP PH I	235.4	ANDHRA PRADESH	30.97	1.10	0.21	1.31	0.00	0.01	0.01	0.02	0.00	0.00	0.00	<b>0.02</b>	0.00	0.00
19	YELAHANK A CCPP	370.05	KARNATA KA	314.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.13	<b>0.13</b>	0.00	0.00
	<b>Sub total</b>	<b>5885.6 7</b>		<b>8111.3 5</b>	<b>11.71</b>	<b>4.54</b>	<b>16.25</b>	<b>1.29</b>	<b>2.75</b>	<b>0.06</b>	<b>2.81</b>	<b>0.65</b>	<b>1.39</b>	<b>2.04</b>	<b>4.85</b>	<b>0.00</b>	<b>0.00</b>
<b>C</b>	<b>Private Sector</b>																
20	RITHALA CCPP	108	DELHI	0.00	0.00	0.40	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>	0.00	0.00
21	GAMA CCPP	225	UTTARAK HAND	300.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.18	<b>0.18</b>	0.00	0.00
22	SRAVANTHI CCPP	439	UTTARAK HAND	537.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.31	<b>0.31</b>	0.00	0.00
23	BARODA CCPP	160	GUJARAT	0.00	0.36	0.09	0.45	0.30	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>	0.00	0.00
24	ESSAR CCPP	300	GUJARAT	0.00	0.00	1.17	1.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>	0.00	0.00
25	PEGUTHAN CCPP	655	GUJARAT	0.00	0.13	1.30	1.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>	0.00	0.00
26	SUGEN CCPP	1147.5	GUJARAT	3424.6 3	0.90	3.31	4.21	1.14	0.00	0.12	0.12	0.46	1.09	1.55	<b>1.67</b>	0.00	0.00
27	UNOSUGEN CCPP	382.5	GUJARAT	684.12	0.00	0.00	0.00	0.00	0.00	0.14	0.14	0.02	0.27	0.29	<b>0.43</b>	0.00	0.00

28	DGEN MEGA CCPP	1200	GUJARAT	1647.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.80	0.83	<b>0.83</b>	0.00	0.00
29	TROMBAY CCPP	180	MAHARAS HTRA	1475.20	1.50	0.00	1.50	1.00	0.70	0.00	0.70	0.00	0.00	0.00	<b>0.70</b>	0.00	0.00
30	MANGAON CCPP	388	MAHARAS HTRA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>	0.00	0.00
31	GAUTAMI CCPP	464	ANDHRA PRADESH	0.00	1.96	1.86	3.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>	0.00	0.00
32	GREL CCPP (Rajahmundry)	768	ANDHRA PRADESH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>	0.00	0.00
33	GODAVARI CCPP	208	ANDHRA PRADESH	0.00	1.04	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>	0.00	0.00
34	JEGURUPA DU CCPP PH II	220	ANDHRA PRADESH	0.00	1.34	0.88	2.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>	0.00	0.00
35	KONASEEMA CCPP	445	ANDHRA PRADESH	0.00	0.00	1.78	1.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>	0.00	0.00
36	KONDAPALI EXTN CCPP	366	ANDHRA PRADESH	3.07	0.00	1.46	1.46	0.00	0.00	0.00	0.00	0.00	0.10	0.10	<b>0.10</b>	0.00	0.00
37	KONDAPALI ST-3 CCPP	742	ANDHRA PRADESH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>	0.00	0.00
38	KONDAPALI CCPP	368.14	ANDHRA PRADESH	0.00	1.46	0.36	1.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>	0.00	0.00
39	PEDDAPURAM CCPP	220	ANDHRA PRADESH	0.00	0.84	0.25	1.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>	0.00	0.00
40	VEMAGIRI CCPP	370	ANDHRA PRADESH	0.00	1.64	1.48	3.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>	0.00	0.00
41	VIJESWARAM CCPP	272	ANDHRA PRADESH	0.00	1.32	0.00	1.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>	0.00	0.00
	<b>Sub Total</b>	<b>9628.14</b>		<b>8072.39</b>	<b>12.49</b>	<b>14.34</b>	<b>26.83</b>	<b>2.44</b>	<b>0.70</b>	<b>0.26</b>	<b>0.96</b>	<b>0.50</b>	<b>2.75</b>	<b>3.26</b>	<b>4.22</b>	<b>0.00</b>	<b>0.00</b>
<b>I</b>	<b>Pipeline Total (A+B+C)</b>	<b>21138.54</b>		<b>20803.24</b>	<b>38.63</b>	<b>30.94</b>	<b>69.57</b>	<b>7.48</b>	<b>3.45</b>	<b>0.33</b>	<b>3.77</b>	<b>3.26</b>	<b>5.22</b>	<b>8.48</b>	<b>12.25</b>	<b>0.00</b>	<b>0.00</b>
<b>Plants Connected with Isolated fields</b>																	
<b>A</b>	<b>Central Sector</b>																

1	KATHALGU RI CCPP	291	ASSAM	1578.7 0	1.40	0.00	1.40	0.00	1.32	0.00	1.32	0.00	0.00	0.00	<b>1.32</b>	0.00	0.00
2	AGARTALA GT	135	TRIPURA	543.04	0.75	0.00	0.75	0.00	0.44	0.00	0.44	0.00	0.00	0.00	<b>0.44</b>	0.00	0.00
3	MONARCHA K CCPP	101	TRIPURA	489.29	0.50	0.00	0.50	0.00	0.31	0.00	0.31	0.00	0.00	0.00	<b>0.31</b>	0.00	0.00
4	TRIPURA CCPP	726.6	TRIPURA	3882.7 6	2.65	0.00	2.65	0.00	2.17	0.00	2.17	0.00	0.00	0.00	<b>2.17</b>	0.00	0.00
	<b>Sub Total</b>	<b>1253.6</b>		<b>6493.7 9</b>	<b>5.30</b>	<b>0.00</b>	<b>5.30</b>	<b>0.00</b>	<b>4.24</b>	<b>0.00</b>	<b>4.24</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>4.24</b>	<b>0.00</b>	<b>0.00</b>
<b>B</b>	<b>State Sector</b>																
5	RAMGARH CCPP	273.8	RAJASTH AN	448.45	1.65	0.00	1.65	0.00	0.60	0.00	0.60	0.00	0.00	0.00	<b>0.60</b>	0.00	1.68
6	KARAIKAL CCPP	32.5	PUDUCHE RRY	204.95	0.20	0.00	0.20	0.00	0.14	0.00	0.14	0.00	0.00	0.00	<b>0.14</b>	0.00	0.00
7	KOVIKALPA L CCPP	107	TAMIL NADU	0.00	0.45	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>	0.00	0.00
8	KUTTALAM CCPP	100	TAMIL NADU	648.85	0.45	0.00	0.45	0.00	0.36	0.00	0.36	0.00	0.00	0.00	<b>0.36</b>	0.00	0.00
9	VALUTHUR CCPP	186.2	TAMIL NADU	966.92	0.89	0.00	0.89	0.00	0.60	0.00	0.60	0.00	0.00	0.00	<b>0.60</b>	0.00	0.00
10	LAKWA GT	97.2	ASSAM	470.18	0.50	0.00	0.50	0.00	0.38	0.00	0.38	0.00	0.00	0.00	<b>0.38</b>	0.00	0.00
11	LAKWA REPLACEM ENT POWER PROJECT	69.8	ASSAM	462.43	0.40	0.00	0.40	0.00	0.29	0.00	0.29	0.00	0.00	0.00	<b>0.29</b>	0.00	0.00
12	NAMRUP CCPP	139.4	ASSAM	896.68	0.66	0.00	0.66	0.00	0.60	0.00	0.60	0.00	0.00	0.00	<b>0.60</b>	0.00	0.00
13	BARAMURA GT	42.0	TRIPURA	3.46	0.40	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>	0.00	0.00
14	ROKHIA GT	63.0	TRIPURA	181.10	0.50	0.00	0.50	0.00	0.22	0.00	0.22	0.00	0.00	0.00	<b>0.22</b>	0.00	0.00
	<b>Sub Total</b>	<b>1110.8 6</b>		<b>4283.0 2</b>	<b>6.10</b>	<b>0.00</b>	<b>6.10</b>	<b>0.00</b>	<b>3.21</b>	<b>0.00</b>	<b>3.21</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>3.21</b>	<b>0.00</b>	<b>1.68</b>
<b>C</b>	<b>Private Sector</b>																
15	KARUPPUR CCPP	119.8	TAMIL NADU	0.00	0.50	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>	0.00	0.00
16	P.NALLUR CCPP	330.5	TAMIL NADU	0.00	1.50	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>	0.00	0.00

17	VALANTAR VY CCPP	52.8	TAMIL NADU	0.00	0.38	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Sub Total</b>	<b>503.1</b>		<b>0.00</b>	<b>2.38</b>	<b>0.00</b>	<b>2.38</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
II	<b>Total Isolated (A+B+C)</b>	<b>2867.6</b>		<b>10776. 81</b>	<b>13.78</b>	<b>0.00</b>	<b>13.78</b>	<b>0.00</b>	<b>7.45</b>	<b>0.00</b>	<b>7.45</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>7.45</b>	<b>0.00</b>	<b>1.68</b>
	<b>GRAND TOTAL=I+II</b>	<b>24006. 10</b>		<b>31580. 05</b>	<b>52.41</b>	<b>30.94</b>	<b>83.35</b>	<b>7.48</b>	<b>10.89</b>	<b>0.33</b>	<b>11.22</b>	<b>3.26</b>	<b>5.22</b>	<b>8.48</b>	<b>19.70</b>	<b>0.00</b>	<b>1.68</b>

**Gas Consumed/Supplied v/s Gas Allotted Summary:**

Gas based Plants	Installed Capacity (MW)	Generation (MU)	Domestic Gas Allotted (MMSCMD)			RLNG (Imported)- Long Term Contracts	Gas Consumed/Supplied (MMSCMD)						Cumulative PLF (%)	
			APM /Non-APM/ PMT	KGD-6 (Firm)	Total		Domestic			RLNG (Imported)				TOTAL
							APM /Non-APM/ PMT	KGD-6 / Auctioned Domestic Gas	Total	Long Term	SPOT	Total		
Plants connected with gas grid	21138.5	20803.24	38.634	30.94	69.574	7.480	3.45	0.33	3.77	3.26	5.22	8.48	12.25	11.2%
Plants Connected with Isolated fields	2867.6	10776.8	13.8	0.0	13.8	0.0	7.4	0.0	7.4	0.0	0.0	0.0	7.4	42.9%
<b>Total</b>	<b>24006.1</b>	<b>31580.05</b>	<b>52.41</b>	<b>30.94</b>	<b>83.35</b>	<b>7.48</b>	<b>10.89</b>	<b>0.33</b>	<b>11.22</b>	<b>3.26</b>	<b>5.22</b>	<b>8.48</b>	<b>19.70</b>	<b>15.0%</b>

APM:Administerd price mechanism, RLNG:Regasified liquefied natural gas, LT:Long term

MMSCM- Million Metric Standard Cubic Metres/day=MMSCM/(No. of Days in a month)

MU -- Million Unit, KL-- Kilo Litre, (KL=1.35\*MT),

HSD -- High Speed Diesel,

Essar CCPP: Out of total 515 MW capacity, 300 MW electricity is being supplied to grid & balance 215 MW is used as captive generation.

Annexure-9A

**CENTRAL ELECTRICITY AUTHORITY  
FINANCIAL STUDIES & ASSISTANCE DIVISION  
STATEMENT SHOWING ESTIMATED AVERAGE RATES OF ELECTRICITY (FY 2023-24)**

S. No.	Name of State/Utility	Tariff effective from	Domestic			Commercial				Agriculture			Small Industry 10KW (1500 KWh/ Month)	Medium Industry 50KW (7500 KWh/ Month)	Large Industry (11KV) 1000KW 60%L.F. (438000 KWh/ Month)	Heavy Industry (11KV) 1000KW 60%L.F. (876000 KWh/ Month)	Heavy Industry (33KV) 2000KW 60%L.F. (2500000 KWh/ Month)	Railway Traction 12500KW (2500000 KWh/ Month)		
			1KW (100 KWh/ Month)	4KW (400 KWh/ Month)	10KW (1000 KWh/ Month)	2KW (300 KWh/ Month)	10KW (1500 KWh/ Month)	30KW (4500 KWh/ Month)	50KW (7500 KWh/ Month)	2HP (400 KWh/ Month)	5HP (1000 KWh/ Month)	10HP (2000 KWh/ Month)								
1	Andaman & Nicobar Islands	01.04.2023	295.00	664.00	875.00	1026.00	1429.00	1594.00	1627.00	196.00	196.00	196.00	1074.00	1227.00	1188.00	1189.00	1189.00	-	-	
2	Andhra Pradesh	01.04.2023	321.00	653.00	856.00	971.00	1119.00	1150.00	1156.00	450.00 #	450.00 #	450.00 #	820.00	820.00	877.00	877.00	830.00	763.00		
3	Arunachal Pradesh	01.06.2018	400.00	400.00	400.00	500.00	500.00	500.00	500.00	310.00	310.00	310.00	430.00	430.00	385.00	385.00	350.00	-		
4	Assam	01.04.2023	672.00	805.00	856.00	935.00	935.00	1013.00	1013.00	556.00	556.00	556.00	665.00 U	863.00	800.00	800.00	800.00	906.00		
5	Bihar	01.04.2023	887.00 U	1009.00 U	1033.00 U	1132.00 U	1166.00 U	1172.00 U	1173.00 U	744.00	744.00	744.00	1161.00	1218.00	1084.00	-	1069.00	at 132kV	1223.00	at 132 kV
			873.00 R	895.00 R	899.00 R	914.00 R	926.00 R	928.00 R	928.00 R											
6	Chandigarh	01.04.2023	299.00	393.00	451.00	488.00	568.00	574.00	576.00	260.00	260.00	260.00	461.00	564.00	507.00	507.00	507.00	-	-	
7	Chhattisgarh	01.04.2023	441.00	535.00	728.00	806.00	1012.00	1027.00	1027.00	555.00	555.00	555.00	626.00	730.00	975.00	975.00	927.00	714.00		
8	Dadra & Nagar Haveli and Daman & Diu	01.08.2023	170.00	248.00	309.00	415.00	442.00	446.00	447.00	90.00	90.00	90.00	432.00	499.00	579.00	579.00	579.00	-	-	
9	Delhi (BYPL/BRPL/TPDDL)	01.10.2021	335.00	444.00	678.00	885.00	1177.00	1177.00	1177.00	204.00	204.00	204.00	1089.00	1089.00	942.00	942.00	933.00	836.00		
10	Delhi (NDMC)	01.10.2021	335.00	444.00	678.00	885.00	1177.00	1177.00	1177.00	204.00	204.00	204.00	1089.00	1089.00	942.00	942.00	933.00	836.00		
11	Goa	01.04.2023	215.00	341.00	467.00	533.00	609.00	640.00	642.00	179.00	179.00	179.00	518.00	518.00	690.00	690.00	690.00	-	-	
12	Gujarat	01.04.2023	394.00 U	505.00 U	566.00 U	562.00	562.00	617.00	630.00	90.00	90.00	90.00	515.00	578.00	551.00	626.00	630.00	600.00	at 132 kV	
			325.00 R	433.00 R	494.00 R															
13	Gujarat-Torrent Power Ltd. (Ahmedabad)	01.04.2023	440.00	511.00	554.00	608.00	624.00	716.00	716.00	340.00	340.00	340.00	572.00	656.00	600.00	600.00	-	-		
14	Gujarat-Torrent Power Ltd. (Surat)	01.04.2023	423.00	507.00	556.00	578.00	578.00	720.00	720.00	70.00	70.00	70.00	530.00	660.00	624.00	624.00	-	-		
15	Haryana	01.04.2023	235.00	481.00	720.00	716.00	716.00	828.00	828.00	662.00	662.00	662.00	716.00	828.00	791.00	791.00	780.00	841.00	at 11kV	
16	Himachal Pradesh	01.04.2023	535.00	551.00	583.00	667.00	628.00	742.00	742.00	479.00	464.00	458.00	584.00	747.00	737.00	737.00	737.00	882.00	at 66 kV	
17	Jammu & Kashmir	01.12.2023	238.00	323.00	395.00	457.00	790.00	790.00	790.00	100.00	100.00	100.00	541.00	541.00	529.00	529.00	518.00	812.00	at 11/33 kV	
18	Jharkhand	01.03.2024	805.00 U	730.00 U	715.00 U	738.00 U	838.00 U	838.00 U	838.00 U	555.00	555.00	555.00	872.00	872.00	851.00	899.00	875.00	894.00		
			743.00 R	687.00 R	675.00 R	693.00 R	727.00 R	727.00 R	727.00 R											
19	Karnataka	01.04.2023	628.00	873.00	873.00	1060.00	1060.00	1060.00	1060.00	0.00	0.00	0.00	863.00	892.00	895.00	895.00	893.00	957.00		
20	Kerala	01.11.2023	467.00	886.00	994.00	784.00	1094.00	1151.00	1151.00	260.00	260.00	260.00	647.00	792.00	748.00	748.00	750.00	750.00	at 110 kV	
21	Ladakh	01.11.2023	251.00	340.00	417.00	470.00	815.00	815.00	815.00	135.00	135.00	135.00	550.00	550.00	548.00	548.00	534.00	-		
22	Lakshadweep	01.04.2023	195.00	508.00	680.00	993.00	1175.00	1205.00	1211.00	-	-	-	837.00	837.00	1088.00	1088.00	-	-		
23	Madhya Pradesh	04.04.2023	653.00 U	970.00 U	1026.00 U	860.00 U	866.00 U	958.00 U	958.00 U	553.00	610.00	636.00	952.00 U	952.00 U	837.00	837.00	894.00	783.00	at 132/220kV	
			628.00 R	959.00 R	1015.00 R	836.00 R	842.00 R	927.00 R	927.00 R				868.00 R	868.00 R						
24	Maharashtra	01.04.2023	782.00	1251.00	1643.00	1351.00	1199.00	2110.00	2110.00	441.00	441.00	441.00	826.00	1187.00	1197.00 B	1197.00 B	1197.00	1181.00		
															1234.00 C	1234.00 C				
25	Mumbai (B.E.S.T)	01.04.2023	553.00	886.00	1227.00	1240.00	1096.00	1258.00	1258.00	430.00	430.00	430.00	923.00	1183.00	1070.00	1070.00	-	1043.00	at 33/11kV	
26	Mumbai (Adani Electricity)	01.04.2023	781.00	957.00	1137.00	1213.00	1069.00	1388.00	1388.00	671.00	671.00	671.00	932.00	1231.00	1040.00	1040.00	-	999.00	at 33/11kV	
27	Mumbai (TATA'S)	01.04.2023	673.00	943.00	1198.00	1252.00	1108.00	1414.00	1414.00	-	-	-	961.00	1244.00	1088.00	1088.00	-	1099.00	at 33/11kV	
28	Manipur	01.04.2023	575.00	679.00	716.00	772.00	812.00	818.00	820.00	479.00	479.00	479.00	607.00	967.00	1038.00	1038.00	-	-		
29	Mizoram	01.04.2023	540.00	760.00	826.00	886.00	896.00	898.00	898.00	399.00	399.00	399.00	833.00	853.00	1086.00	1086.00	-	-		
30	Meghalaya	01.04.2023	535.00	658.00	716.00	843.00	872.00	877.00	878.00	401.00	401.00	401.00	864.00	864.00	946.00	946.00	912.00	-		
31	Nagaland	01.04.2023	567.00	652.00	687.00	844.00	889.00	896.00	898.00	335.00	335.00	335.00	683.00	713.00	749.00	750.00	-	-		
32	Odisha	01.04.2023	426.00	548.00	618.00	710.00	790.00	804.00	806.00	161.00	158.00	158.00	677.00	723.00	720.00	720.00	695.00	-		
33	Puducherry	01.04.2023	255.00	473.00	615.00	733.00	811.00	824.00	826.00	0.00 S	0.00 S	0.00 S	668.00	668.00	712.00	-	733.00	at 110/132kV	724.00	at 33/22 kV
34	Punjab	16.05.2023	530.00	804.00	959.00	853.00	935.00	956.00	956.00	655.00 WS	655.00 WS	655.00 WS	800.00	883.00	901.00	928.00	928.00	997.00	at 132 kV	
35	Rajasthan	01.04.2023	833.00	830.00	845.00	1022.00	1046.00	1155.00	1157.00	574.00	574.00	574.00	793.00	868.00	763.00	745.00	710.00	-		
36	Sikkim	01.04.2023	160.00	298.00	365.00	493.00	609.00	704.00	708.00	-	-	-	691.00 U	748.00	909.00	909.00	-	-		
37	Tamil Nadu	01.07.2023	113.00	569.00	878.00	1090.00	1090.00	1090.00	1090.00	0.00	0.00	0.00	709.00	844.00	874.00	874.00	874.00	1079.00		
38	Telangana	01.04.2023	339.00	719.00	881.00	1124.00	1143.00	1147.00	1147.00	258.00 \$	253.00 \$	252.00 \$	833.00	842.00	926.00	925.00	873.00	782.00	at 33 kV	
39	Tripura	01.10.2023	587.00	688.00	851.00	782.00	885.00	885.00	885.00	433.00	433.00	433.00	853.00	880.00	-	-	-	-		
40	Uttarakhand	01.04.2023	390.00	594.00	716.00	758.00	758.00	888.00	888.00	230.00	230.00	230.00	688.00	773.00	878.00	878.00	878.00	903.00		
41	Uttar Pradesh	01.06.2023	693.00 U	739.00 U	774.00 U	1043.00 U	1174.00 U	1233.00 U	1245.00 U	665.00 U	665.00 U	665.00 U	993.00 U	993.00 U	985.00 U	985.00 U	944.00	1235.00	Below 132 kV	
			446.00 R	574.00 R	633.00 R	670.00 R	670.00 R	670.00 R	670.00 R	235.00 R	235.00 R	235.00 R	918.00 R	918.00 R	911.00 R	911.00 R		1235.00	132 kV & above	
42	West Bengal (WBSEDCL)	01.04.2023	654.00 U	879.00 U	982.00 U	905.00 U	1060.00 U	1079.00 U	1083.00 U	491.00	491.00	491.00	773.00 U	925.00 U	924.00	924.00	904.00	935.00		
			641.00 R	866.00 R	977.00 R	904.00 R	1060.00 R	1079.00 R	1083.00 R				753.00 R	897.00 R						
43	D.V.C. Jharkhand Area	01.02.2024	526.00	469.00	458.00	545.00	545.00	545.00	545.00	315.00	315.00	315.00	641.00	641.00	609.00	642.00	625.00	659.00		

B : General Industry C : Seasonal Industry U : Urban R : Rural  
 WS: Without Subsidy # Without Demand side management measures \$ For Corporate Farmers S : With Subsidy  
 Tariffs notified have varying parameters for various categories of consumers. The above comparison is based on certain assumed loads and electricity consumption levels in a month.

Annexure-10A**All India Sector wise/ Utility-wise Target, Actual Generation & PLF (%) for the year 2024-25**

Category /	APRIL 2024 - MAR-2025		
	TARGET (MU)	ACTUAL (MU)	PLF %
<b>THERMAL</b>			
<b>CENTRAL SECTOR</b>			
APCPL	8100.00	8711.53	66.30
BRBCL	7350.00	7087.23	80.90
DVC	46350.00	43373.22	75.71
JHAPL	3800.00	3216.46	61.20
K.B.U.N.L	3075.00	2802.01	82.02
MUNPL	9000.00	8598.70	74.36
NEEPCO.	3450.00	2611.03	
NLC	22200.00	19330.53	60.62
NPGCL	15500.00	14044.14	80.97
NSPCL	4050.00	3613.86	82.51
NTECL	10200.00	8660.91	65.91
NTPC Ltd.	382696.00	351648.98	76.96
NTPL	7600.00	5236.46	59.78
NUPPL	6600.00	1053.22	54.95
ONGC	4400.00	3882.76	

PVUNL	1500.00	0.00	0.00
RGPPL	1375.00	1443.14	
SJVNL	3000.00	0.00	0.00
THDC	3000.00	870.80	84.36
<b>CENTRAL SECTOR</b>	<b>543246.00</b>	<b>486184.98</b>	<b>75.32</b>
<b>STATE SECTOR</b>	<b>452967.00</b>	<b>409553.02</b>	<b>63.23</b>
<b>PVT SECTOR</b>	<b>19345.00</b>	<b>18076.83</b>	<b>59.85</b>
<b>IPP SECTOR</b>	<b>429385.00</b>	<b>450074.93</b>	<b>70.19</b>
<b>TOTAL THERMAL</b>	<b>1444943.00</b>	<b>1363889.76</b>	<b>69.45</b>
<b>NUCLEAR</b>			
<b>CENTRAL SECTOR</b>			
BHAVINI	540.00	0.00	0.00
DAE	0.00	0.00	0.00
NPCIL	54808.00	56680.83	80.08
<b>CENTRAL SECTOR</b>	<b>55348.00</b>	<b>56680.83</b>	<b>79.10</b>
<b>TOTAL NUCLEAR</b>	<b>55348.00</b>	<b>56680.83</b>	<b>79.10</b>
<b>HYDRO</b>			
<b>CENTRAL SECTOR</b>			
BBMB	9650.00	10748.49	
DVC	286.00	273.39	
NEEPCO.	5247.00	5248.73	
NHDC	3265.00	5463.61	
NHPC	0.00	0.00	
NHPC	25401.00	19730.33	
NTPC Ltd.	3100.00	3353.15	
SJVNL	9145.00	9810.33	

THDC	5269.00	4618.58	
<b>CENTRAL SECTOR</b>	<b>61363.00</b>	<b>59246.61</b>	
<b>STATE SECTOR</b>	<b>69543.00</b>	<b>73831.17</b>	
<b>PVT SECTOR</b>	<b>1480.00</b>	<b>1561.12</b>	
<b>IPP SECTOR</b>	<b>15323.00</b>	<b>13995.08</b>	
<b>TOTAL HYDRO</b>	<b>147709.00</b>	<b>148633.98</b>	
<b>BHUTAN IMP</b>			
	8000.00	5484.18	
<b>ALL INDIA TOTAL</b>	<b>1656000.00</b>	<b>1574688.75</b>	

**Note:** PLF is calculated for Coal & Lignite based power station only. Based on 2024-25 Actual Generation (Up to March, 25) from conventional sources Thermal/Hydro/Nuclear) with station capacity > 25 MW.

## Annexure-10B

**ALL INDIA INSTALLED CAPACITY (IN MW) OF POWER STATIONS  
LOCATED IN THE REGIONS OF MAIN LAND AND ISLANDS**

(As on 31.03.2025)

(UTILITIES)

Region	Ownership/ Sector	Mode wise breakup									Grand Total
		Thermal					Nuclear	Renewable			
		Coal	Lignite	Gas	Diesel	Total		Hydro	RES*(MNRE)	Total	
Northern Region	State	20845.00	250.00	2878.90	0.00	23973.90	0.00	6108.24	816.50	6924.74	30898.64
	Private	22084.33	1080.00	772.00	0.00	23936.33	0.00	3241.00	45861.06	49102.06	73038.39
	Central	16368.62	250.00	2344.06	0.00	18962.68	1620.00	12076.26	379.00	12455.26	33037.94
	<b>Sub Total</b>	<b>59297.95</b>	<b>1580.00</b>	<b>5994.96</b>	<b>0.00</b>	<b>66872.91</b>	<b>1620.00</b>	<b>21425.50</b>	<b>47056.56</b>	<b>68482.06</b>	<b>136974.97</b>
Western Region	State	21950.00	900.00	2849.82	0.00	25699.82	0.00	5446.50	619.23	6065.73	31765.55
	Private	31762.17	500.00	4021.00	0.00	36283.17	0.00	481.00	59883.42	60364.42	96647.59
	Central	21610.47	0.00	3280.67	0.00	24891.14	3240.00	1665.75	666.30	2332.05	30463.19
	<b>Sub Total</b>	<b>75322.64</b>	<b>1400.00</b>	<b>10151.49</b>	<b>0.00</b>	<b>86874.13</b>	<b>3240.00</b>	<b>7593.25</b>	<b>61168.95</b>	<b>68762.20</b>	<b>158876.33</b>
Southern Region	State	22992.50	0.00	1162.03	159.96	24314.49	0.00	11927.48	637.08	12564.56	36879.05
	Private	13636.00	250.00	5120.24	273.70	19279.95	0.00	0.00	59892.89	59892.89	79172.84
	Central	13827.04	3390.00	359.58	0.00	17576.62	3320.00	0.00	541.90	541.90	21438.52
	<b>Sub Total</b>	<b>50455.54</b>	<b>3640.00</b>	<b>6641.85</b>	<b>433.66</b>	<b>61171.05</b>	<b>3320.00</b>	<b>11927.48</b>	<b>61071.87</b>	<b>72999.35</b>	<b>137490.40</b>
Eastern Region	State	6970.00	0.00	80.00	0.00	7050.00	0.00	3550.22	278.11	3828.33	10878.33
	Private	5613.00	0.00	0.00	0.00	5613.00	0.00	209.00	2113.15	2322.15	7935.15
	Central	16291.86	0.00	0.00	0.00	16291.86	0.00	1078.70	10.00	1088.70	17380.56
	<b>Sub Total</b>	<b>28874.86</b>	<b>0.00</b>	<b>80.00</b>	<b>0.00</b>	<b>28954.86</b>	<b>0.00</b>	<b>4837.92</b>	<b>2401.26</b>	<b>7239.18</b>	<b>36194.04</b>
North Eastern Region	State	0.00	0.00	411.36	36.00	447.36	0.00	422.00	276.25	698.25	1145.61
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	323.16	323.16	323.16
	Central	1242.02	0.00	1253.60	0.00	2495.62	0.00	1522.01	30.00	1552.01	4047.63
	<b>Sub Total</b>	<b>1242.02</b>	<b>0.00</b>	<b>1664.96</b>	<b>36.00</b>	<b>2942.98</b>	<b>0.00</b>	<b>1944.01</b>	<b>629.41</b>	<b>2573.42</b>	<b>5516.40</b>
Islands	State	0.00	0.00	0.00	84.35	84.35	0.00	0.00	5.25	5.25	89.60
	Private	0.00	0.00	0.00	35.19	35.19	0.00	0.00	29.78	29.78	64.97
	Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.10	5.10	5.10
	<b>Sub Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>119.54</b>	<b>119.54</b>	<b>0.00</b>	<b>0.00</b>	<b>40.13</b>	<b>40.13</b>	<b>159.67</b>

<b>ALL INDIA</b>	State	72757.50	1150.00	7382.11	280.31	81569.92	0.00	27454.44	2632.42	30086.86	111656.78
	Private	73095.50	1830.00	9913.24	308.89	85147.64	0.00	3931.00	168103.46	172034.46	257182.10
	Central	69340.00	3640.00	7237.91	0.00	80217.91	8180.00	16342.72	1632.30	17975.02	106372.93
	<b>Total</b>	<b>215193.00</b>	<b>6620.00</b>	<b>24533.26</b>	<b>589.20</b>	<b>246935.46</b>	<b>8180.00</b>	<b>47728.16</b>	<b>172368.18</b>	<b>220096.34</b>	<b>475211.80</b>

**Figures at decimal may not tally due to rounding off**

**Abbreviation:-** SHP=Small Hydro Project ( $\leq 25$  MW), BP=Biomass Power, U&I=Urban & Industrial Waste Power, RES=Renewable Energy Sources

**Note :-** 1. RES include SHP, BP, U&I, Solar and Wind Energy. Installed capacity in respect of RES (MNRE) as on 31.03.2025

(As per latest information available with MNRE)

**\*Break up of RES all India as on 31.03.2025 is given below (in MW) :**

	Small Hydro Power	Wind Power	Bio-Power		Solar Power	Total Capacity				
			BM Power/Cogen.	Waste to Energy						
	5100.55	50037.82	10743.11	840.21	105646.49	172368.18				
<b>A.</b>	<b>Capacity Added during</b>	<b>March., 2025</b>		<b>759.99 MW</b>						
1. NPCIL's Kakrapar Atomic Power Project Unit-4 of 700 MW has been commissioned on 31.03.2024..										
<b>B.</b>	<b>Capacity Retired during</b>	<b>March., 2025</b>		<b>655 MW</b>						
<b>C.</b>	<b>Net Conv. Capacity Added during</b>	<b>March., 2025</b>	<b>A-B</b>	<b>104.99 MW</b>						
<b>D.</b>	<b>Net RES Capacity Added during</b>	<b>March., 2025</b>		<b>4658.65 MW</b>						
<b>E.</b>	<b>Net Capacity Added during</b>	<b>March., 2025</b>	<b>C+D</b>	<b>4763.64 MW</b>						
<b>*</b>	Off-grid RES Capacity has been included from July-2021 onwards									

	Sector wise breakup of RES capacity as shown is provisional.					
	Allocation from central sector stations has been updated till 31.03.2025.					
	Share from private sector generating stations has been updated as per latest information available.					
	NHPC's Parbati-II HPS Unit-1 (200MW), Unit-2 (200 MW) and Unit-3 (200 MW) have been commissioned on 28.03.2025, 24.03.2025 and 26.03.2025 respectively.					
	BVPCL's UHL-III HPS Unit-1 (33.33 MW), Unit-2 (33.33 MW) and Unit-3 (33.33 MW) have been commissioned on 8.02.2025, 05.03.2025 and 03.03.2025 respectively.					
	KSEB's PALLIVASAL EXTN HPS Unit-1 (30 MW) and Unit-2 (30 MW) have been commissioned on 24.12.2024.					
	Apraava Energy Private Ltd's Paguthan CCPP - 655 MW - unit no. 1 to 4 (3*135+1*250 MW) has been retired w.e.f. 27.03.2025					

**INSTALLED CAPACITY (IN MW) OF POWER UTILITIES IN THE STATES/UTS LOCATED IN NORTHERN REGION**

**INCLUDING ALLOCATED SHARES IN JOINT & CENTRAL SECTOR UTILITIES**

											(As on 31.03.2025)
State	Ownership/ Sector	Mode wise breakup									Grand Total
		Thermal					Nuclear	Renewable			
		Coal	Lignite	Gas	Diesel	Total		Hydro	RES*(MNRE)	Total	
Delhi	State	0.00	0.00	1800.40	0.00	1800.40	0.00	0.00	0.00	0.00	1800.40
	Private	878.22	0.00	108.00	0.00	986.22	0.00	0.00	397.40	397.40	1383.62
	Central	2771.27	0.00	207.01	0.00	2978.29	102.83	752.34	0.00	752.34	3833.46
	<b>Sub-Total</b>	<b>3649.49</b>	<b>0.00</b>	<b>2115.41</b>	<b>0.00</b>	<b>5764.91</b>	<b>102.83</b>	<b>752.34</b>	<b>397.40</b>	<b>1149.74</b>	<b>7017.48</b>
Haryana	State	2510.00	0.00	150.00	0.00	2660.00	0.00	200.00	69.30	269.30	2929.30
	Private	4561.78	0.00	0.00	0.00	4561.78	0.00	539.00	2375.64	2914.64	7476.42
	Central	1566.60	0.00	431.59	0.00	1998.19	100.94	1643.48	5.00	1648.48	3747.61
	<b>Sub-Total</b>	<b>8638.38</b>	<b>0.00</b>	<b>581.59</b>	<b>0.00</b>	<b>9219.97</b>	<b>100.94</b>	<b>2382.48</b>	<b>2449.94</b>	<b>4832.42</b>	<b>14153.33</b>
Himachal Pradesh	State	0.00	0.00	0.00	0.00	0.00	0.00	905.59	287.61	1193.20	1193.20
	Private	0.00	0.00	0.00	0.00	0.00	0.00	1219.40	927.56	2146.96	2146.96
	Central	144.67	0.00	0.00	0.00	144.67	28.95	1312.38	0.00	1312.38	1486.00
	<b>Sub-Total</b>	<b>144.67</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>144.67</b>	<b>28.95</b>	<b>3437.37</b>	<b>1215.17</b>	<b>4652.54</b>	<b>4826.16</b>
Jammu & Kashmir and	State	0.00	0.00	175.00	0.00	175.00	0.00	1230.00	171.47	1401.47	1576.47
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	146.54	146.54	146.54
	Central	577.14	0.00	129.07	0.00	706.22	67.98	1109.88	0.00	1109.88	1884.08

<b>Ladakh</b>	<b>Sub-Total</b>	<b>577.14</b>	<b>0.00</b>	<b>304.07</b>	<b>0.00</b>	<b>881.22</b>	<b>67.98</b>	<b>2339.88</b>	<b>318.01</b>	<b>2657.89</b>	<b>3607.09</b>
<b>Punjab</b>	State	2300.00	0.00	150.00	0.00	2450.00	0.00	1243.40	127.80	1371.20	3821.20
	Private	4474.00	0.00	0.00	0.00	4474.00	0.00	288.00	2046.32	2334.32	6808.32
	Central	1440.00	0.00	0.00	0.00	1440.00	196.81	2296.04	0.00	2296.04	3932.85
	<b>Sub-Total</b>	<b>8214.00</b>	<b>0.00</b>	<b>150.00</b>	<b>0.00</b>	<b>8364.00</b>	<b>196.81</b>	<b>3827.44</b>	<b>2174.12</b>	<b>6001.56</b>	<b>14562.37</b>
<b>Rajasthan</b>	State	7580.00	250.00	603.50	0.00	8433.50	0.00	433.00	23.85	456.85	8890.35
	Private	3257.00	1080.00	0.00	0.00	4337.00	0.00	104.00	33357.49	33461.49	37798.49
	Central	1786.70	250.00	171.13	0.00	2207.82	556.74	1490.92	344.00	1834.92	4599.48
	<b>Sub-Total</b>	<b>12623.70</b>	<b>1580.00</b>	<b>774.63</b>	<b>0.00</b>	<b>14978.32</b>	<b>556.74</b>	<b>2027.92</b>	<b>33725.34</b>	<b>35753.26</b>	<b>51288.32</b>
<b>Uttar Pradesh</b>	State	8455.00	0.00	0.00	0.00	8455.00	0.00	724.10	49.10	773.20	9228.20
	Private	8814.33	0.00	0.00	0.00	8814.33	0.00	842.40	5643.21	6485.61	15299.94
	Central	5965.44	0.00	1029.51	0.00	6994.95	289.48	1977.52	30.00	2007.52	9291.94
	<b>Sub-Total</b>	<b>23234.77</b>	<b>0.00</b>	<b>1029.51</b>	<b>0.00</b>	<b>24264.28</b>	<b>289.48</b>	<b>3544.02</b>	<b>5722.31</b>	<b>9266.33</b>	<b>33820.08</b>
<b>Uttarakhand</b>	State	0.00	0.00	0.00	0.00	0.00	0.00	1372.15	87.37	1459.52	1459.52
	Private	99.00	0.00	664.00	0.00	763.00	0.00	248.20	888.05	1136.25	1899.25
	Central	528.84	0.00	69.66	0.00	598.50	31.24	549.04	0.00	549.04	1178.78
	<b>Sub-Total</b>	<b>627.84</b>	<b>0.00</b>	<b>733.66</b>	<b>0.00</b>	<b>1361.50</b>	<b>31.24</b>	<b>2169.39</b>	<b>975.42</b>	<b>3144.81</b>	<b>4537.55</b>
<b>Chandigarh</b>	State	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	78.85	78.85	78.85
	Central	44.83	0.00	15.03	0.00	59.86	8.01	103.21	0.00	103.21	171.07
	<b>Sub-Total</b>	<b>44.83</b>	<b>0.00</b>	<b>15.03</b>	<b>0.00</b>	<b>59.86</b>	<b>8.01</b>	<b>103.21</b>	<b>78.85</b>	<b>182.06</b>	<b>249.92</b>
<b>Central - Unallocated</b>			1543.13	0.00	291.05	0.00	1834.18	237.03	841.45	0.00	841.45
<b>Total (Northern Region)</b>	State	20845.00	250.00	2878.90	0.00	23973.90	0.00	6108.24	816.50	6924.74	30898.64
	Private	22084.33	1080.00	772.00	0.00	23936.33	0.00	3241.00	45861.06	49102.06	73038.39
	Central	16368.62	250.00	2344.06	0.00	18962.68	1620.00	12076.26	379.00	12455.26	33037.94
	<b>Grand Total</b>	<b>59297.95</b>	<b>1580.00</b>	<b>5994.96</b>	<b>0.00</b>	<b>66872.91</b>	<b>1620.00</b>	<b>21425.50</b>	<b>47056.56</b>	<b>68482.06</b>	<b>136974.97</b>

**INSTALLED CAPACITY (IN MW) OF POWER UTILITIES IN THE STATES/UTS LOCATED IN WESTERN REGION**

**INCLUDING ALLOCATED SHARES IN JOINT & CENTRAL SECTOR UTILITIES**

(As on 31.03.2025)											
State	Ownership/ Sector	Mode wise breakup									Grand Total
		Thermal					Nuclear	Renewable			
		Coal	Lignite	Gas	Diesel	Total		Hydro	RES*(MNRE)	Total	
Goa	State	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05
	Private	0.00	0.00	48.00	0.00	48.00	0.00	0.00	58.38	58.38	106.38
	Central	492.29	0.00	19.67	0.00	511.96	41.68	2.00	0.00	2.00	555.64
	<b>Sub-Total</b>	<b>492.29</b>	<b>0.00</b>	<b>67.67</b>	<b>0.00</b>	<b>559.96</b>	<b>41.68</b>	<b>2.00</b>	<b>58.43</b>	<b>60.43</b>	<b>662.07</b>
Gujarat	State	4510.00	900.00	2177.82	0.00	7587.82	0.00	772.00	110.04	882.04	8469.86
	Private	7144.67	500.00	3330.00	0.00	10974.67	0.00	0.00	31049.69	31049.69	42024.36
	Central	5504.44	0.00	424.00	0.00	5928.44	1034.89	0.00	243.30	243.30	7206.63
	<b>Sub-Total</b>	<b>17159.11</b>	<b>1400.00</b>	<b>5931.82</b>	<b>0.00</b>	<b>24490.93</b>	<b>1034.89</b>	<b>772.00</b>	<b>31403.03</b>	<b>32175.03</b>	<b>57700.85</b>
Madhya Pradesh	State	5400.00	0.00	0.00	0.00	5400.00	0.00	1703.66	107.96	1811.62	7211.62
	Private	5744.00	0.00	75.00	0.00	5819.00	0.00	0.00	8184.74	8184.74	14003.74
	Central	4818.59	0.00	257.00	0.00	5075.59	491.98	1520.00	300.00	1820.00	7387.57
	<b>Sub-Total</b>	<b>15962.59</b>	<b>0.00</b>	<b>332.00</b>	<b>0.00</b>	<b>16294.59</b>	<b>491.98</b>	<b>3223.66</b>	<b>8592.70</b>	<b>11816.36</b>	<b>28602.93</b>
Chhattisgarh	State	1840.00	0.00	0.00	0.00	1840.00	0.00	120.00	11.05	131.05	1971.05
	Private	7667.50	0.00	0.00	0.00	7667.50	0.00	0.00	1697.41	1697.41	9364.91
	Central	2714.35	0.00	0.00	0.00	2714.35	135.57	143.75	0.00	143.75	2993.67
	<b>Sub-Total</b>	<b>12221.85</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>12221.85</b>	<b>135.57</b>	<b>263.75</b>	<b>1708.46</b>	<b>1972.21</b>	<b>14329.63</b>
Maharashtra	State	10200.00	0.00	672.00	0.00	10872.00	0.00	2850.84	390.13	3240.97	14112.97
	Private	11006.00	0.00	568.00	0.00	11574.00	0.00	481.00	18841.33	19322.33	30896.33
	Central	4858.29	0.00	2272.73	0.00	7131.02	1068.66	0.00	123.00	123.00	8322.68
	<b>Sub-Total</b>	<b>26064.29</b>	<b>0.00</b>	<b>3512.73</b>	<b>0.00</b>	<b>29577.02</b>	<b>1068.66</b>	<b>3331.84</b>	<b>19354.46</b>	<b>22686.30</b>	<b>53331.98</b>
Dadra and Nagar Haveli and Daman and Diu	State	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Private	200.00	0.00	0.00	0.00	200.00	0.00	0.00	51.87	51.87	251.87
	Central	387.07	0.00	109.68	0.00	496.75	29.22	0.00	0.00	0.00	525.97
	<b>Sub-Total</b>	<b>587.07</b>	<b>0.00</b>	<b>109.68</b>	<b>0.00</b>	<b>696.75</b>	<b>29.22</b>	<b>0.00</b>	<b>51.87</b>	<b>51.87</b>	<b>777.84</b>
<b>Central - Unallocated</b>			2835.45	0.00	197.59	0.00	3033.04	438.00	0.00	0.00	0.00
<b>Total (Western Region)</b>	State	21950.00	900.00	2849.82	0.00	25699.82	0.00	5446.50	619.23	6065.73	31765.55
	Private	31762.17	500.00	4021.00	0.00	36283.17	0.00	481.00	59883.42	60364.42	96647.59
	Central	21610.47	0.00	3280.67	0.00	24891.14	3240.00	1665.75	666.30	2332.05	30463.19

	<b>Grand Total</b>	<b>75322.64</b>	<b>1400.00</b>	<b>10151.49</b>	<b>0.00</b>	<b>86874.13</b>	<b>3240.00</b>	<b>7593.25</b>	<b>61168.95</b>	<b>68762.20</b>	<b>158876.33</b>

**INSTALLED CAPACITY (IN MW) OF POWER UTILITIES IN THE STATES/UTS LOCATED IN SOUTHERN REGION**

**INCLUDING ALLOCATED SHARES IN JOINT & CENTRAL SECTOR UTILITIES**

(As on 31.03.2025)											
State	Ownership/ Sector	Mode wise breakup									Grand Total
		Thermal					Nuclear	Renewable			
		Coal	Lignite	Gas	Diesel	Total		Hydro	RES*(MNRE)	Total	
<b>Andhra Pradesh</b>	State	6610.00	0.00	235.40	0.00	6845.40	0.00	1673.60	57.38	1730.98	8576.38
	Private	3873.88	0.00	3611.32	36.80	7522.00	0.00	0.00	10197.10	10197.10	17719.11
	Central	1546.95	189.34	0.00	0.00	1736.29	127.27	0.00	250.00	250.00	2113.56
	<b>Sub-Total</b>	<b>12030.83</b>	<b>189.34</b>	<b>3846.72</b>	<b>36.80</b>	<b>16103.69</b>	<b>127.27</b>	<b>1673.60</b>	<b>10504.48</b>	<b>12178.08</b>	<b>28409.04</b>
<b>Telangana</b>	State	7042.50	0.00	0.00	0.00	7042.50	0.00	2479.93	41.22	2521.15	9563.65
	Private	1389.45	0.00	831.82	0.00	2221.27	0.00	0.00	5231.52	5231.52	7452.79
	Central	3166.85	61.30	0.00	0.00	3228.15	148.73	0.00	10.00	10.00	3386.88
	<b>Sub-Total</b>	<b>11598.80</b>	<b>61.30</b>	<b>831.82</b>	<b>0.00</b>	<b>12491.92</b>	<b>148.73</b>	<b>2479.93</b>	<b>5282.74</b>	<b>7762.67</b>	<b>20403.32</b>
<b>Karnataka</b>	State	5020.00	0.00	370.05	0.00	5390.05	0.00	3631.60	197.89	3829.49	9219.54
	Private	2050.00	0.00	0.00	25.20	2075.20	0.00	0.00	20030.56	20030.56	22105.76
	Central	2877.80	486.42	0.00	0.00	3364.22	698.00	0.00	0.00	0.00	4062.22
	<b>Sub-Total</b>	<b>9947.80</b>	<b>486.42</b>	<b>370.05</b>	<b>25.20</b>	<b>10829.47</b>	<b>698.00</b>	<b>3631.60</b>	<b>20228.44</b>	<b>23860.04</b>	<b>35387.51</b>
<b>Kerala</b>	State	0.00	0.00	0.00	159.96	159.96	0.00	1964.15	217.90	2182.05	2342.01
	Private	832.50	0.00	174.00	0.00	1006.50	0.00	0.00	1621.33	1621.33	2627.83
	Central	1403.32	325.33	359.58	0.00	2088.23	362.00	0.00	50.00	50.00	2500.23
	<b>Sub-Total</b>	<b>2235.82</b>	<b>325.33</b>	<b>533.58</b>	<b>159.96</b>	<b>3254.69</b>	<b>362.00</b>	<b>1964.15</b>	<b>1889.23</b>	<b>3853.38</b>	<b>7470.07</b>
<b>Tamil Nadu</b>	State	4320.00	0.00	524.08	0.00	4844.08	0.00	2178.20	122.70	2300.90	7144.98
	Private	5490.17	250.00	503.10	211.70	6454.97	0.00	0.00	22757.87	22757.87	29212.84
	Central	3025.32	1709.16	0.00	0.00	4734.48	1448.00	0.00	231.90	231.90	6414.38
	<b>Sub-Total</b>	<b>12835.49</b>	<b>1959.16</b>	<b>1027.18</b>	<b>211.70</b>	<b>16033.53</b>	<b>1448.00</b>	<b>2178.20</b>	<b>23112.47</b>	<b>25290.67</b>	<b>42772.20</b>
<b>NLC</b>	State	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Central	0.00	66.00	0.00	0.00	66.00	0.00	0.00	0.00	0.00	66.00
	<b>Sub-Total</b>	<b>0.00</b>	<b>66.00</b>	<b>0.00</b>	<b>0.00</b>	<b>66.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>66.00</b>
<b>Puducher ry</b>	State	0.00	0.00	32.50	0.00	32.50	0.00	0.00	0.00	0.00	32.50
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	54.51	54.51	54.51
	Central	140.80	118.35	0.00	0.00	259.15	86.00	0.00	0.00	0.00	345.15
	<b>Sub-Total</b>	<b>140.80</b>	<b>118.35</b>	<b>32.50</b>	<b>0.00</b>	<b>291.65</b>	<b>86.00</b>	<b>0.00</b>	<b>54.51</b>	<b>54.51</b>	<b>432.16</b>
<b>Central - Unallocated</b>			1666.00	434.10	0.00	0.00	2100.10	450.00	0.00	0.00	0.00
<b>Total (Southern Region)</b>	State	22992.50	0.00	1162.03	159.96	24314.49	0.00	11927.48	637.08	12564.56	36879.05
	Private	13636.00	250.00	5120.24	273.70	19279.95	0.00	0.00	59892.89	59892.89	79172.84
	Central	13827.04	3390.00	359.58	0.00	17576.62	3320.00	0.00	541.90	541.90	21438.52
	<b>Grand Total</b>	<b>50455.54</b>	<b>3640.00</b>	<b>6641.85</b>	<b>433.66</b>	<b>61171.05</b>	<b>3320.00</b>	<b>11927.48</b>	<b>61071.87</b>	<b>72999.35</b>	<b>137490.40</b>

**INSTALLED CAPACITY (IN MW) OF POWER UTILITIES IN THE STATES/UTS LOCATED IN EASTERN REGION**

**INCLUDING ALLOCATED SHARES IN JOINT & CENTRAL SECTOR UTILITIES**

(As on 31.03.2025)											
State	Ownership/ Sector	Mode wise breakup									Grand Total
		Thermal					Nuclear	Renewable			
		Coal	Lignite	Gas	Diesel	Total		Hydro	RES*(MNRE)	Total	
<b>Bihar</b>	State	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.70	70.70	70.70
	Private	700.00	0.00	0.00	0.00	700.00	0.00	0.00	468.56	468.56	1168.56
	Central	6583.11	0.00	0.00	0.00	6583.11	0.00	72.88	0.00	72.88	6655.99
	<b>Sub-Total</b>	<b>7283.11</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>7283.11</b>	<b>0.00</b>	<b>72.88</b>	<b>539.26</b>	<b>612.14</b>	<b>7895.25</b>
<b>Jharkhand</b>	State	420.00	0.00	0.00	0.00	420.00	0.00	130.00	4.05	134.05	554.05
	Private	580.00	0.00	0.00	0.00	580.00	0.00	0.00	220.01	220.01	800.01
	Central	1607.31	0.00	0.00	0.00	1607.31	0.00	46.98	0.00	46.98	1654.29
	<b>Sub-Total</b>	<b>2607.31</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>2607.31</b>	<b>0.00</b>	<b>176.98</b>	<b>224.06</b>	<b>401.04</b>	<b>3008.35</b>
<b>West Bengal</b>	State	4810.00	0.00	80.00	0.00	4890.00	0.00	986.00	121.95	1107.95	5997.95
	Private	2437.00	0.00	0.00	0.00	2437.00	0.00	0.00	649.03	649.03	3086.03

	Central	1436.34	0.00	0.00	0.00	1436.34	0.00	480.05	0.00	480.05	1916.39
	<b>Sub-Total</b>	<b>8683.34</b>	<b>0.00</b>	<b>80.00</b>	<b>0.00</b>	<b>8763.34</b>	<b>0.00</b>	<b>1466.05</b>	<b>770.98</b>	<b>2237.03</b>	<b>11000.37</b>
<b>DVC</b>	State	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Private	150.00	0.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	150.00
	Central	2887.02	0.00	0.00	0.00	2887.02	0.00	214.01	0.00	214.01	3101.03
	<b>Sub-Total</b>	<b>3037.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>3037.02</b>	<b>0.00</b>	<b>214.01</b>	<b>0.00</b>	<b>214.01</b>	<b>3251.03</b>
<b>Odisha</b>	State	1740.00	0.00	0.00	0.00	1740.00	0.00	2074.22	26.30	2100.52	3840.52
	Private	1746.00	0.00	0.00	0.00	1746.00	0.00	0.00	767.99	767.99	2513.99
	Central	1865.21	0.00	0.00	0.00	1865.21	0.00	105.01	10.00	115.01	1980.22
	<b>Sub-Total</b>	<b>5351.21</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>5351.21</b>	<b>0.00</b>	<b>2179.23</b>	<b>804.29</b>	<b>2983.52</b>	<b>8334.73</b>
<b>Sikkim</b>	State	0.00	0.00	0.00	0.00	0.00	0.00	360.00	55.11	415.11	415.11
	Private	0.00	0.00	0.00	0.00	0.00	0.00	209.00	7.56	216.56	216.56
	Central	76.54	0.00	0.00	0.00	76.54	0.00	74.27	0.00	74.27	150.81
	<b>Sub-Total</b>	<b>76.54</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>76.54</b>	<b>0.00</b>	<b>643.27</b>	<b>62.67</b>	<b>705.94</b>	<b>782.48</b>
<b>Central - Unallocated</b>			1836.33	0.00	0.00	0.00	1836.33	0.00	85.50	0.00	85.50
<b>Total (Eastern Region)</b>	State	6970.00	0.00	80.00	0.00	7050.00	0.00	3550.22	278.11	3828.33	10878.33
	Private	5613.00	0.00	0.00	0.00	5613.00	0.00	209.00	2113.15	2322.15	7935.15
	Central	16291.86	0.00	0.00	0.00	16291.86	0.00	1078.70	10.00	1088.70	17380.56
	<b>Grand Total</b>	<b>28874.86</b>	<b>0.00</b>	<b>80.00</b>	<b>0.00</b>	<b>28954.86</b>	<b>0.00</b>	<b>4837.92</b>	<b>2401.26</b>	<b>7239.18</b>	<b>36194.04</b>

**INSTALLED CAPACITY (IN MW) OF POWER UTILITIES IN THE STATES/UTS LOCATED IN NORTH-EASTERN REGION**

**INCLUDING ALLOCATED SHARES IN JOINT & CENTRAL SECTOR UTILITIES**

(As on 31.03.2025)											
State	Ownership/ Sector	Mode wise breakup									Grand Total
		Thermal					Nuclear	Renewable			
		Coal	Lignite	Gas	Diesel	Total		Hydro	RES*(MNRE )	Total	
<b>Assam</b>	State	0.00	0.00	306.36	0.00	306.36	0.00	100.00	5.01	105.01	411.37
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	202.64	202.64	202.64

	Central	874.52	0.00	435.56	0.00	1310.08	0.00	422.08	25.00	447.08	1757.16
	<b>Sub-Total</b>	<b>874.52</b>	<b>0.00</b>	<b>741.92</b>	<b>0.00</b>	<b>1616.44</b>	<b>0.00</b>	<b>522.08</b>	<b>232.65</b>	<b>754.73</b>	<b>2371.17</b>
<b>Arunachal Pradesh</b>	State	0.00	0.00	0.00	0.00	0.00	0.00	0.00	116.61	116.61	116.61
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.85	38.85	38.85
	Central	37.05	0.00	46.82	0.00	83.87	0.00	544.55	0.00	544.55	628.42
	<b>Sub-Total</b>	<b>37.05</b>	<b>0.00</b>	<b>46.82</b>	<b>0.00</b>	<b>83.87</b>	<b>0.00</b>	<b>544.55</b>	<b>155.46</b>	<b>700.01</b>	<b>783.88</b>
<b>Meghalaya</b>	State	0.00	0.00	0.00	0.00	0.00	0.00	322.00	55.03	377.03	377.03
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.08	18.08	18.08
	Central	51.60	0.00	109.69	0.00	161.29	0.00	95.38	0.00	95.38	256.67
	<b>Sub-Total</b>	<b>51.60</b>	<b>0.00</b>	<b>109.69</b>	<b>0.00</b>	<b>161.29</b>	<b>0.00</b>	<b>417.38</b>	<b>73.11</b>	<b>490.49</b>	<b>651.78</b>
<b>Tripura</b>	State	0.00	0.00	105.00	0.00	105.00	0.00	0.00	16.01	16.01	121.01
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.24	16.24	16.24
	Central	56.00	0.00	381.94	0.00	437.94	0.00	68.49	5.00	73.49	511.43
	<b>Sub-Total</b>	<b>56.00</b>	<b>0.00</b>	<b>486.94</b>	<b>0.00</b>	<b>542.94</b>	<b>0.00</b>	<b>68.49</b>	<b>37.25</b>	<b>105.74</b>	<b>648.68</b>
<b>Manipur</b>	State	0.00	0.00	0.00	36.00	36.00	0.00	0.00	5.45	5.45	41.45
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.79	13.79	13.79
	Central	47.10	0.00	81.58	0.00	128.68	0.00	87.24	0.00	87.24	215.92
	<b>Sub-Total</b>	<b>47.10</b>	<b>0.00</b>	<b>81.58</b>	<b>36.00</b>	<b>164.68</b>	<b>0.00</b>	<b>87.24</b>	<b>19.24</b>	<b>106.48</b>	<b>271.16</b>
<b>Nagaland</b>	State	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.67	32.67	32.67
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.17	3.17	3.17
	Central	32.10	0.00	73.93	0.00	106.03	0.00	66.33	0.00	66.33	172.36
	<b>Sub-Total</b>	<b>32.10</b>	<b>0.00</b>	<b>73.93</b>	<b>0.00</b>	<b>106.03</b>	<b>0.00</b>	<b>66.33</b>	<b>35.84</b>	<b>102.17</b>	<b>208.20</b>
<b>Mizoram</b>	State	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.47	45.47	45.47
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.39	30.39	30.39
	Central	31.05	0.00	60.46	0.00	91.51	0.00	97.94	0.00	97.94	189.45
	<b>Sub-Total</b>	<b>31.05</b>	<b>0.00</b>	<b>60.46</b>	<b>0.00</b>	<b>91.51</b>	<b>0.00</b>	<b>97.94</b>	<b>75.86</b>	<b>173.80</b>	<b>265.31</b>
<b>Central - Unallocated</b>				112.60	0.00	63.62	0.00	176.22	0.00	140.00	0.00
<b>Total (North-Eastern Region)</b>	State	0.00	0.00	411.36	36.00	447.36	0.00	422.00	276.25	698.25	1145.61
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	323.16	323.16	323.16
	Central	1242.02	0.00	1253.60	0.00	2495.62	0.00	1522.01	30.00	1552.01	4047.63
	<b>Grand Total</b>	<b>1242.02</b>	<b>0.00</b>	<b>1664.96</b>	<b>36.00</b>	<b>2942.98</b>	<b>0.00</b>	<b>1944.01</b>	<b>629.41</b>	<b>2573.42</b>	<b>5516.40</b>

**INSTALLED CAPACITY (IN MW) OF POWER UTILITIES IN THE STATES/UTS LOCATED IN ISLANDS**
**INCLUDING ALLOCATED SHARES IN JOINT & CENTRAL SECTOR UTILITIES**

(As on 31.03.2025)											
State	Ownership/ Sector	Mode wise breakup									Grand Total
		Thermal					Nuclear	Renewable			
		Coal	Lignite	Gas	Diesel	Total		Hydro	RES*(MNRE)	Total	
<b>Andaman &amp; Nicobar</b>	State	0.00	0.00	0.00	57.52	57.52	0.00	0.00	5.25	5.25	62.77
	Private	0.00	0.00	0.00	35.19	35.19	0.00	0.00	24.81	24.81	60.00
	Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.10	5.10	5.10
	<b>Sub-Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>92.71</b>	<b>92.71</b>	<b>0.00</b>	<b>0.00</b>	<b>35.16</b>	<b>35.16</b>	<b>127.87</b>
<b>Lakshadweep</b>	State	0.00	0.00	0.00	26.83	26.83	0.00	0.00	0.00	0.00	26.83
	Private	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.97	4.97	4.97
	Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Sub-Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>26.83</b>	<b>26.83</b>	<b>0.00</b>	<b>0.00</b>	<b>4.97</b>	<b>4.97</b>	<b>31.80</b>
<b>Total (Islands)</b>	State	0.00	0.00	0.00	84.35	84.35	0.00	0.00	5.25	5.25	89.60
	Private	0.00	0.00	0.00	35.19	35.19	0.00	0.00	29.78	29.78	64.97
	Central	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.10	5.10	5.10
	<b>Grand Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>119.54</b>	<b>119.54</b>	<b>0.00</b>	<b>0.00</b>	<b>40.13</b>	<b>40.13</b>	<b>159.67</b>

List of Projects commissioned during FY 2024-25:

1. MTPCL's Maadurga Thermal Power Company Ltd. Project Unit-1 of 30 MW has been commissioned on 19.08.2024.
2. MTPCL's Maadurga Thermal Power Company Ltd. Project Unit-2 of 30 MW has been commissioned on 23.09.2024.
3. KSEB's Thottiyar HEP Unit-1 of 10 MW has been commissioned on 10.07.2024.

4. KSEB's Thottiyar HEP Unit-2 of 30 MW has been commissioned on 30.09.2024.
5. NUPPL's Ghatampur TPP Unit-1 of 660 MW has been commissioned on 03.12.2024.
6. UPRVUNL's JAWAHARPUR STPP Unit-2 of 660 MW has been commissioned on 23.12.2024.
7. THDC's KHURJA STPP Unit-1 of 660 MW has been commissioned on 23.01.2025.
8. TSGENCO's YADADRI TPS Unit-2 of 800 MW has been commissioned on 25.01.2025.
9. MAHAGENCO's Bhusawal TPS Unit-6 of 660 MW has been commissioned on 21.02.2025.
10. UPRVUNL's Panki TPS Extn. Unit-1 of 660 MW has been commissioned on 25.02.2025.
11. KPCL's YELAHANKA CCPP of 370.05 MW has been commissioned on 10.01.2025.
12. NHPC's Parbati-II HPS Unit-1 (200MW), Unit-2 (200 MW) and Unit-3 (200 MW) have been commissioned on 28.03.2025, 24.03.2025 and 26.03.2025 respectively.
13. BVPCL's UHL-III HPS Unit-1 (33.33 MW), Unit-2 (33.33 MW) and Unit-3 (33.33 MW) have been commissioned on 28.02.2025, 05.03.2025 and 03.03.2025 respectively.
14. KSEB's PALLIVASAL EXTN HPS Unit-1 (30 MW) and Unit-2 (30 MW) have been commissioned on 24.12.2024.