वार्षिक प्रशासनिक रिपोर्ट

Annual Administrative Report

2022-23

भारत सरकार

विद्युत मंत्रालय

केंद्रीय विद्युत प्राधिकरण

पूर्वी क्षेत्रीय विद्युत समिति

कोलकाता

GOVT. OF INDIA

MINISTRY OF POWER

CENTRAL ELECTRICITY AUTHORITY

EASTERN REGIONAL POWER COMMITTEE

KOLKATA, JANUARY-2024

Index

Annexure

Exhibits

HIGHLIGHTS

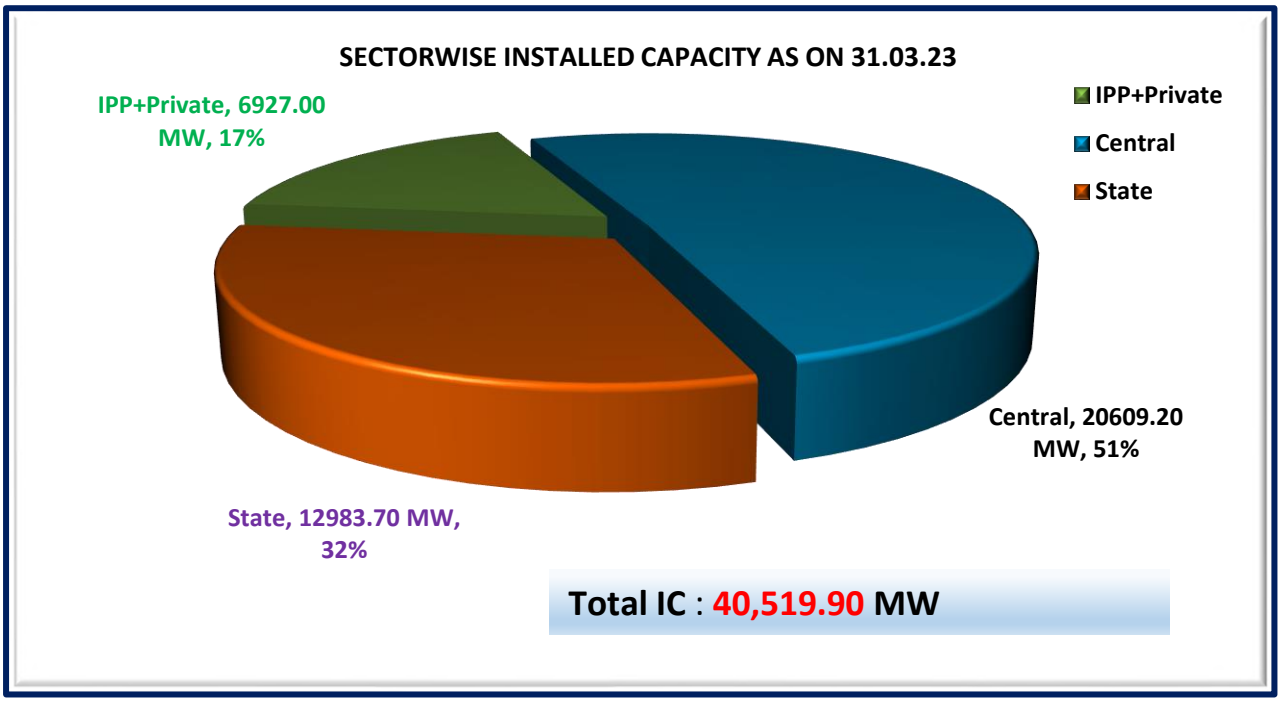
Salient Features of ER Grid during 2022-23 vis-a vis 2021-22

As on 31.03.2023

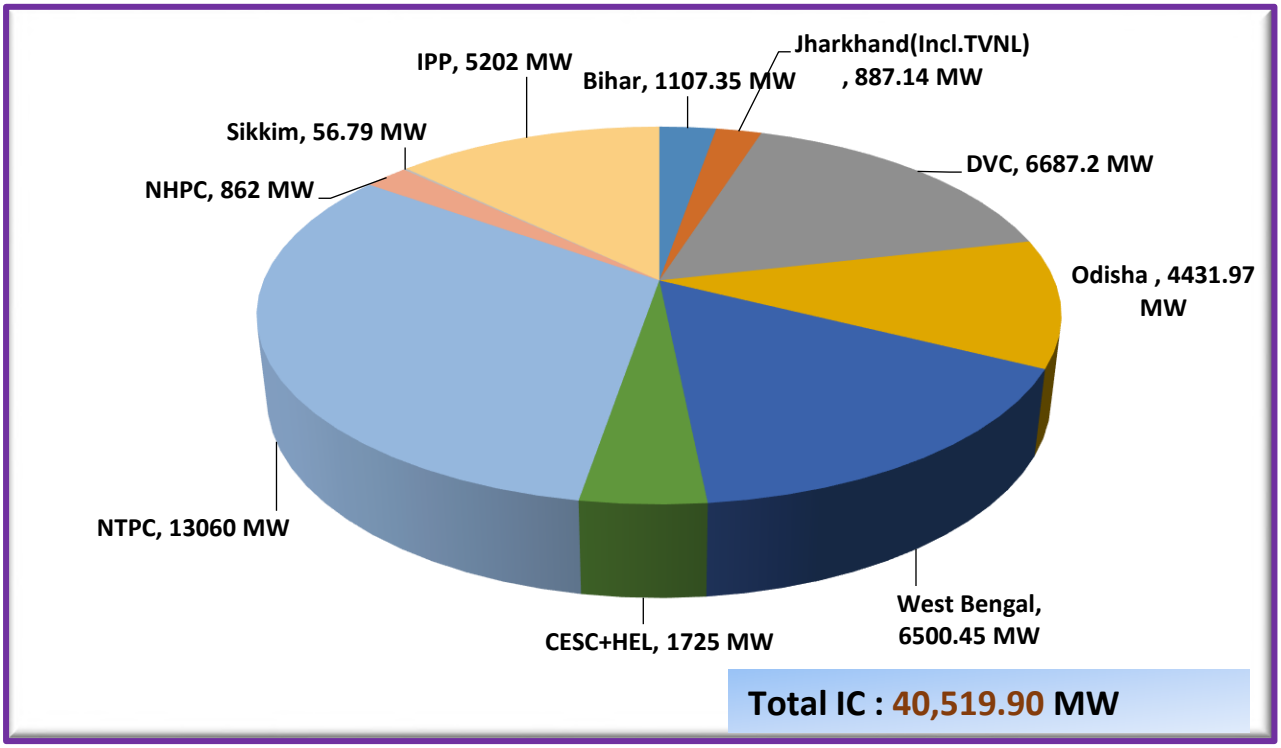
Installed Capacity	2021-22	2022-23
Thermal	32253 MW	32785 MW
Hydro	6002 MW	5990 MW
Solar	1745 MW	1745 MW
Capacity addition (Thermal) During 2022-23	2620 MW	660 MW
Capacity addition (Hydro) During 2022-23	113 MW	0 MW
Capacity retired (Thermal) During 2022-23	1370 MW	230 MW
Total Installed Capacity (Thermal + Hydro + Solar)	**40000MW**	**40520 MW**
Total Effective Capacity (Thermal + Hydro + Solar)	**39842 MW**	**37733 MW**
Demand		
Monthly Peak Demand Met (Max. on 17.08.2022 at 23:00 Hrs)	**25145 MW**	**27218 MW**
Increase Over Previous Year	4.70 %	8.20%
Monthly Peak Demand Met (Min. on 29.12.2022 at 19:00 Hrs)	**20631 MW**	**20720 MW**
ER System Load Factor (Average demand/ Peak demand) (%)	**74.5%**	**76.4%**
Energy Requirement	165200MU	182791 MU
Energy Generation (Gross) (incl. Bhutan Imp, Excl. CPP)	**222355.5MU**	**244533.6MU**
Increase over previous year	12.28 %	9.97%
Net Energy Met (incl. HVDC S/S Drawl)	**164089MU**	**182109MU**
Frequency Regime		
% Time frequency remained Below 49.9 Hz	7.52%	11.20%
% Time frequency remained within IEGC Band (**49.9-50.05 Hz**)	**75.05%**	**69.74%**

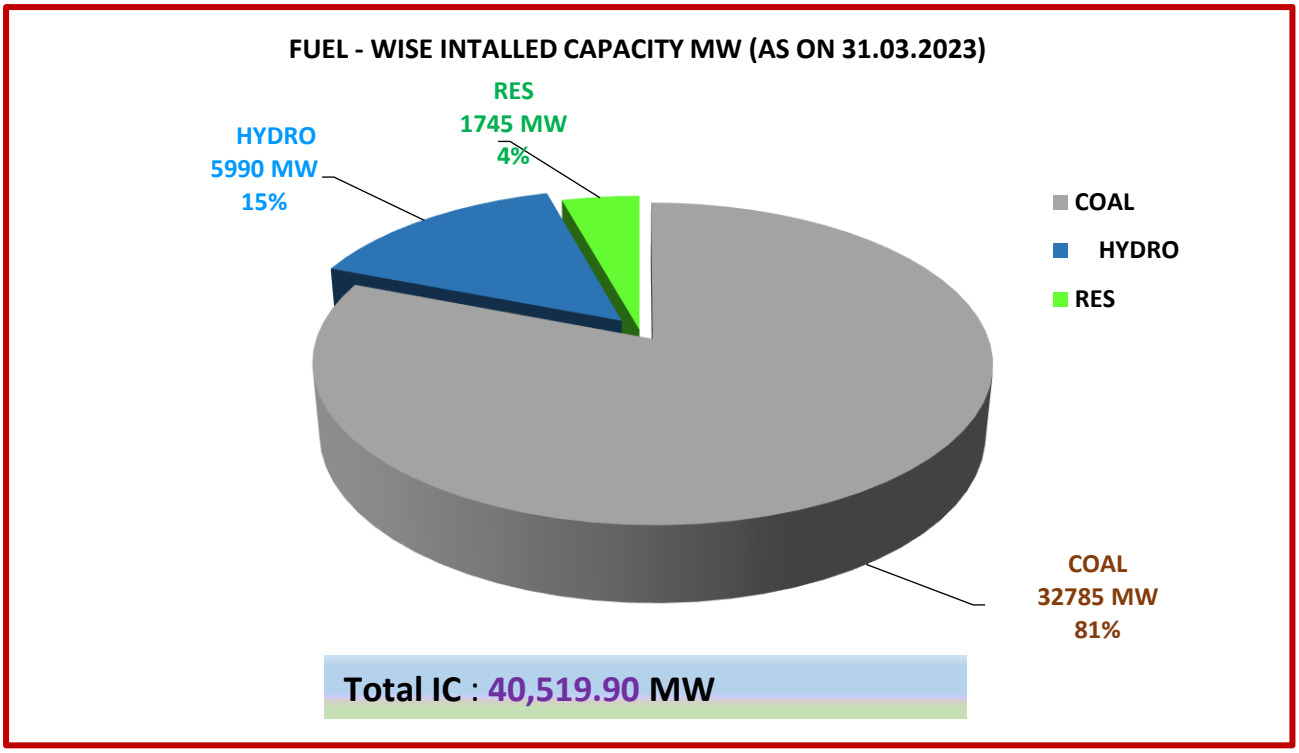
Frequency Regime	2021-22	2022-23
% Time frequency remained above 50.05 Hz	17.43	19.06
Minimum Frequency (Recorded at 18:30 hrs on 25.12.2022)	49.5 Hz	49.41 Hz
Maximum Frequency (Recorded at 06:08 hrs on 26.12.2022)	50.34 Hz	50.55 Hz
Inter-regional/Outside Country exchange (MU)		
Net Energy Export to WR	-2468.20	-659.59
Net Energy Export to SR	19782.50	18621.84
Net Energy Export to NR	29559.00	32164.39
Net Energy Export to NER	1565.00	75.44
Net Energy Export to Bangladesh	6478.00	7547.71
Net Energy Export to Nepal	1047.00	-166.08
Total Net regional Export (incl Bhutan drawl of 266.3 MU)	**55963.30**	**57583.71**

INSTALLED CAPACITY IN EASTERN REGION AS ON 31.03.2023

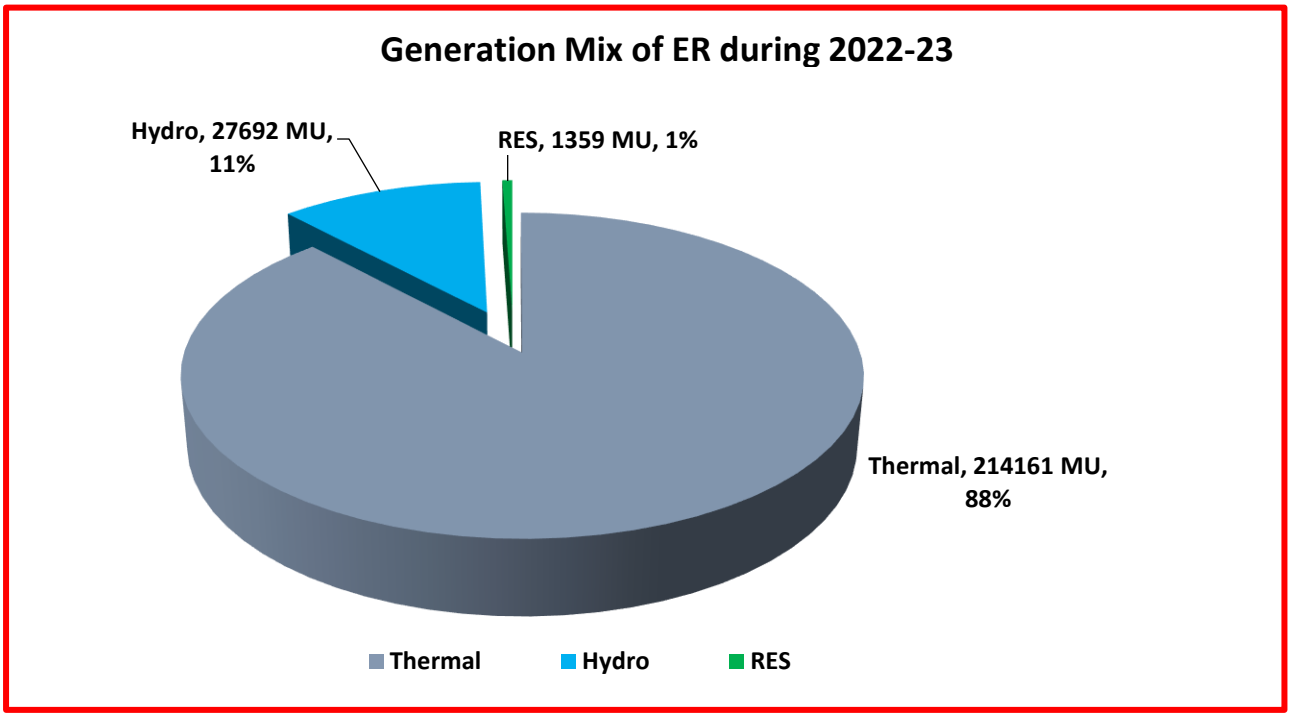


CONTITUENT WISE INSTALLED CAPACITY (MW) AS ON 31.03.2023

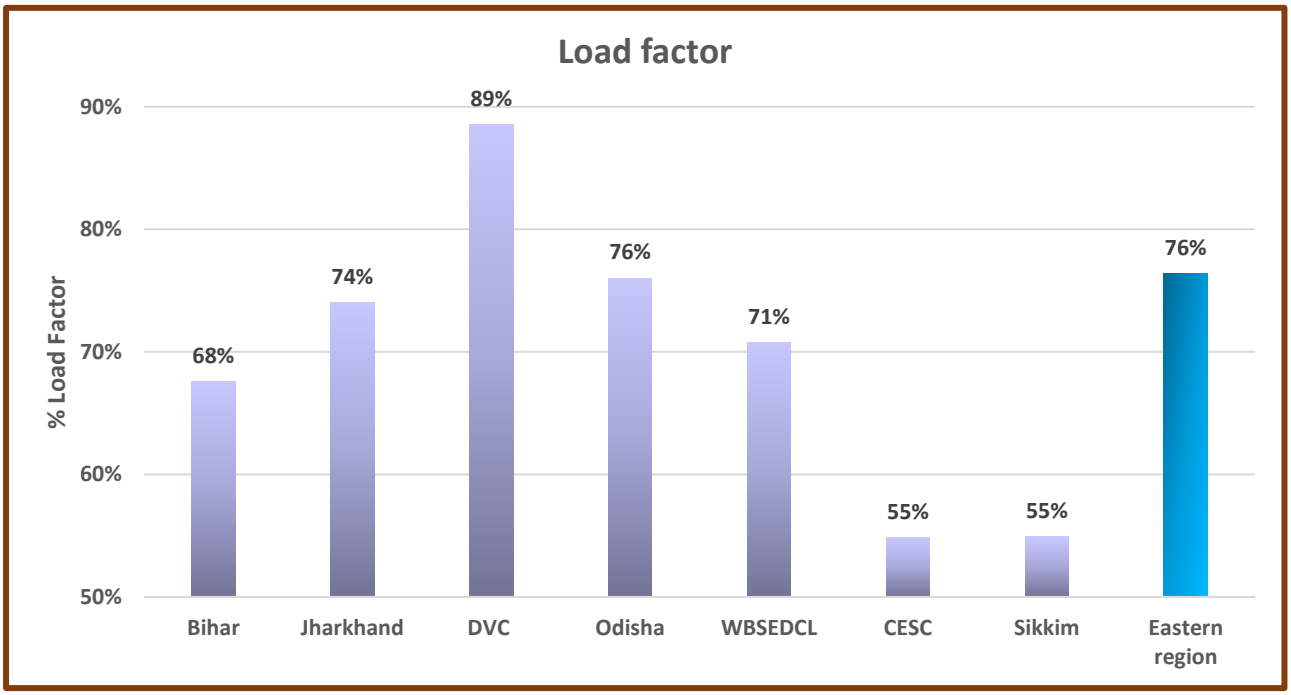




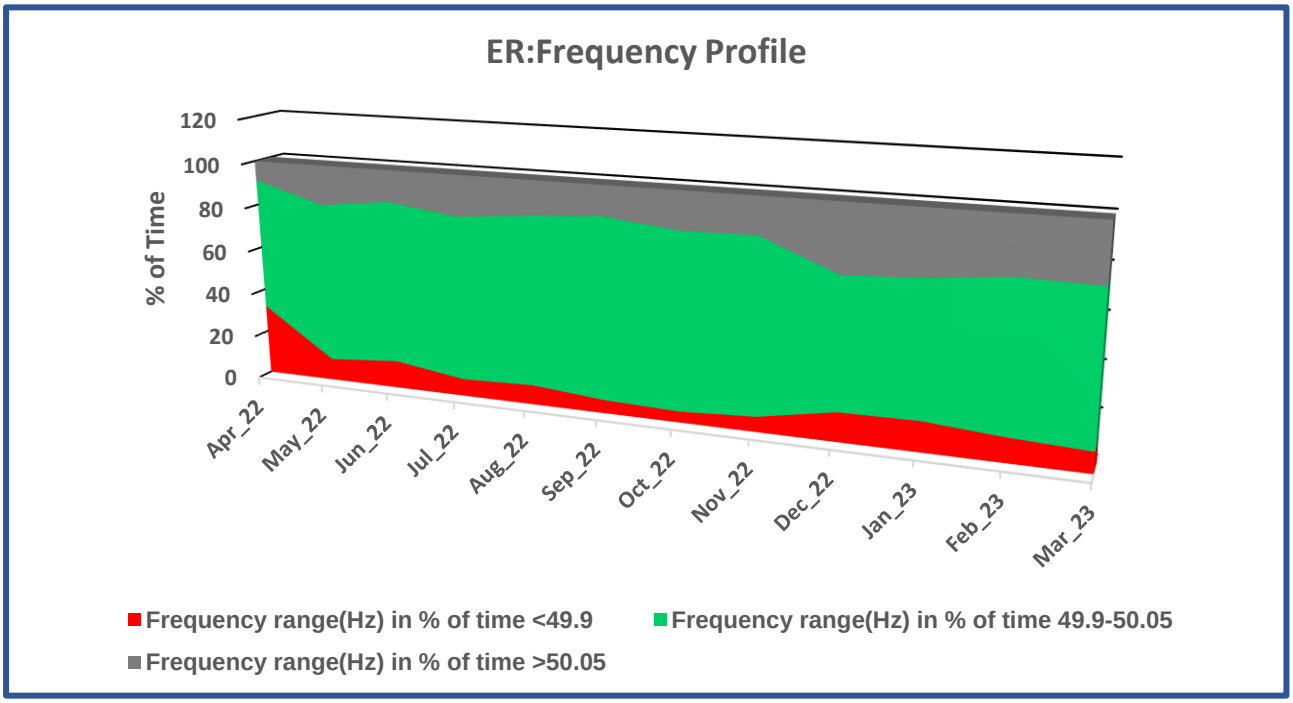
Generation Mix of Eastern Region during 2022-23



Annual Load Factor of the Constituents in Eaastern Region during year 2022-23



Eastern Grid Frequency Regime during the Year 2022-23



 # ER grid frequency profile is detailed at Annexure-IX

CHAPTER-1

CONSTITUTION, FUNCTIONS AND ORGANISATIONAL SETUP

1.1 INTRODUCTION

Electricity is the key to economic development of the country and is one of the most essential elements for growth of a country and development of modern society. Accordingly, electricity demand is increasing day by day with improvement in living standards as the nation modernizes and its economy develops. To meet the challenges of ever-growing demand, power sector has become the key area for reforms as well as to attract investment. Enactment of Electricity Act, 2003, has brought revolutionary changes in almost all the areas of the power sector. Through implementation of this Act conducive environment has been created to promote private sector participation and competition in the sector. This has led to significant investment in generation, transmission and distribution areas.

For efficient & integrated system planning and operational purposes, the power system of the country has been divided into five regions namely Northern Region, Southern Region, Western Region, Eastern Region and North-Eastern Region. Each region has its own regional power grid. Initially, State grids were inter-connected to form the regional grid. The integration of regional grids, and thereby establishment of National Grid, was conceptualized in early nineties. Initially inter-regional links were planned for exchange of operational surpluses amongst the regions. Subsequently, it was felt that synchronisation of all regional grids would help in optimal utilization of scarce natural resources by transfer of power from resource centric regions to load centric regions. Further, this should pave the way for establishment of vibrant electricity market facilitating trading of power across regions.

The integration of regional grids which began with asynchronous HVDC back-to-back inter-regional links facilitating limited exchange of regulated power subsequently graduated to high capacity synchronous links between the regions. In October, 1991 North Eastern and Eastern grids were connected. In March, 2003 WR and ER-NER were interconnected. On 26th August, 2006 North and East grids were interconnected thereby four regional grids Northern, Eastern, Western and North-Eastern grids were synchronously connected forming Central Grid (NEW GRID) operating at one frequency. On 31st December, 2013 Southern Region was connected to Central Grid (NEW GRID) in synchronous mode with the commissioning of 765kV Raichur-Solapur Transmission line, thereby achieving 'ONE NATION'-'ONE GRID'-'ONE FREQUENCY'.

The Eastern Region comprises of the States of Bihar, Jharkhand, Odisha, West Bengal and Sikkim. The region has an area of 4,25,432 Sq. km which is about 13% of the total area of the country.

The Regional Power Committees have been established by Central Government for a specified region for facilitating the integrated operation of the power system of that region. The Eastern Regional Power Committee (ERPC) is one out of five (5) Regional Power Committees.

The Organisation Chart of ERPC Secretariat is given at **Exhibit-I** & Power Maps showing transmission system of the Eastern Region are given at **Exhibit – II.**

1.2 CONSTITUTION

Eastern Regional Power Committee (ERPC) is the present form of erstwhile Eastern Regional Electricity Board (EREB). Initially EREB came into operation on 01.06.1965 in accordance with the Govt. of India's resolution no. EL-II-35 (7)/63 dated 6th March, 1964 in order to promote integrated operation of the power systems in the region and to ensure optimum utilisation of the generation in the region. Government of India, under the provision of Sub-Section 55 of Section 2 of the Electricity Act 2003 vide Resolution F.No.23/1/2004-R&R dated 25th May, 2005 had established Eastern Regional Power Committee comprising the states of Bihar, Jharkhand, Orissa, West Bengal and Sikkim with following members and was subsequently amended from time to time on 29.11.2005, 08.05.2008 and 21.12.2017.The MoP resolution was further revised on 03.12.2021. As per the resolution, ERPC consists of following members:

i) Member (Grid Operation), Central Electricity Authority (CEA).

ii) One representative each of Central Generating Companies, Central Transmission Utility (CTU), National Load Despatch Centre (NLDC) and the Eastern Regional Load Despatch Centre (ERLDC).

iii) From each of the States in the region, the State Generating Company, State Transmission Utility (STU), State Load Despatch Centre (SLDC), one of the State-owned distribution companies as nominated by the State Government and one Distribution Company by alphabetical rotation out of the private distribution companies functioning in the region.

iv) A representative each of every generating company (other than central generating companies or State Government owned Generating Companies) having more than 1000 MW installed capacity in the region.

v) A representative of the generating companies having power plants in the region [not covered in (ii) to (iv) above] by alphabetical rotation.

va) A representative of one private transmission licensee, nominated by Central Government, operating the Inter State Transmission System, by alphabetical rotation out of such Transmission Licensee operating in the region.

vi) One member representing the electricity traders in the region by alphabetical rotation which has trading volume of more than 500 million units during the previous financial year.

vii) A representative each of every Nodal Agency appointed by the Government of India for coordinating cross-border power transactions with the countries having electrical inter-connection with the region.

viii) Member Secretary, ERPC – Convener.

It is further stated in the notification that wherever a member is represented by rotation, the nomination would be for a period of one year. The representative from respective organizations should be either the head of the organization or at least a person not below the rank of a Director on the Board of the company / corporate entity except for Central Public Sector Undertaking (CPSUs) where representative could also be at the level of Executive Director.

Chairperson of the ERPC would represent the States of the region by rotation in alphabetical order. Members of the ERPC from the particular State would nominate the Chairperson of ERPC from amongst themselves. Term of the Chairperson would be for a period of one year.

Shri Avinash Kumar (IAS), CMD, Jharkhand Urja Vikas Nigam Limited was the Chairperson of ERPC for the year 2022-23. Members of ERPC for the year 2022-23 were as under:

Sl.No.	Name of ERPC Member Organisation	Designation of the Member
1.	Jharkhand Urja Vikas Nigam Limited	Chairman-cum-Managing Director
2.	West Bengal State Electricity Distribution Company Ltd.	Chairman-cum-Managing Director
3.	Energy &Power Department, Govt. of Sikkim	Principal Chief Engineer-cum-Secretary
4.	GRIDCO Ltd.	Chairman-cum-Managing Director
5.	Odisha Power Transmission Corporation Ltd.	Chairman-cum-Managing Director
6.	Odisha Hydro Power Corporation Ltd.	Chairman-cum-Managing Director
7.	Odisha Power Generation Corporation Ltd.	Managing Director
8.	Bihar State Power Holding Company Ltd.	Chairman-cum-Managing Director
9.	Bihar State Power Transmission Company Ltd.	Managing Director
10.	North Bihar Power Distribution Company Ltd.	Managing Director
11.	Jharkhand Urja Sancharan Nigam Limited	Managing Director
12.	Jharkhand Bijli Vitaran Nigam Limited	Managing Director
13.	Tenughat Vidyut Nigam Ltd.	Managing Director
14.	West Bengal State Electricity Transmission Company Ltd.	Managing Director
15.	West Bengal Power Development Corporation Ltd.	Chairman & Managing Director
16.	Durgapur Projects Ltd.	Managing Director
17.	Damodar Valley Corporation	Chairman
18.	Central Electricity Authority	Member (GO&D)
19.	Eastern Regional Load Despatch Centre	ED, ERLDC
20.	National Load Despatch Centre	ED, NLDC
21.	NTPC Ltd.	Director (Finance)
22.	NHPC Ltd.	Director (Finance)
23.	Power Grid Corporation of India Ltd.	Director (Operations)
24.	PTC India Ltd.	Director (C&O)
25.	NTPC Vidyut Vyapar Nigam Ltd.	Chief Executive Officer
26.	Tata Power Trading Company Ltd.	Managing Director
27.	CESC Ltd.	Managing Director
28.	Maithon Power Ltd.	Chief Executive Officer
29.	Adhunik Power & Natural Resources Ltd.	Managing Director
30.	GMR Kamalanga Energy Ltd.	Chief Operating Officer

31.	Jindal India Thermal Power Ltd.	Chief Executive Officer
32.	Teesta Urja Ltd.	Managing Director
33.	Haldia Energy Limited	Managing Director(Generation)
34.	India Power Corp Ltd.	Head(Procurement & Sales)
35.	Alipurduar Transmission Ltd	CEO
36.	BRBCL	CEO

1.3 FUNCTIONS

The functions of ERPC as per the resolution of Govt. of India dated 25.05.2005 amended vide resolution dated 29.11.2005 and the revised Indian Electricity Grid Code issued by CERC effective from 01.04.2006 are given below:

- Clause 29 (4) of the Act provides that "the Regional Power Committee in the region may, from time to time, agree on matters concerning the stability and smooth operation of the integrated grid and economy and efficiency in the operation of the power system in that region."

- As per Para (6) of the MOP Resolution dated 03.12.2021, ERPC Secretariat shall discharge the following functions: -

    - To undertake Regional Level operation analysis for improving grid performance
    .
    - To facilitate inter-state / inter-regional transfer of power.

    - To facilitate all functions of planning relating to inter-state / intra-state transmission system with CTU / STU.

    - To provide views on the inter-state transmission system planned by CTU within 45 days of receipt of the proposal by the concerned RPC. Th e views of RPC will be considered by National Committee on Transmission for sending their recommendation to Ministry of Power for approval of new inter-state transmission system.

    - To coordinate planning of maintenance of generating machines of various generating companies of the region including those of inter-state generating companies supplying electricity to the Region on annual basis and also to undertake review of maintenance programme on monthly basis.

    - To undertake planning of outage of transmission system on monthly basis.

    - To undertake operational planning studies including protection studies for stable operation of the grid.

- To undertake planning for maintaining proper voltages through review of reactive compensation requirement through system study committee and monitoring of installed capacitors.

- To evolve consensus on all issues relating to economy and efficiency in the operation of power system in the region.

- Besides, as per the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010, following specific functions have been entrusted to RPC Secretariat:

    - RPC Secretariats shall carry out all Regional Energy Accounting calculations.

    - Regional Energy Accounts on monthly basis shall be prepared and issued by the RPC Secretariats for the purpose of billing and payment of various charges.

    - RPC Secretariat shall prepare and issue the Unscheduled inter-change (UI) account [newly terminology 'Deviation Settlement Mechanism (DSM)] for which RLDC will provide actual net injection / drawal of concerned regional entities, 15 minute-wise, based on the above meter readings on a weekly basis by each Thursday noon for the seven days period ending on the previous Sunday mid-night.

    - RPC Secretariat shall monitor the status of UI payment and installation of capacitor.

    - RPC Secretariat shall prepare and issue monthly Regional Transmission Accounts (RTA) and Regional Transmission Deviation Accounts (RTDA) based on data supplied by NLDC and ERLDC respectively.

    - RPC Secretariat shall also issue the weekly statement for VAR charges, to all regional entities who have a net drawal / injection of reactive energy under low/high voltage conditions.

    - RPC Secretariat shall decide from time to time to utilize the money remaining in the regional reactive account after payout of all VAR charges upto 31st March of every year for training of the SLDC operators and other similar purposes which would help in improving/streamlining the operation of the respective regional grids

    - The Regional Power Committee (RPC) Secretariat in the region shall continuously monitor the instances of non-compliance of the provisions of IEGC

and try to sort out all operational issues and deliberate on the ways in which such cases of non-compliance are prevented in future by building consensus.

- RPC Secretariat shall decide on installation of capacitors by states vis-à-vis the requirement/targets.

- RPC Secretariat in consultation with RLDC finalise the quantum and time frame for reactive compensation.

- RPC Secretariat shall regularly monitor the status regarding the installation and healthiness of the reactive compensation equipment.

- RPC Secretariat shall finalise action plan and give instructions to restore power system elements under prolonged outage in a specified time period.

- RPC Secretariat will be allowed to carry out checking of Power System Stabilizers (PSS) in AVRs of generating units and further tuning it, whenever considered necessary.

- RPC Secretariat will finalise the plan for providing automatic under-frequency and df/dt relays for load shedding in respective systems, to arrest frequency decline that could result in a collapse/disintegration of the grid and shall ensure that the above under-frequency and df/dt load shedding/islanding schemes are always functional.

- RPC Secretariat shall carry out periodic inspection of the under-frequency relays and maintain proper records of the inspection.

- RPC Secretariat shall decide and intimate the action required by Utility constituents, distribution licensee and STUs to get required load relief from Under Frequency and df/dt relays.

- RPC Secretariat shall finalise the voltage control measures through voltage relay to prevent voltage collapse / cascade tripping.

- RPC Secretariat shall finalise the loads to be shed through under frequency relays / df/dt relays and System Protection Scheme in order to maintain the frequency within the stipulated band and maintaining the network security.

- RPC Secretariat shall monitor the forced outages of important network elements in the grid.

- The RPC Secretariat shall be primarily responsible for finalization of the annual outage plan for the following financial year by 31st January of each year and reviewed during the year on quarterly and Monthly basis.

- RPC Secretariat shall submit quarterly, half-yearly reports to the Commission indicating deviation in outages from the plan along with reasons.

- RPC Secretariat shall provide aid for finalising detailed plans and procedures for restoration of the regional grid under partial/total blackout and shall be reviewed / updated annually.

- RPC Secretariat shall initiate investigation/action whether any of the regional entities are indulging in unfair gaming or collusion if such practice is detected and reported.

- RPC Secretariat shall discharge any other responsibilities assigned by CERC.

Subsequently through further amendments following works were also entrusted to RPCs:

IEGC 2010, 1st Amendment:
The RPC Secretariat shall be primarily responsible for finalization of the Annual Load Generation Balance Report (LGBR) and the annual outage plan for the following financial year by 31st December of each year. The LGBR shall be prepared by the respective RPC secretariat for peak as well as off-peak scenarios.

IEGC 2010, 4th amendment:

The RPC Secretariat shall calculate Compensation for generating stations for degradation of Station Heat Rate (SHR), Auxiliary Energy Consumption and Secondary Fuel Consumption due to low unit loading operation as per the mechanism framed by the CERC.

Central Electricity Regulatory Commission (Ancillary Services Operations) Regulations, 2015:

The Regional Power Committees shall issue an Ancillary Services Statement along with the Deviation Settlement Mechanism Account.

1.4 ORGANISATIONAL STRUCTURE

Chairperson of ERPC would represent the states of the region by rotation in alphabetical order. Members of ERPC of that particular state would nominate the Chairperson of ERPC from amongst themselves. Term of the Chairperson would be for a period of one year.

Member Secretary who is an officer of Central Power Engineering Services (Group-A), is the administrative and technical head of ERPC Secretariat with the powers of the Head of Department. The other Group-A officers in the ERPC Secretariat also belong to Central Power Engineering Service (Group-A) Cadre.

Group-B officers in ERPC Secretariat are borne on the strength of CPES (Group-B) Cadre of the Govt. of India, while other Group – B, C and D (reclassified as Group-C) staff are on the strength of General Central Service of the Govt. of India.

The details regarding the present ERPC Secretariat officers and staff as on 31.03.2022 are given at **Annexure-I**.

Names of the Chairpersons and Member Secretaries of the ERPC and erstwhile EREB, since inception, are shown in **Annexure-II** and **Annexure-III,** respectively.

1.5 DETAILS OF BUDGET & EXPENDITURE FOR 2022-23

The sanctioned budget (RE) of ERPC for the year 2022-23vis-à-vis actual expenditure for the same period is given in table:

Major Head 2801 (Non-plan): Regional Co-ordination (RC)

(Figures in Lakh of Rs.)

Sl. No.	Sub-Head	Item	Sanctioned Budget (RE) for 2022-23	Actual Expenditure for 2022-23
1	07.01.01	Salaries	222.21	220.26
2	07.01.06	Medical Treatment	0.90	0.71
3	07.01.11	Domestic TE	8.47	8.45
4	07.01.13	Office Expenses	25.00	24.73
5	07.01.14	Rent/Rates/Taxes	1.50	1.44
6	07.01.27	Minor Works	2.31	2.30
7	07.01.50	Other Charges	1.65	1.62
Total			**262.04**	**259.51**

CHAPTER-2

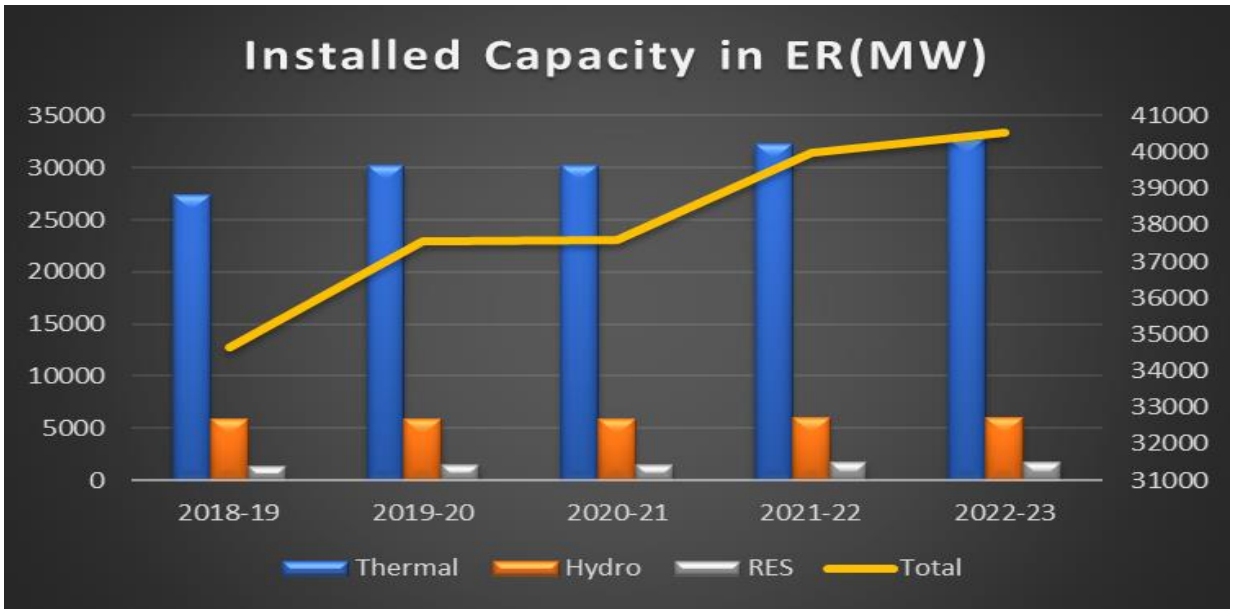
GRID PERFORMANCES

2.1 INSTALLED CAPACITY

The installed capacity of the power generating units in Eastern Region connected to Eastern grid as on 31st March 2023 was 40,519.90 MW, comprising 32,785 MW (80.9%) of thermal, 5990 MW (14.8 %) of hydel, 1745 MW (4.3 %) RES. The total effective capacity of the Region as on 31.03.2022 was 40,000 MW. In addition to this, Chukkha HEP, Kurichhu HEP, Tala HEP, Daghachu HEP & Mangdechhu HEP of Bhutan contributed about 270 MW, 60 MW, 1020 MW, 126 MW & 720 MW respectively of hydro power to Eastern Region. PTC is the nodal agency for facilitating power purchase from Chukha, Kurichhu, Tala & Mangdechhu HEPs and Tata Power Transmission Company Limited is the nodal agency for facilitating power purchase from Dagachu HEP in Bhutan. Constituent-wise installed and effective capacity as on 31.03.2023 are shown in **Annexure-IVA**. The growth in installed capacity in Eastern Region for last five years (i.e. 2018-19 onwards) is iven in Table and shown in the graph below:

Table: Installed capacity (MW) in Eastern Region for last five years

Type	2018-19	2019-20	2020-21	2021-22	2022-23
Thermal	27415	30195	30195	32253	32785
Hydro	5876	5876.58	5877	6002	5990
RES	1336	1488.68	1518	1745	1745
Total	**34627**	**37560.3**	**37590**	**40000**	**40519.9**



The Compounded Annual Growth Rate of installed capacity in Eastern region during the last 5 years was 4.82 % as compared to 3.53 % nationwide.

2.2 POWER SUPPLY POSITION

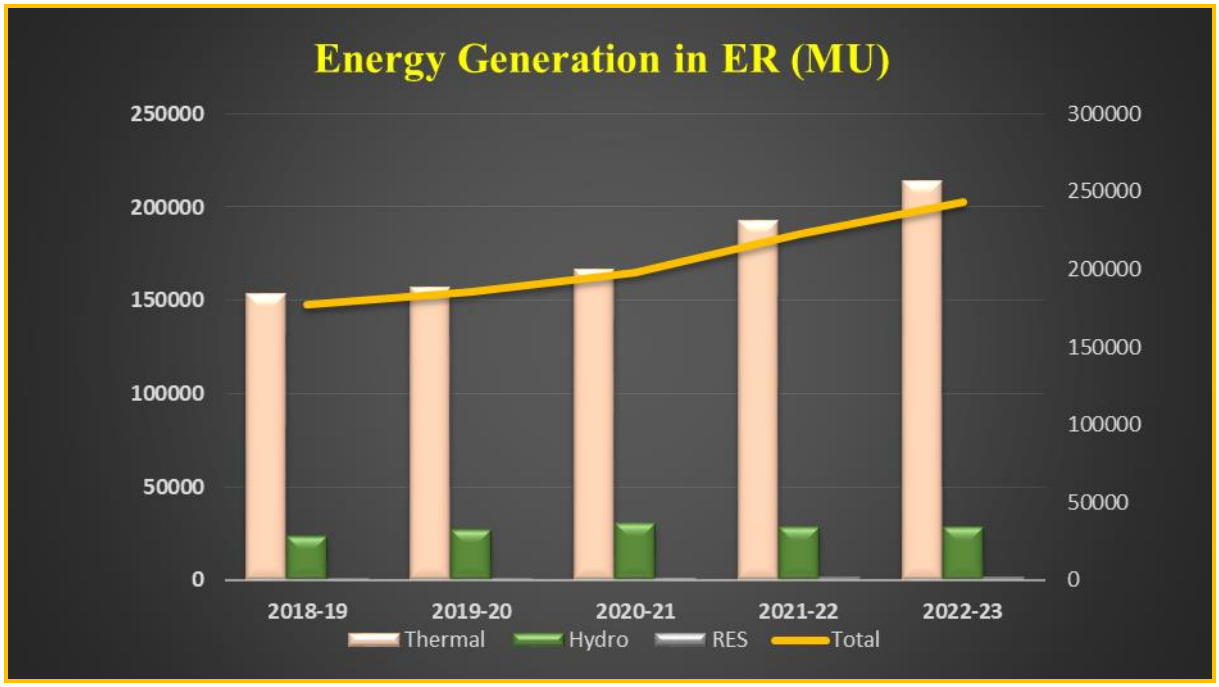
2.2.1 GENERATION:

During the year 2022 -23, the total generation availability in ER (including import from Bhutan but excluding generation/import from CPPs) was 2,44,533.6 MU (Gross) comprising of 2,15,361.3 MU from thermal (88.1 %), 27,709.4 MU from hydro (11.3 %) and 1,462.9 MU (0.6 %) from RES compared to total generation of 2,22,355.6 MU in 2021-22 comprising 1,93,170 MU from thermal, 27,969.5 MU from hydro and 1,216 MU from RES. The total generation (Gross) was 2,44,533.6 MU in 2022-23 which is 9.97% more than that of 2021-22. Details of constituent-wise generation and auxiliary consumption are given in **Annexure-V**.

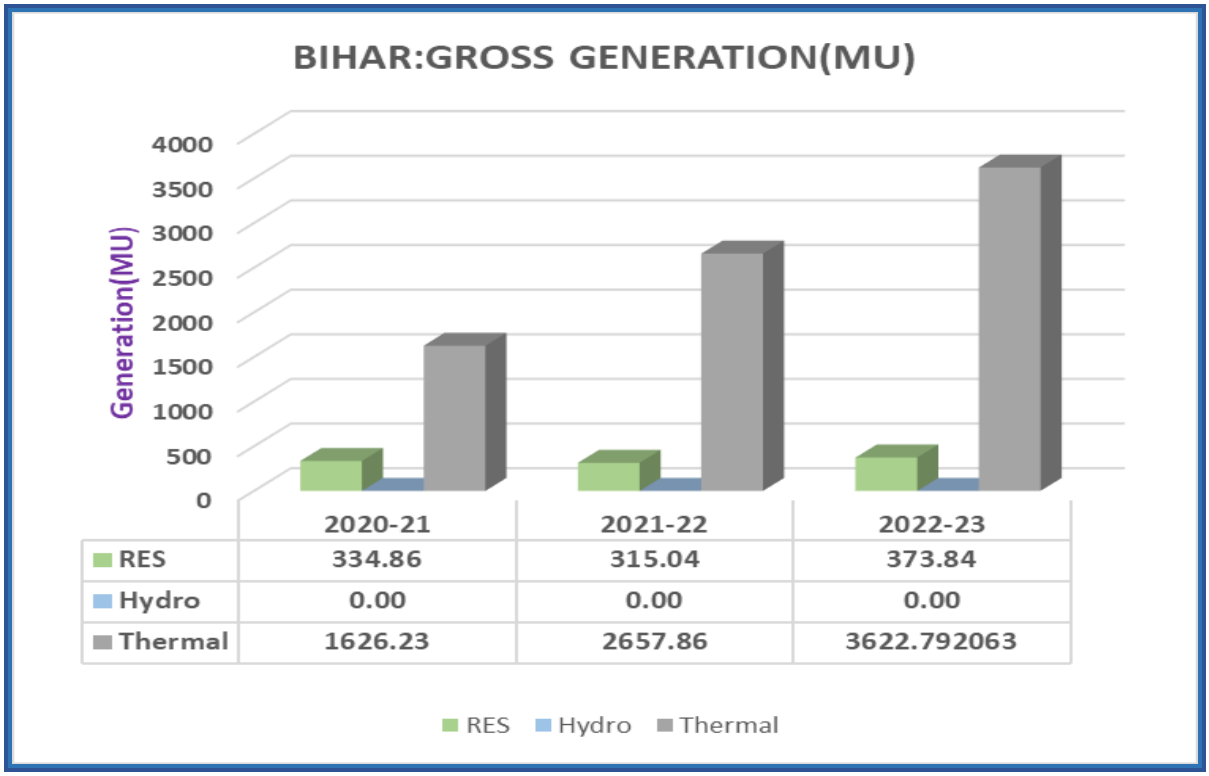
Generation of last five years (2018-19 to 2022-23) in the region is given in Table and shown in the graph below:

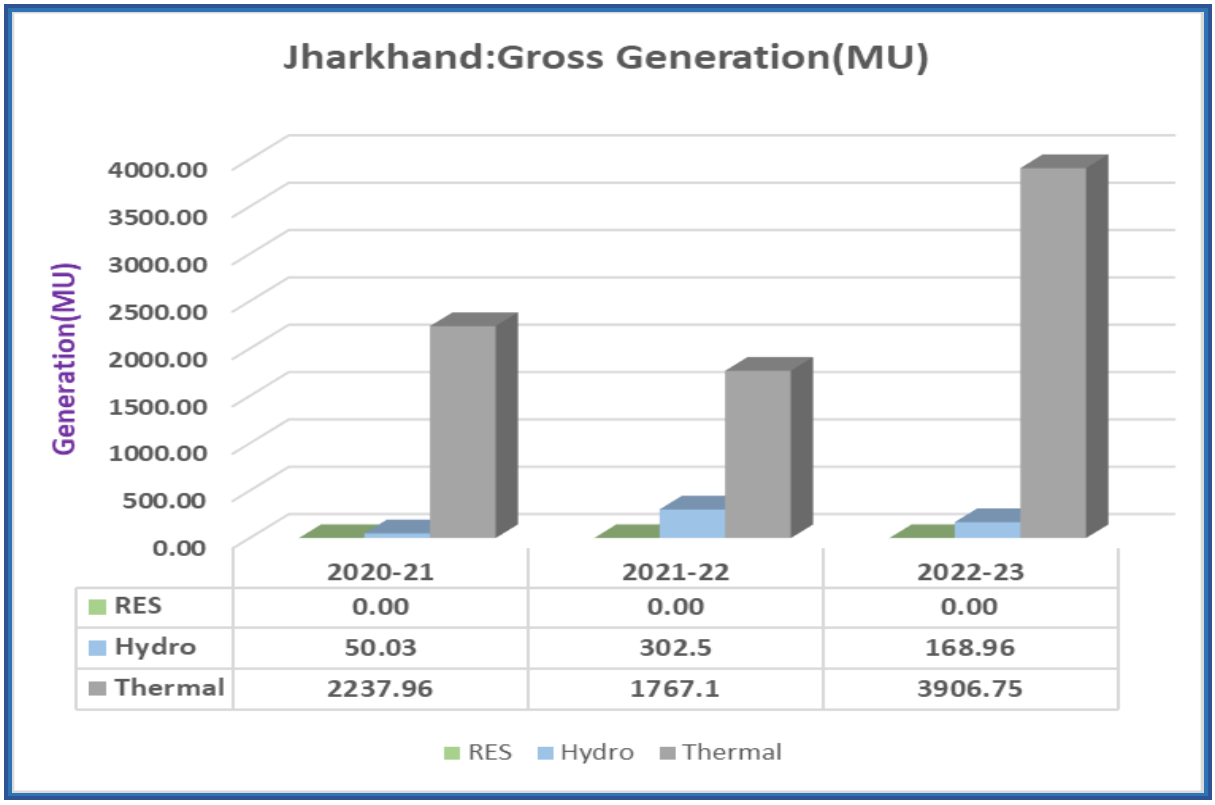
Table: Energy Generation in ER (in MU)

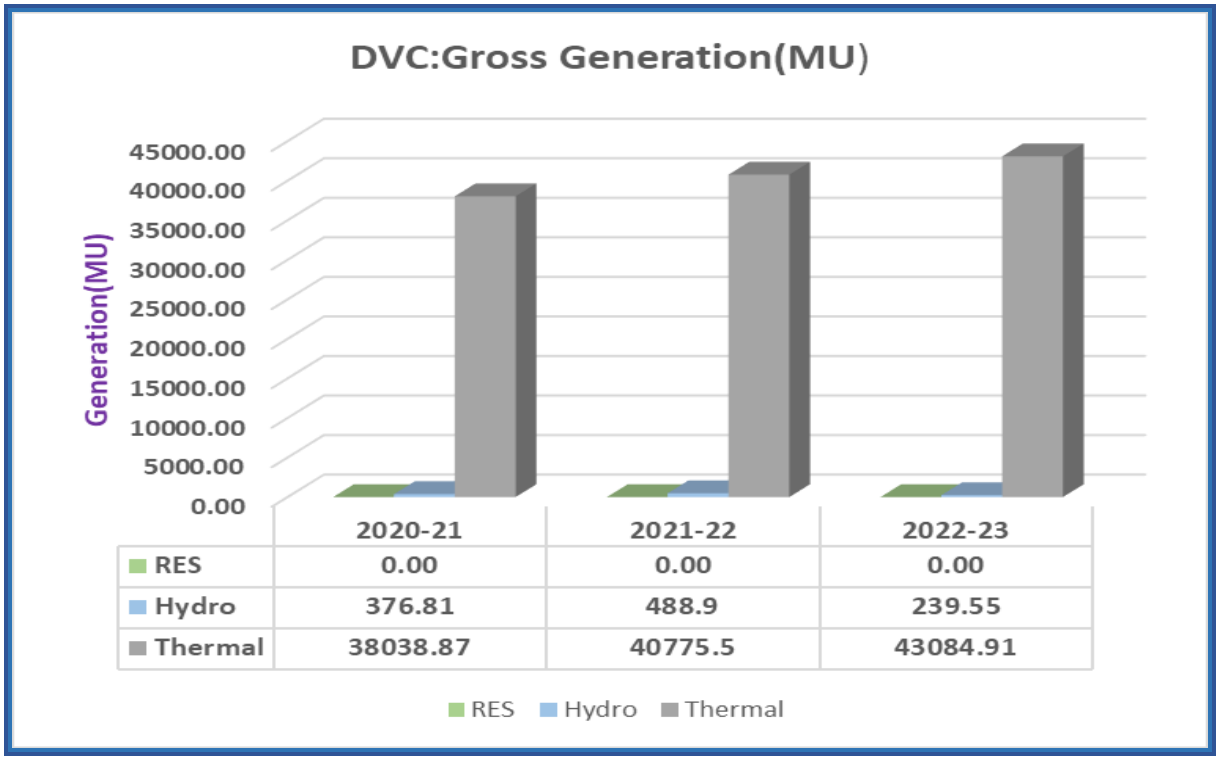
	2018-19	2019-20	2020-21	2021-22	2022-23
Thermal	153810.6	157454.14	166906	193170	215361.3
Hydro	22968.09	26735.74	30012	27969.5	27709.4
RES	657.48	905.19	1121	1216	1462.9
Total	177436.2	185095.07	198040	222355.5	244533.6

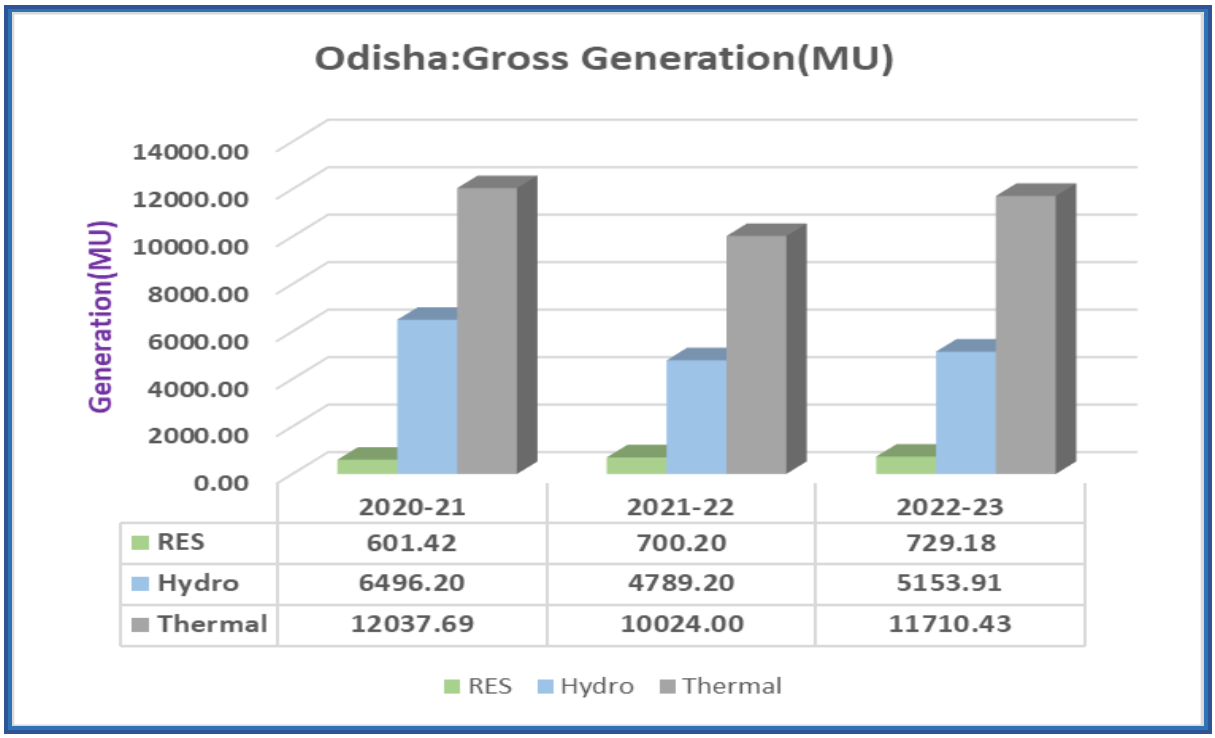


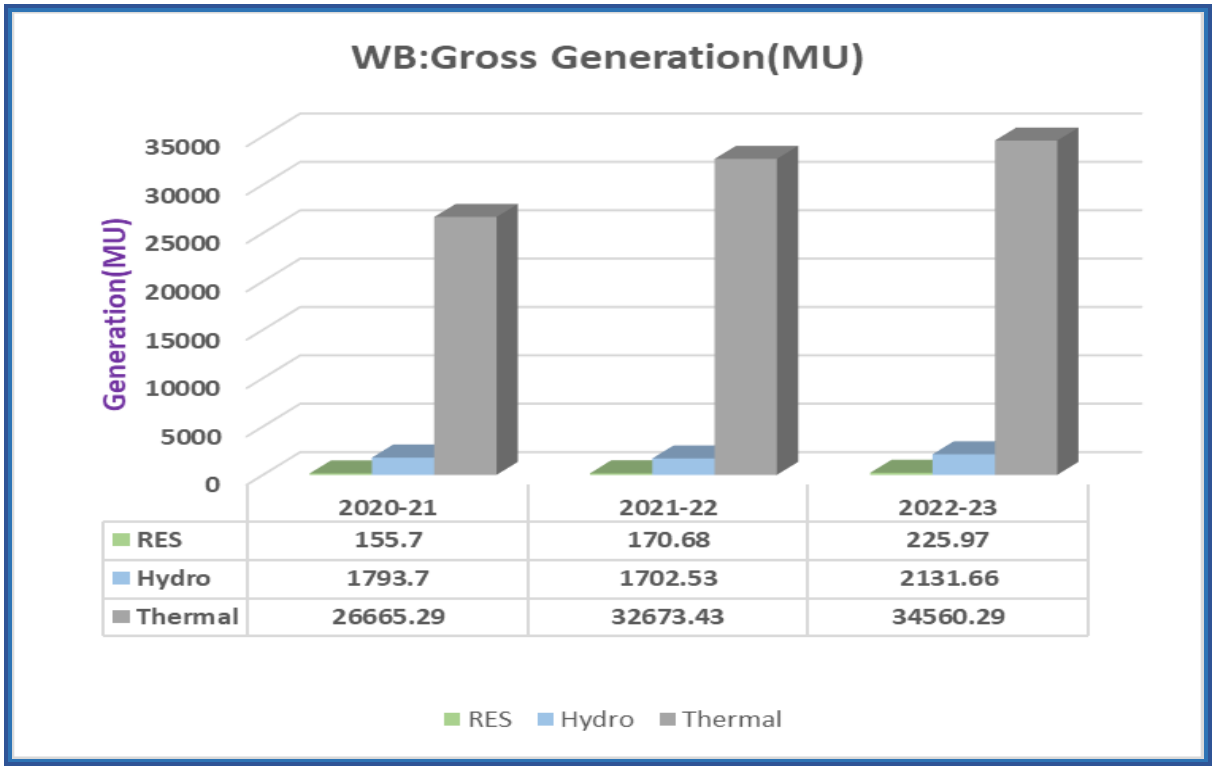
Constituent-wise & source-wise gross generation for the last three years has been shown below:

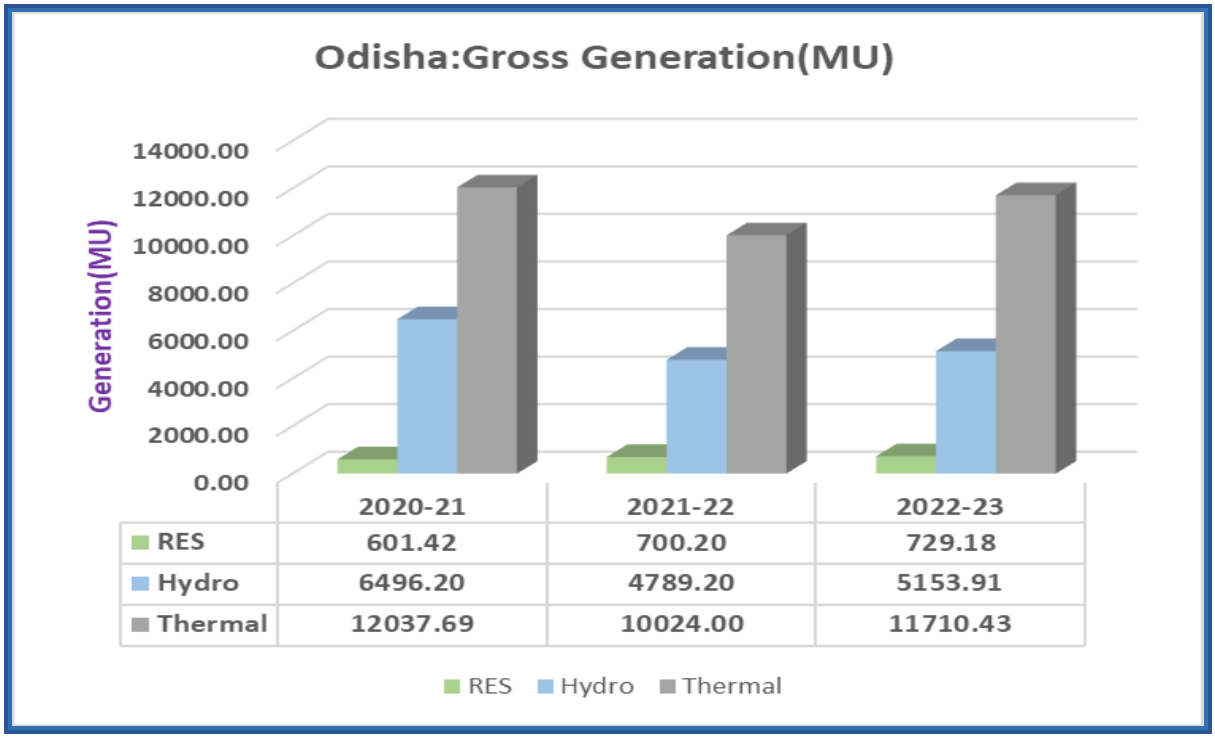

BIHAR:GROSS GENERATION(MU)
Generation(MU)
4000
3500
3000
2500
2000
1500
1000
500
0
2020-21
2021-22
2022-23
RES
334.86
315.04
373.84
Hydro
0.00
0.00
0.00
Thermal
1626.23
2657.86
3622.792063
RES
Hydro
Thermal

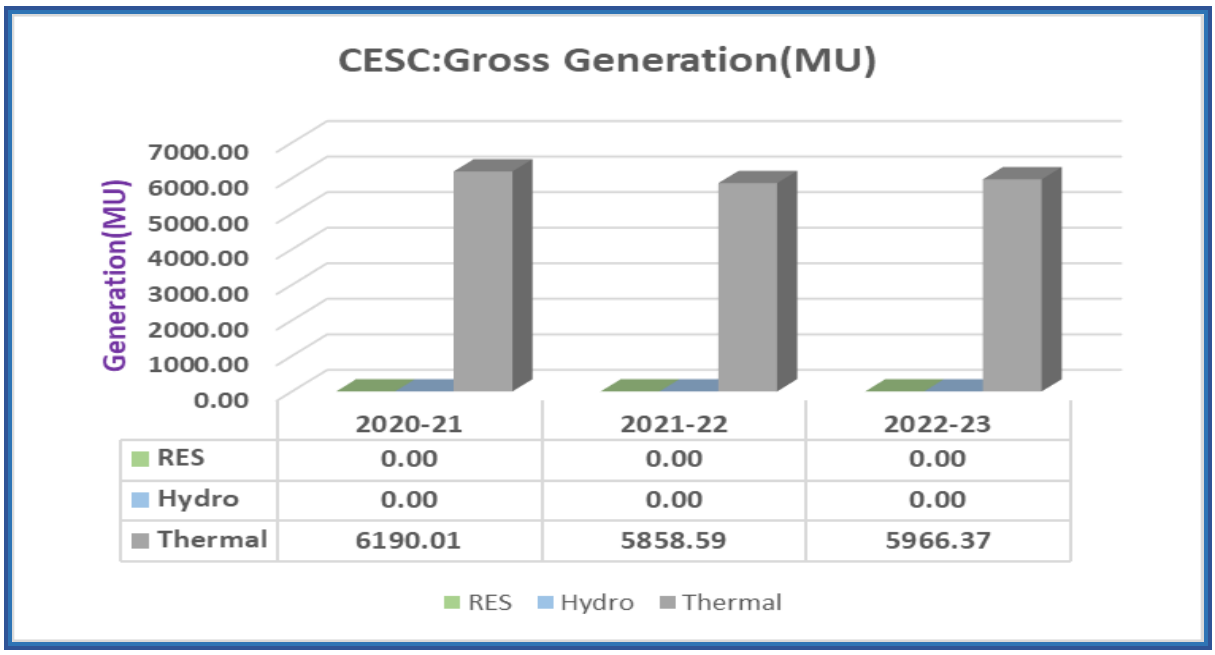

Jharkhand:Gross Generation(MU)
Generation(MU)
4000.00
3500.00
3000.00
2500.00
2000.00
1500.00
1000.00
500.00
0.00
2020-21
2021-22
2022-23
RES
0.00
0.00
0.00
Hydro
50.03
302.5
168.96
Thermal
2237.96
1767.1
3906.75
RES
Hydro
Thermal

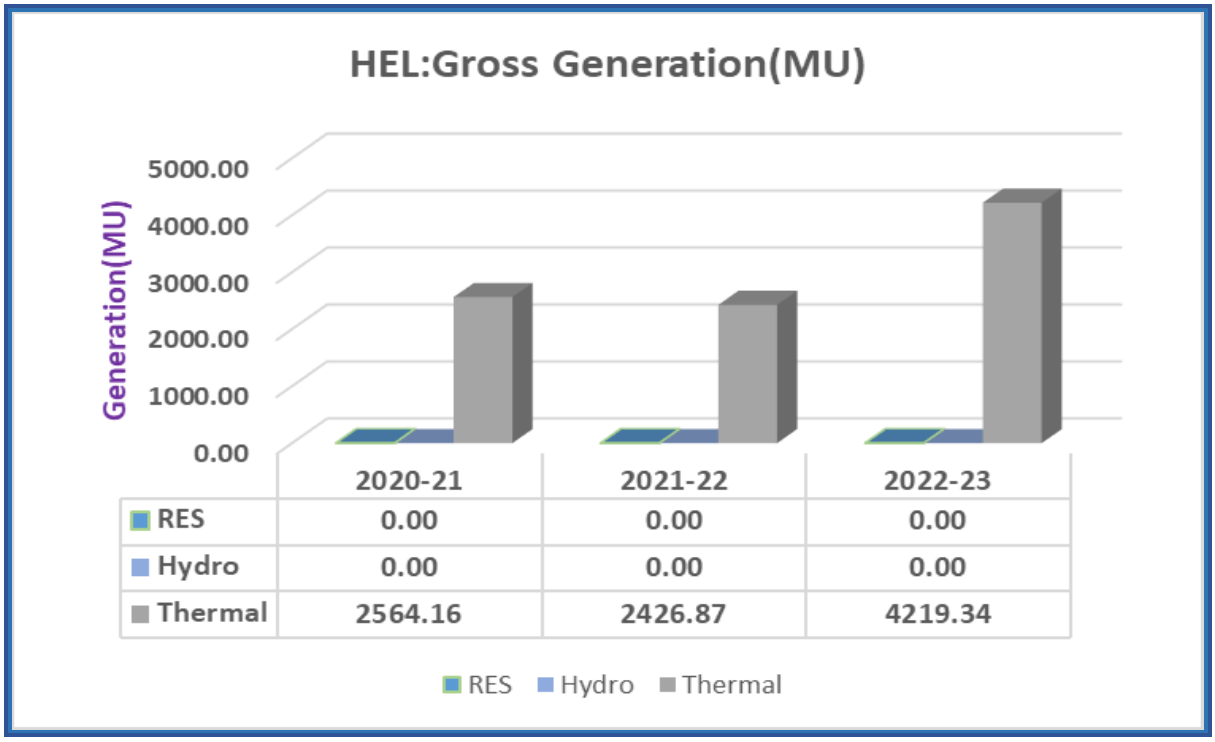

DVC:Gross Generation(MU)
Generation(MU)
45000.00
40000.00
35000.00
30000.00
25000.00
20000.00
15000.00
10000.00
5000.00
0.00
2020-21
2021-22
2022-23
RES 0.00 0.00 0.00
Hydro 376.81 488.9 239.55
Thermal 38038.87 40775.5 43084.91
RES Hydro Thermal

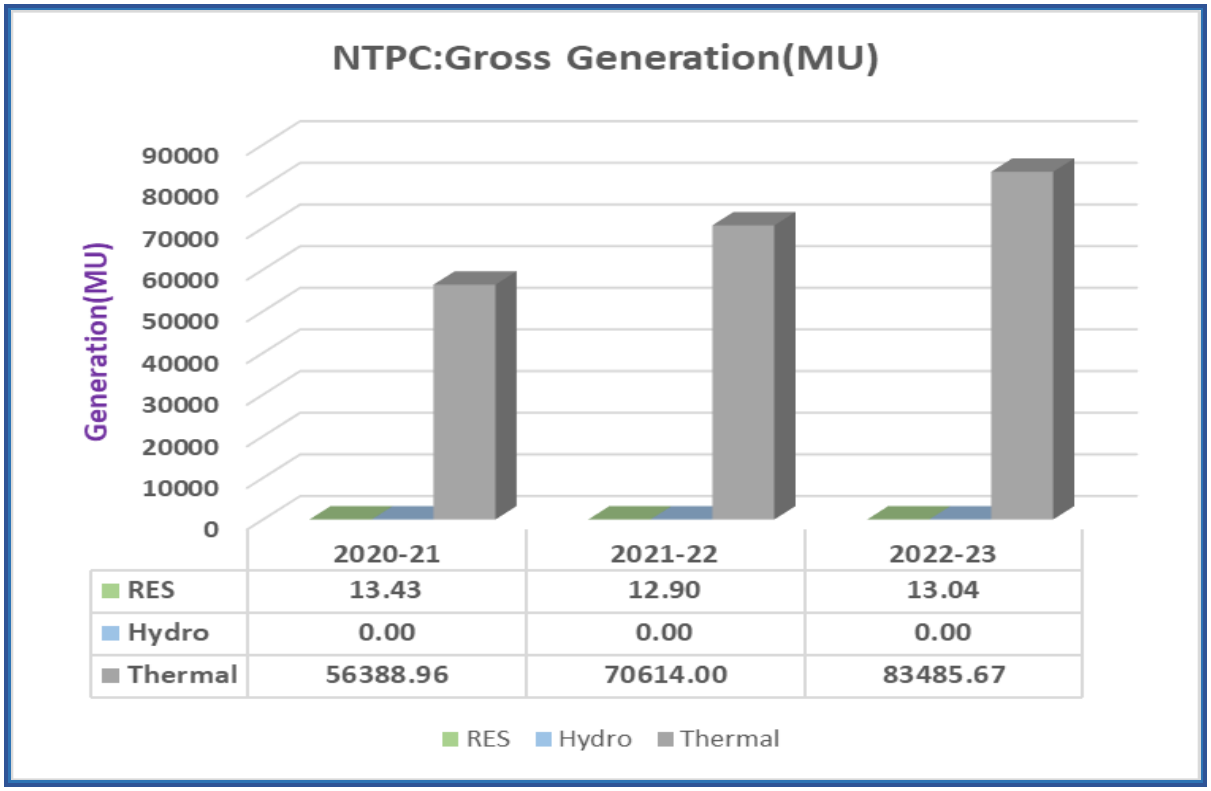

Odisha:Gross Generation(MU)
Generation(MU)
14000.00
12000.00
10000.00
8000.00
6000.00
4000.00
2000.00
0.00
2020-21
2021-22
2022-23
RES 601.42 700.20 729.18
Hydro 6496.20 4789.20 5153.91
Thermal 12037.69 10024.00 11710.43
RES Hydro Thermal

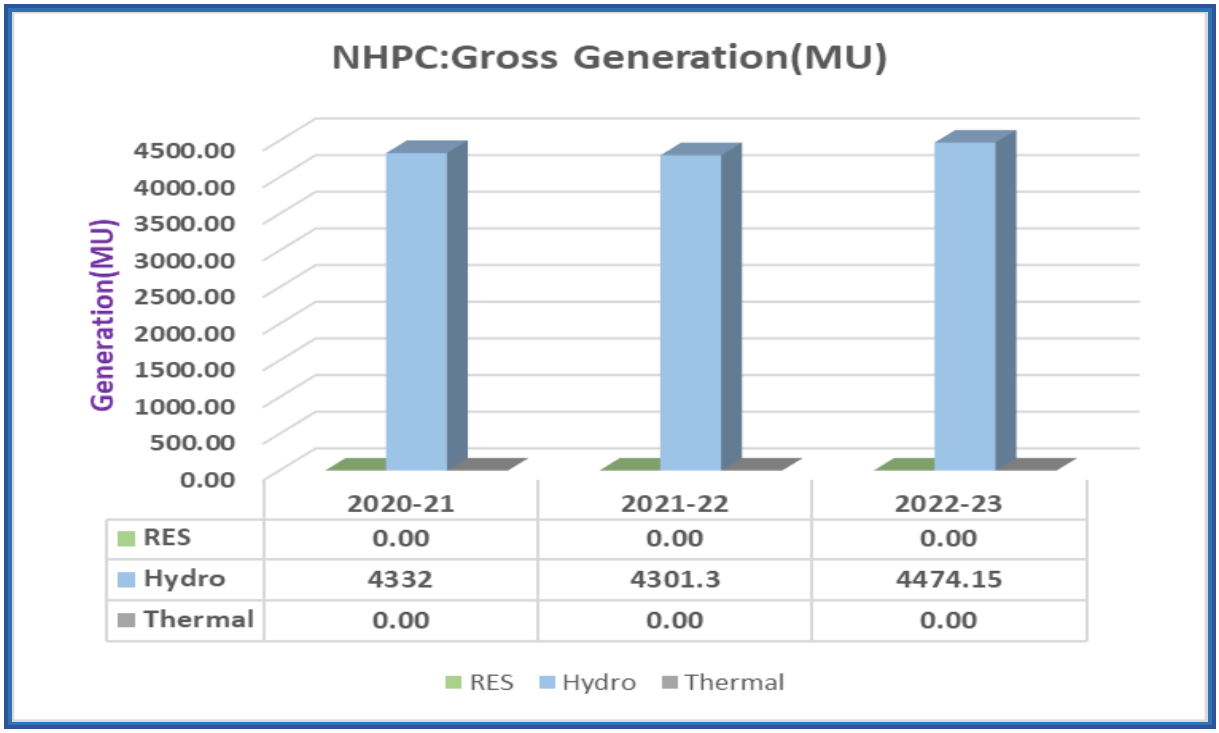

WB:Gross Generation(MU)
Generation(MU)
35000
30000
25000
20000
15000
10000
5000
0
2020-21
2021-22
2022-23
RES 155.7 170.68 225.97
Hydro 1793.7 1702.53 2131.66
Thermal 26665.29 32673.43 34560.29
RES
Hydro
Thermal

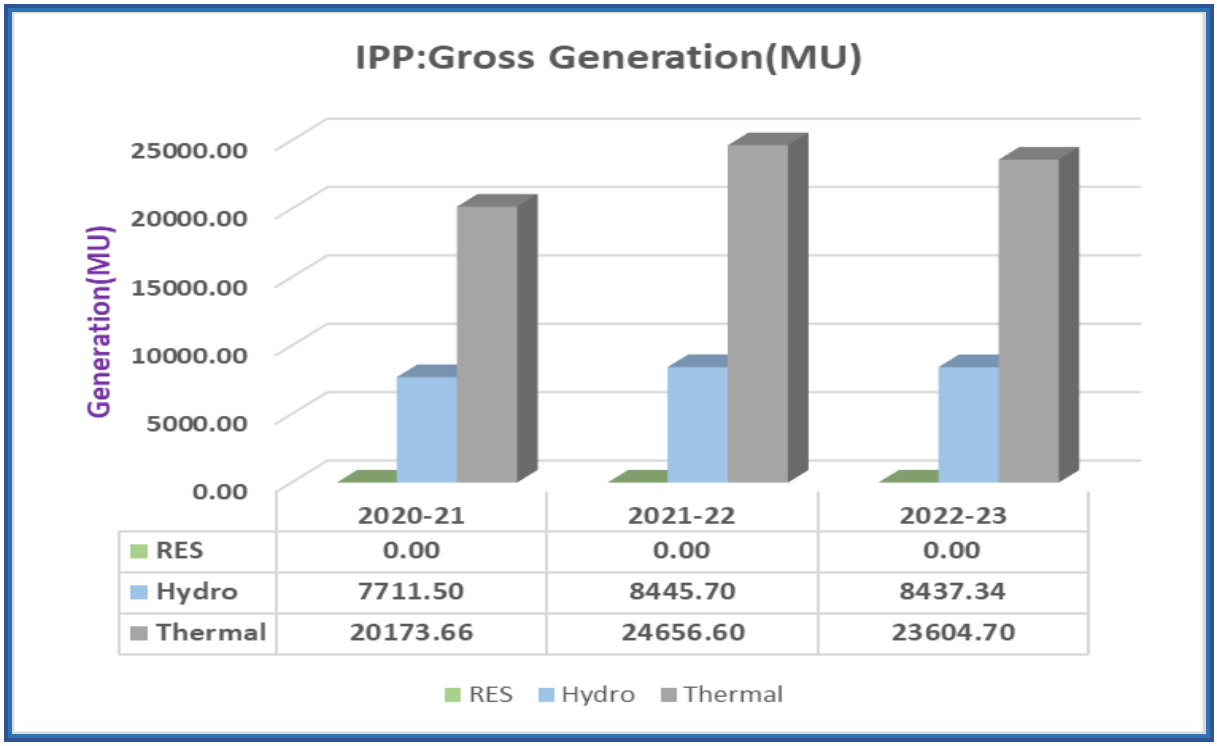

Odisha:Gross Generation(MU)
Generation(MU)
14000.00
12000.00
10000.00
8000.00
6000.00
4000.00
2000.00
0.00
2020-21
2021-22
2022-23
RES 601.42 700.20 729.18
Hydro 6496.20 4789.20 5153.91
Thermal 12037.69 10024.00 11710.43
RES
Hydro
Thermal


CESC:Gross Generation(MU)
Generation(MU)
7000.00
6000.00
5000.00
4000.00
3000.00
2000.00
1000.00
0.00
2020-21
2021-22
2022-23
RES 0.00 0.00 0.00
Hydro 0.00 0.00 0.00
Thermal 6190.01 5858.59 5966.37
RES Hydro Thermal


HEL:Gross Generation(MU)
Generation(MU)
5000.00
4000.00
3000.00
2000.00
1000.00
0.00
2020-21
2021-22
2022-23
RES 0.00 0.00 0.00
Hydro 0.00 0.00 0.00
Thermal 2564.16 2426.87 4219.34
RES Hydro Thermal


NTPC:Gross Generation(MU)
Generation(MU)
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
2020-21
2021-22
2022-23
RES
13.43
12.90
13.04
Hydro
0.00
0.00
0.00
Thermal
56388.96
70614.00
83485.67
RES
Hydro
Thermal


NHPC:Gross Generation(MU)
Generation(MU)
4500.00
4000.00
3500.00
3000.00
2500.00
2000.00
1500.00
1000.00
500.00
0.00
2020-21
2021-22
2022-23
RES
0.00
0.00
0.00
Hydro
4332
4301.3
4474.15
Thermal
0.00
0.00
0.00
RES
Hydro
Thermal



As against Compounded Annual Growth Rate (CAGR) of installed capacity of 4.7 %, the same of energy generation of the last 5 years is 6.8 % including energy import of 6672.5 MU from Bhutan. Maximum utilisation of available hydel power from Tala, Kurichhu, Chukha, Mangdechhu HEP of Bhutan was made by import through PTC and from Daghachu Hydel Power Station of Bhutan through TPTCL as nodal agency as per international agreement between Government of India and Royal Government of Bhutan.

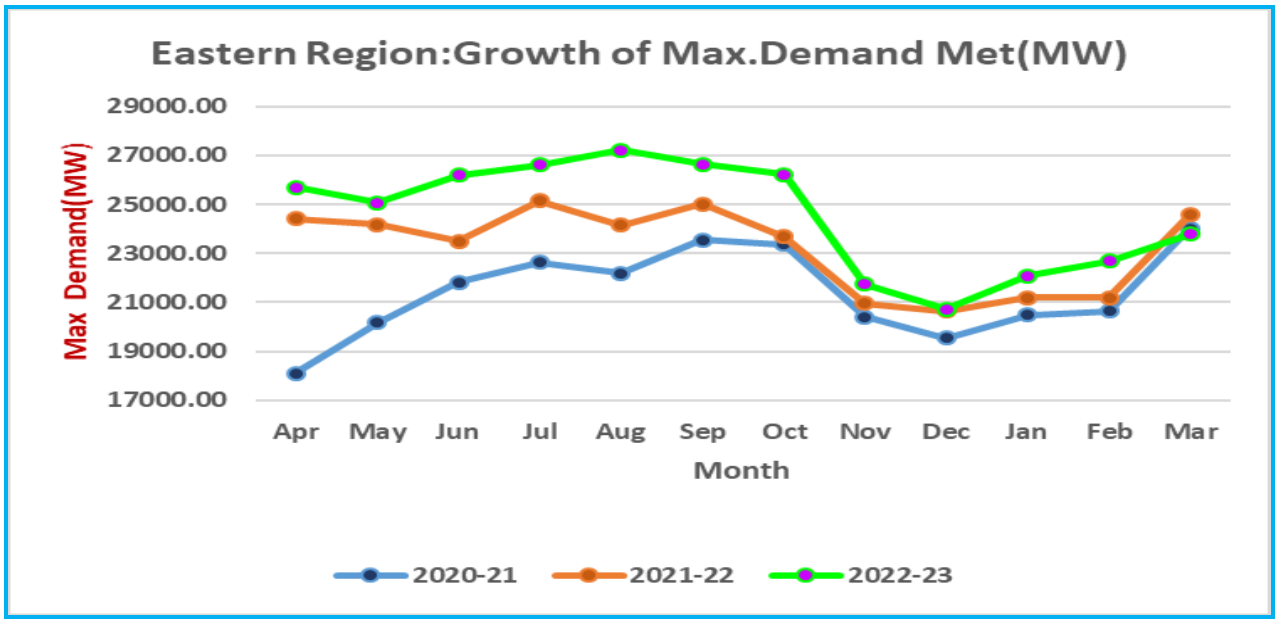
2.2.2 MAXIMUM DEMAND

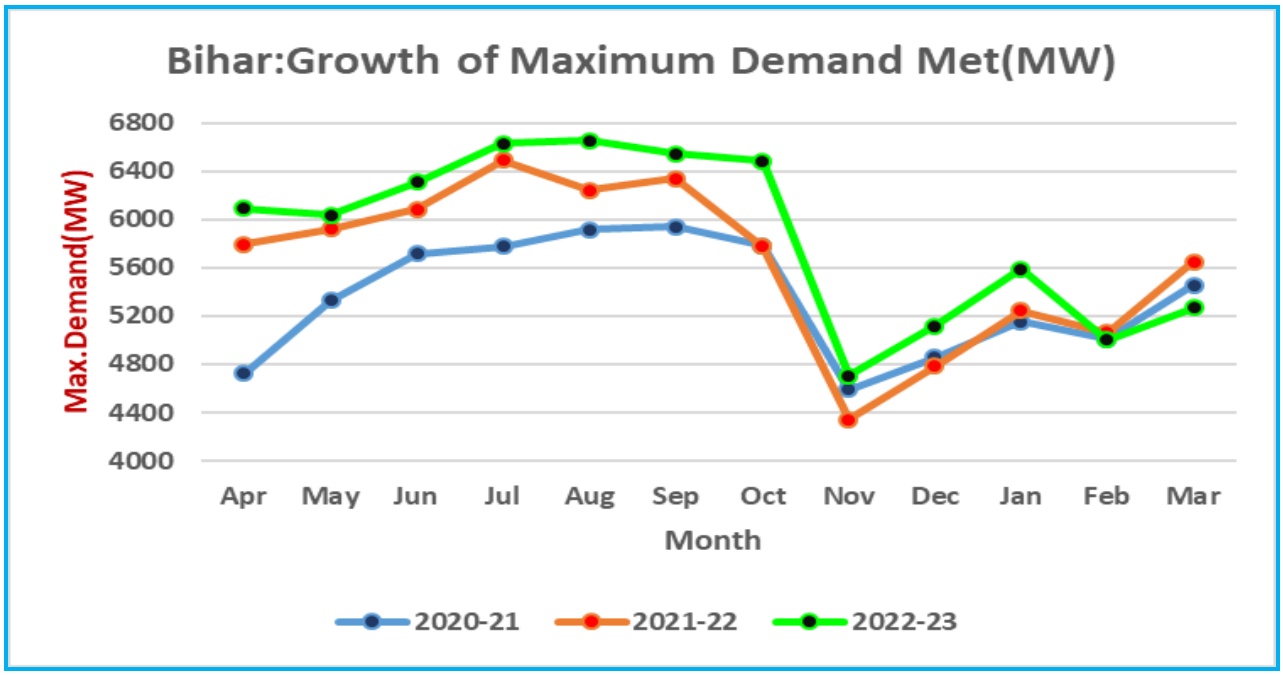
During the year 2022-23, the maximum coincident demand met in the Eastern Region was 27218 MW (net) compared to 25145 MW (net) during the preceding year. It was 2073 MW (8.2%) more than the maximum demand met of last year. Maximum demand met by the constituents during 2022-23 is given in Table below:

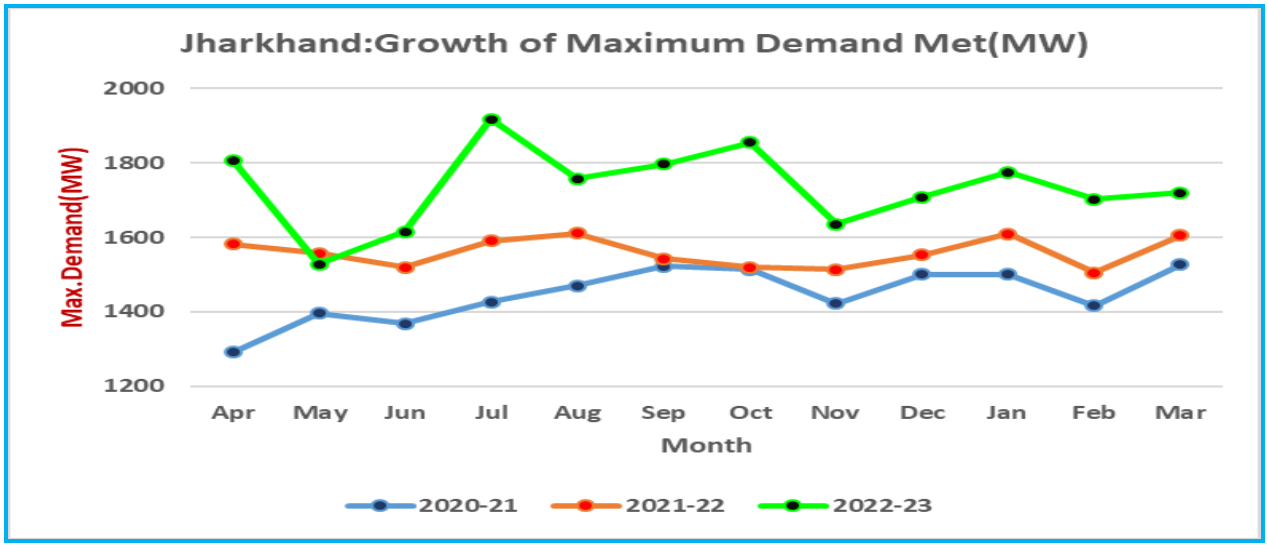
Table: Maximum Demand (in MW) of Constituents of Eastern Region

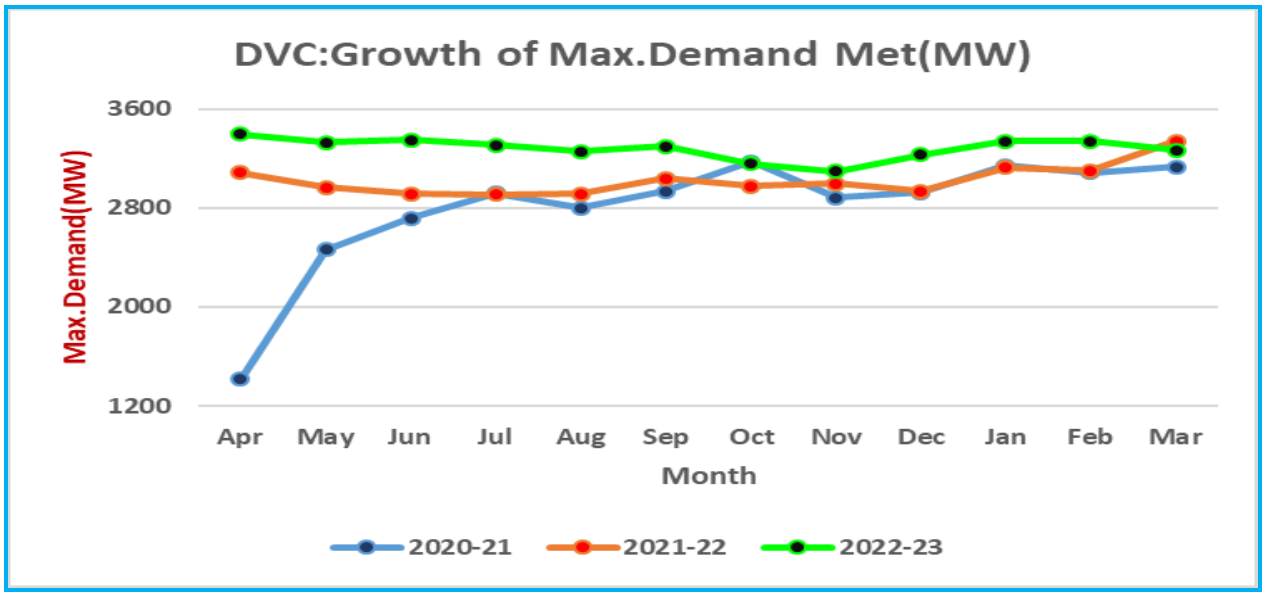
System	Max. Demand (MW)			System	Max. Demand (MW)		
	2022-23	2021-22	% Growth		2022-23	2021-22	% Growth
BSPHCL	6654	6490	2.5%	WBSEDCL	7958	7417	7.3%
JUVNL	1918	1611	19.1%	CESC	2327	2006	16.0%
DVC	3396	3338	1.7%	SIKKIM	124	133	-6.8%
GRIDCO	6438	5643	14.1%				
Max. Demand of Eastern Region: - 27218 MW(on 17.08.2022 at 23:00 Hrs)							

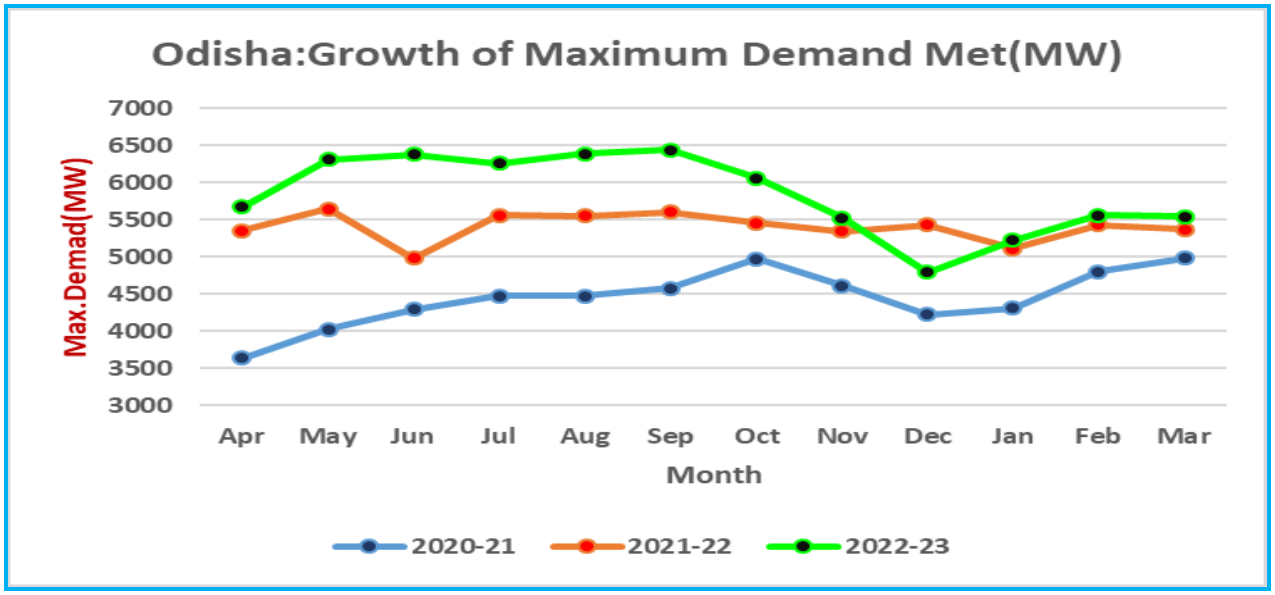
The growth in the maximum demand was somewhat restricted mainly bottlenecks in sub-transmission and distribution system of respective utility of E.R. The growth in Max. Demand Met (MW) in Eastern Region and its constituents for the last three years are shown below:

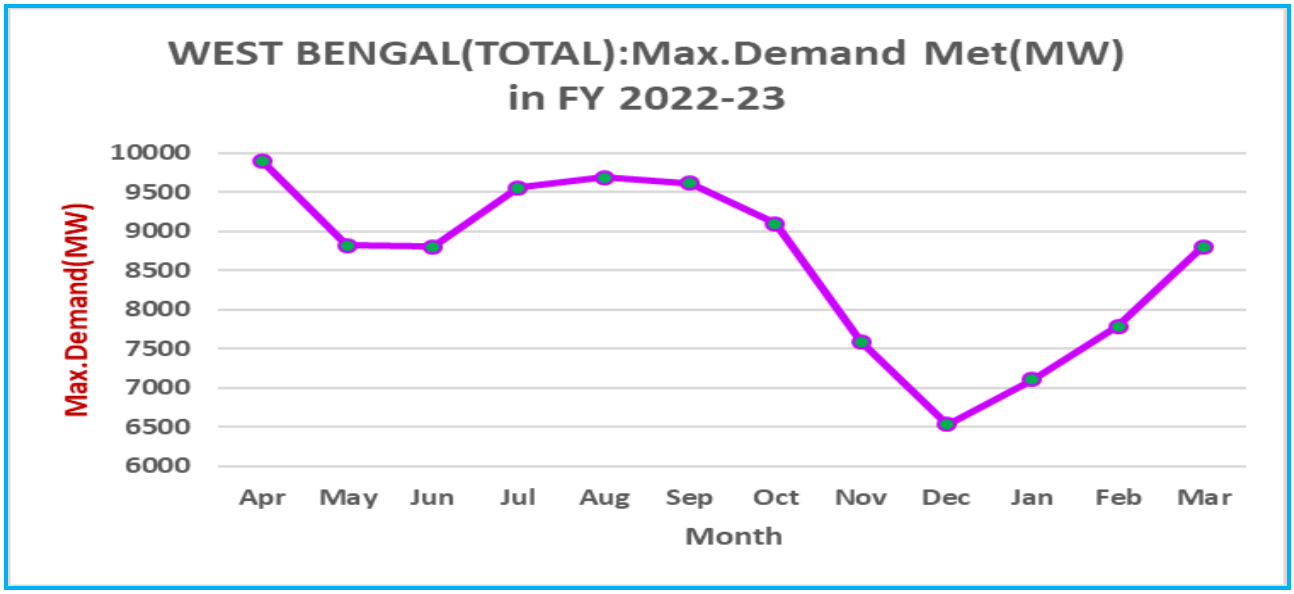


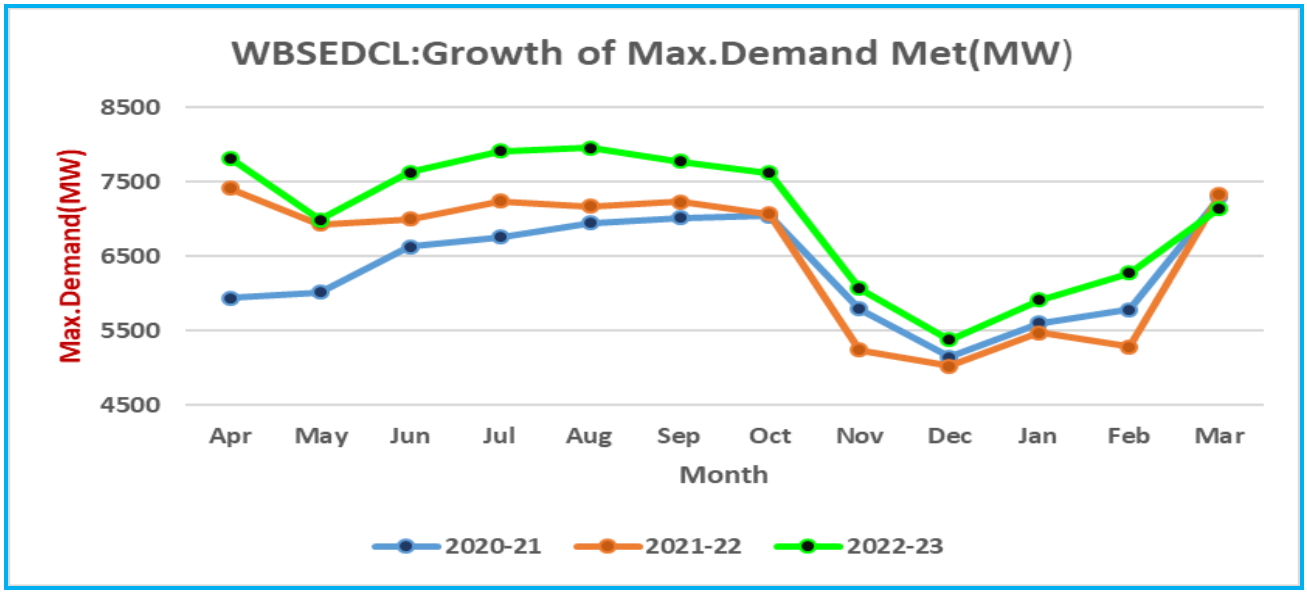


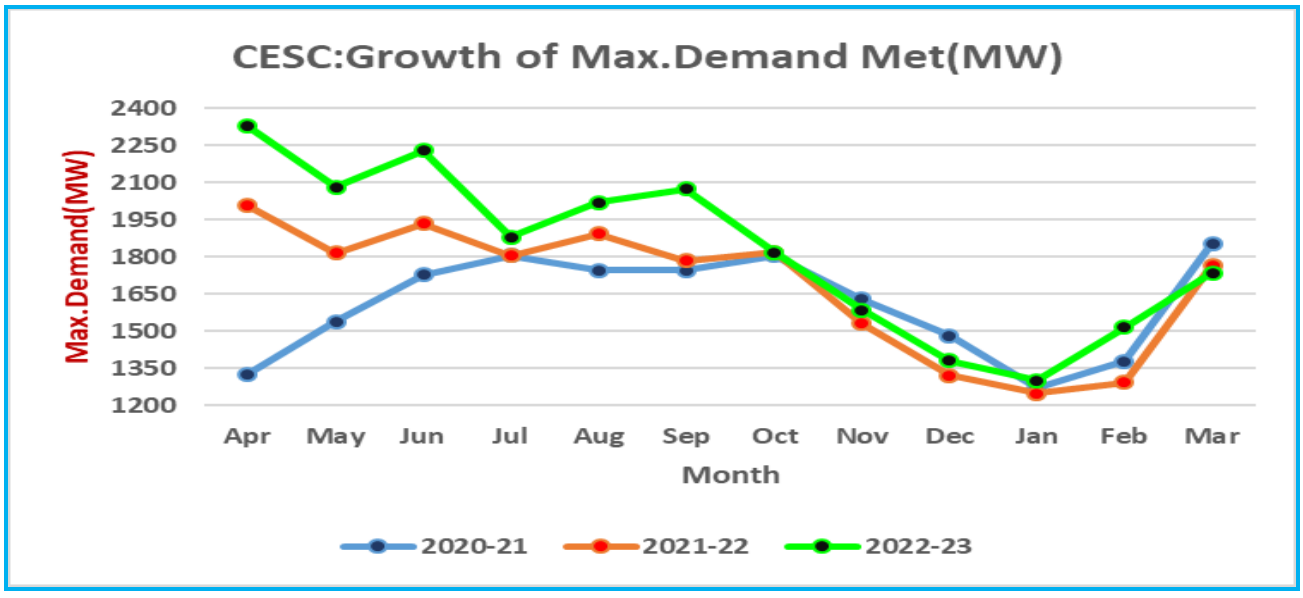

Jharkhand:Growth of Maximum Demand Met(MW)
Max.Demand(MW)
2000
1800
1600
1400
1200
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
2020-21
2021-22
2022-23

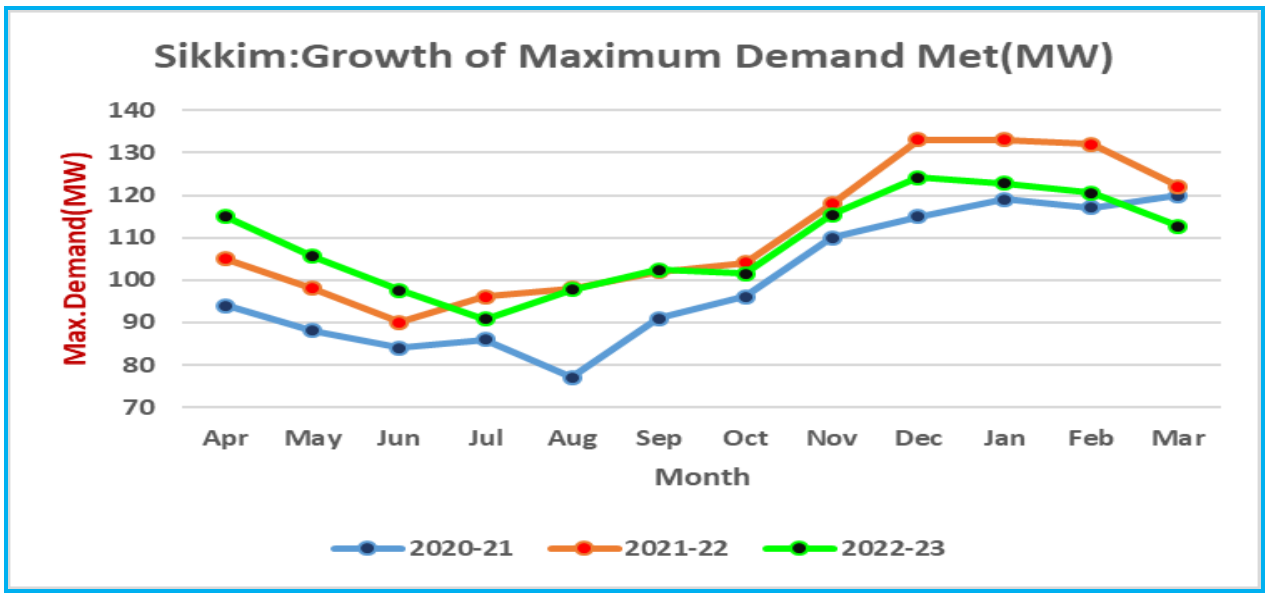

DVC:Growth of Max.Demand Met(MW)
Max.Demand(MW)
3600
2800
2000
1200
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
2020-21
2021-22
2022-23


Odisha:Growth of Maximum Demand Met(MW)
Max.Demad(MW)
7000
6500
6000
5500
5000
4500
4000
3500
3000
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
2020-21
2021-22
2022-23


WEST BENGAL(TOTAL):Max.Demand Met(MW) in FY 2022-23
Max.Demand(MW)
10000
9500
9000
8500
8000
7500
7000
6500
6000
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month


WBSEDCL:Growth of Max.Demand Met(MW)
Max.Demand(MW)
8500
7500
6500
5500
4500
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
2020-21
2021-22
2022-23


CESC:Growth of Max.Demand Met(MW)
Max.Demand(MW)
2400
2250
2100
1950
1800
1650
1500
1350
1200
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
2020-21
2021-22
2022-23

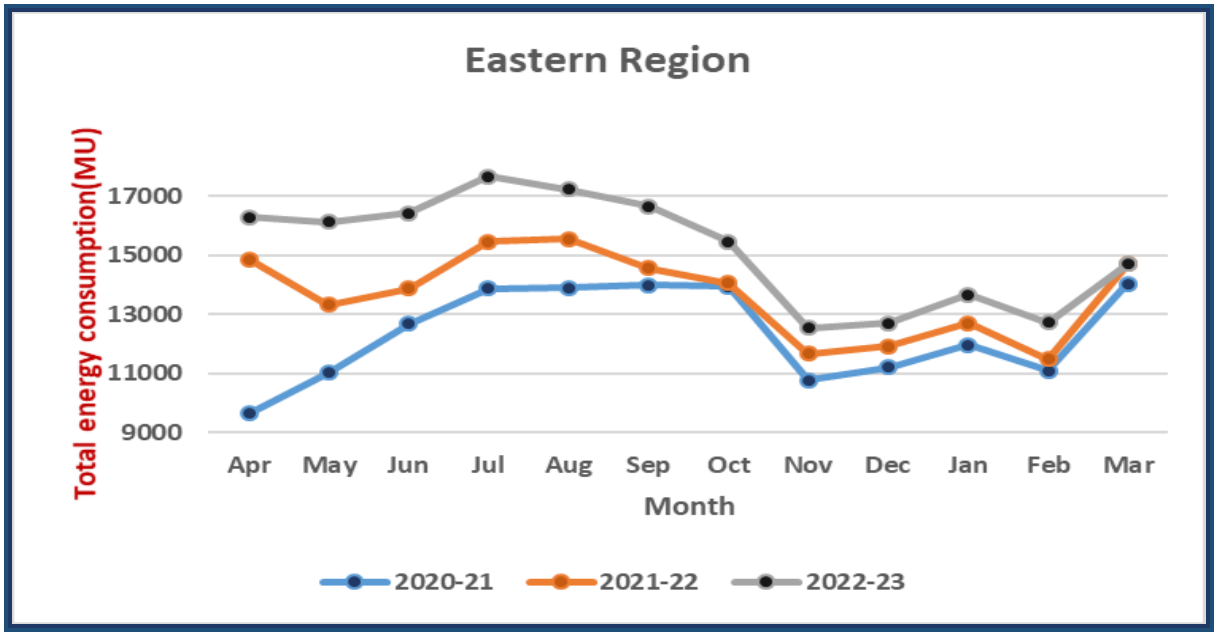


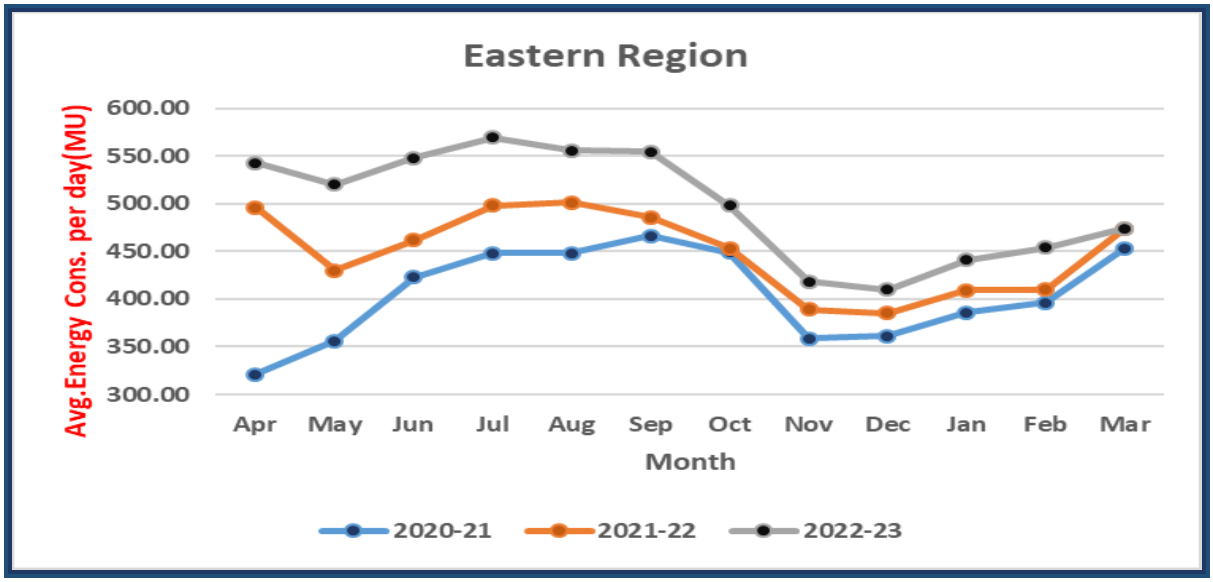
Compounded Annual Growth Rate (CAGR) of Peak Demand in ER for last five years was 3.67%. Constituent-wise & month-wise peak demand met (MW) are shown in **Annexure-VI (A) & Annexure-VI(B)**.

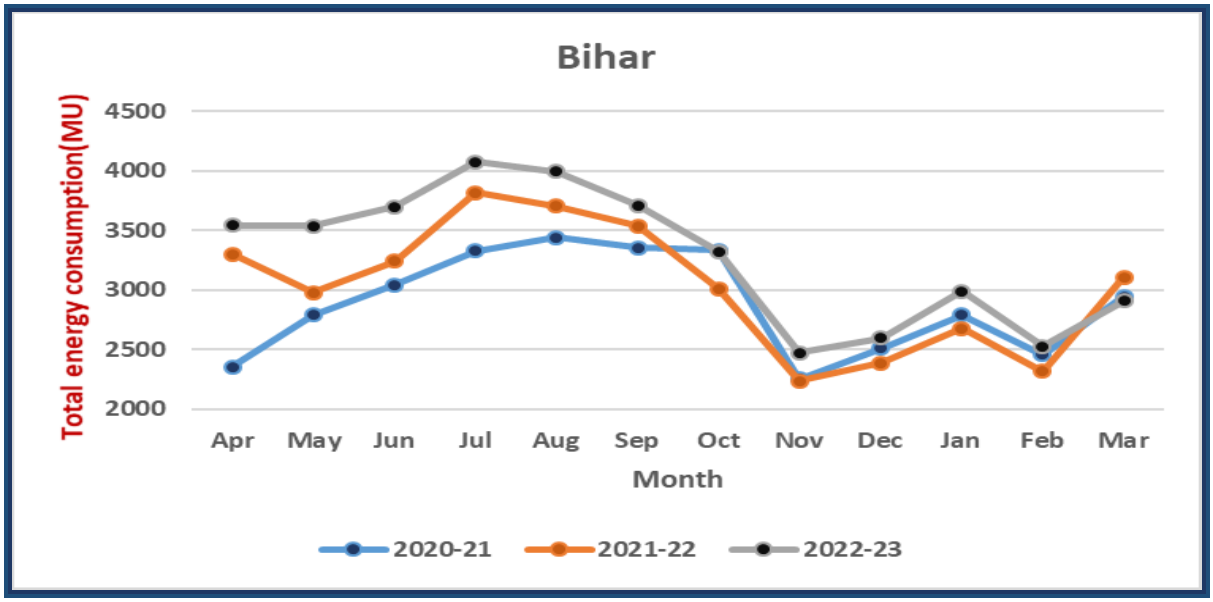
2.2.3 ENERGY CONSUMPTION

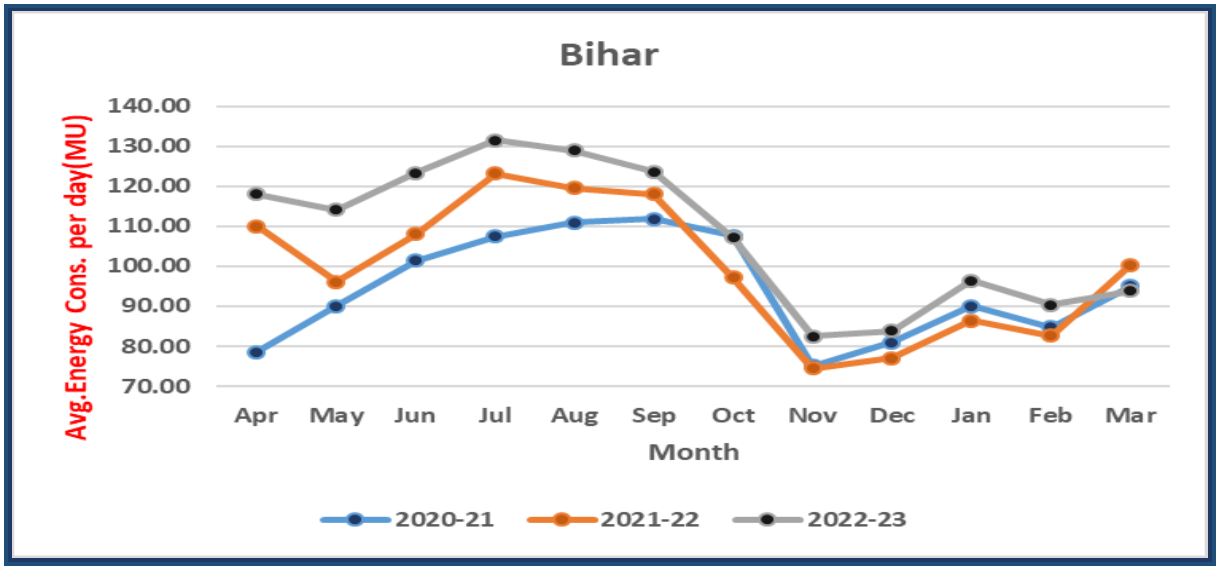
During the year 2022-23, the total energy consumption (net) in Eastern Region was 1,82,108.6 MU (including withdrawal by HVDC Sasaram & Alipurduar) compared to consumption of 1,64,089 MU during previous year i.e. 18,019 MU (10.98%) more than last year's consumption. The daily average energy consumption in the region was about 499 MU/day compared to about 450 MU/day during the previous year. These figures exclude consumption of different industries from their respective captive power plants.

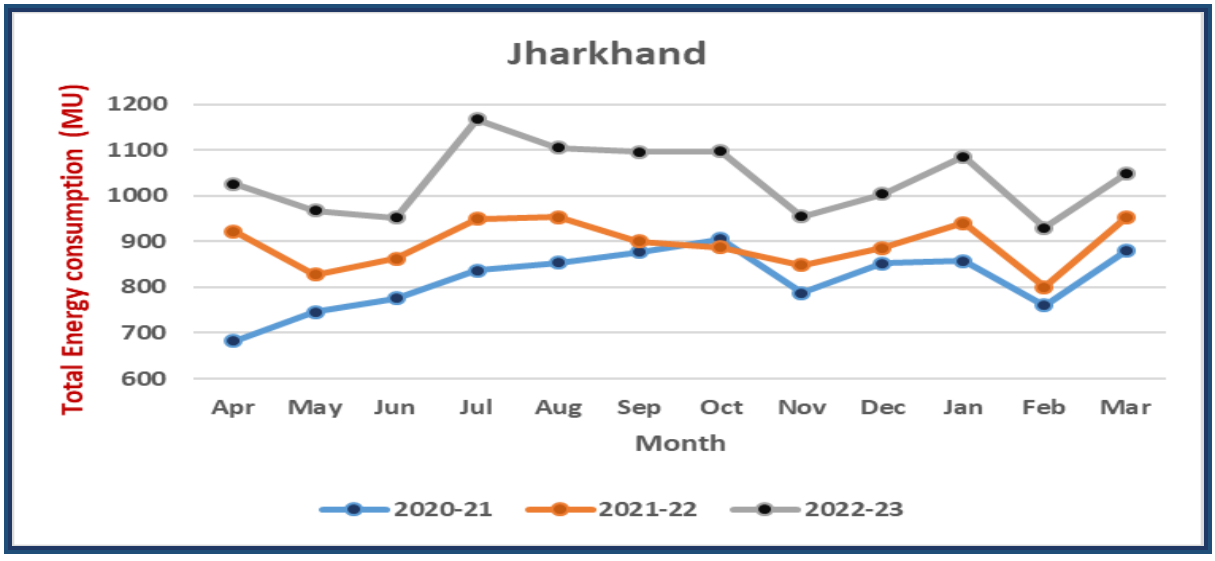
Compounded Annual Growth Rate (CAGR) of energy consumption of the last five years works out as 4.55 % as compared to the growth of peak demand figure of 3.67%.. Constituent-wise & month-wise energy consumption has been shown in **Annexure-VII(A) & Annexure-VII(B).** The growth in energy consumption in Eastern Region and its constituents for the last three years are shown below:

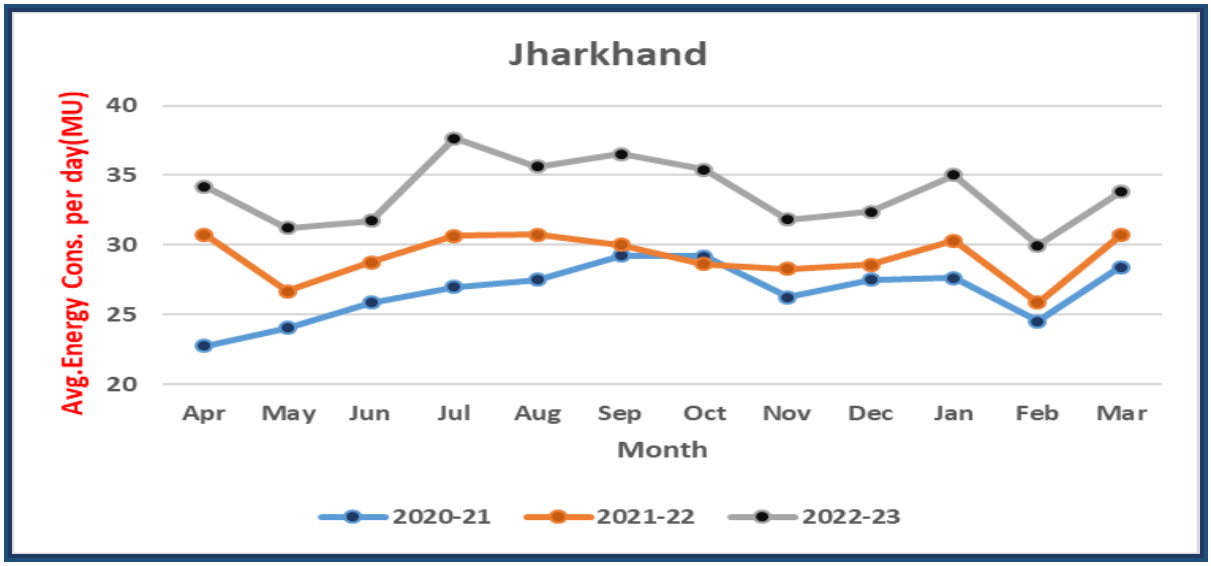

Eastern Region
Total energy consumption(MU)
17000
15000
13000
11000
9000
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
2020-21
2021-22
2022-23

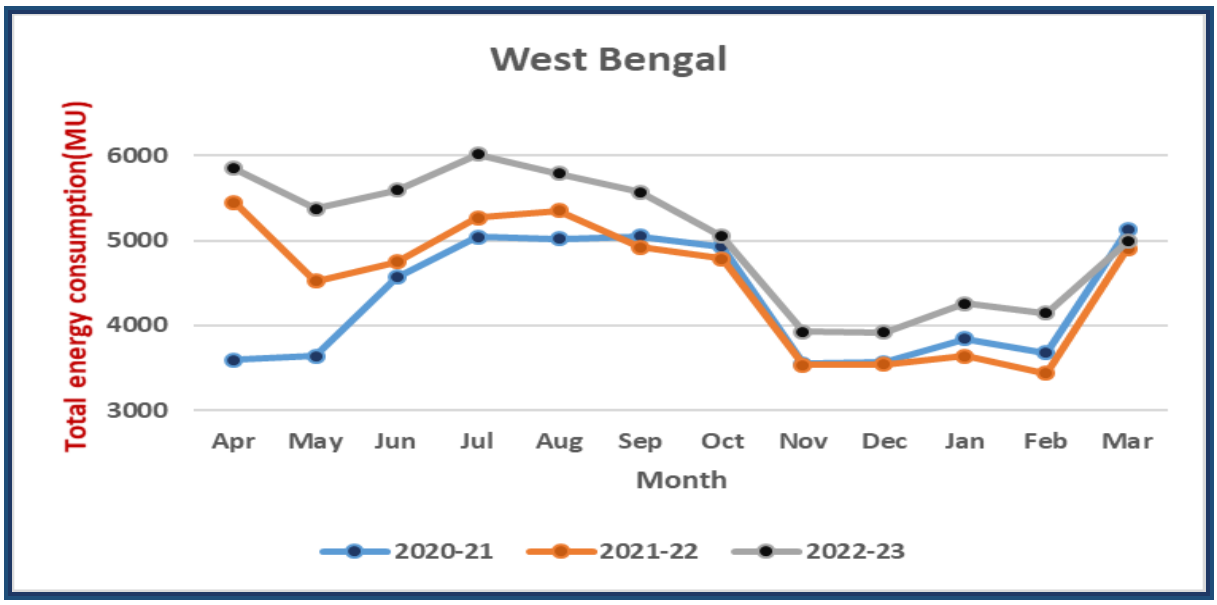

Eastern Region
Avg.Energy Cons. per day(MU)
600.00
550.00
500.00
450.00
400.00
350.00
300.00
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
2020-21
2021-22
2022-23

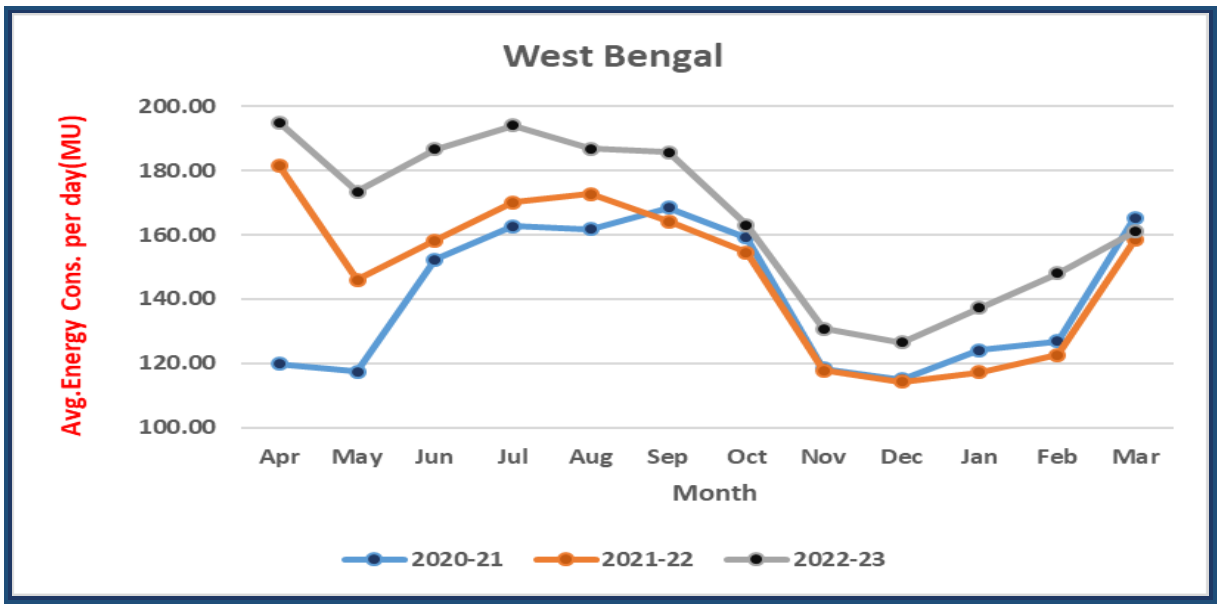

Bihar
Total energy consumption(MU)
4500
4000
3500
3000
2500
2000
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
2020-21
2021-22
2022-23

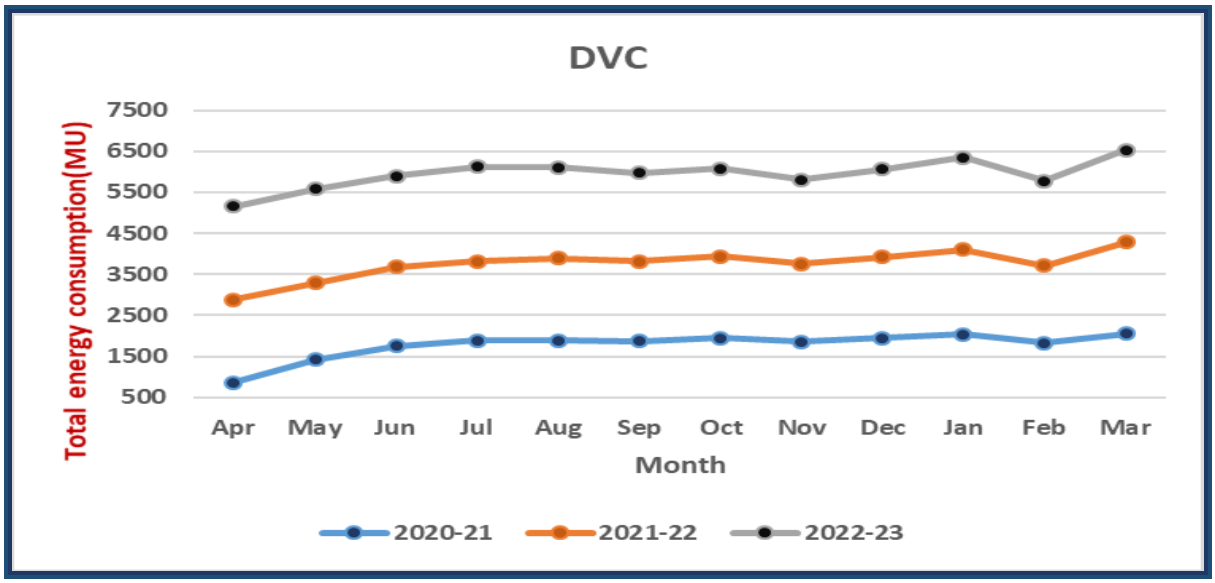

Bihar
Avg.Energy Cons. per day(MU)
140.00
130.00
120.00
110.00
100.00
90.00
80.00
70.00
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
2020-21
2021-22
2022-23

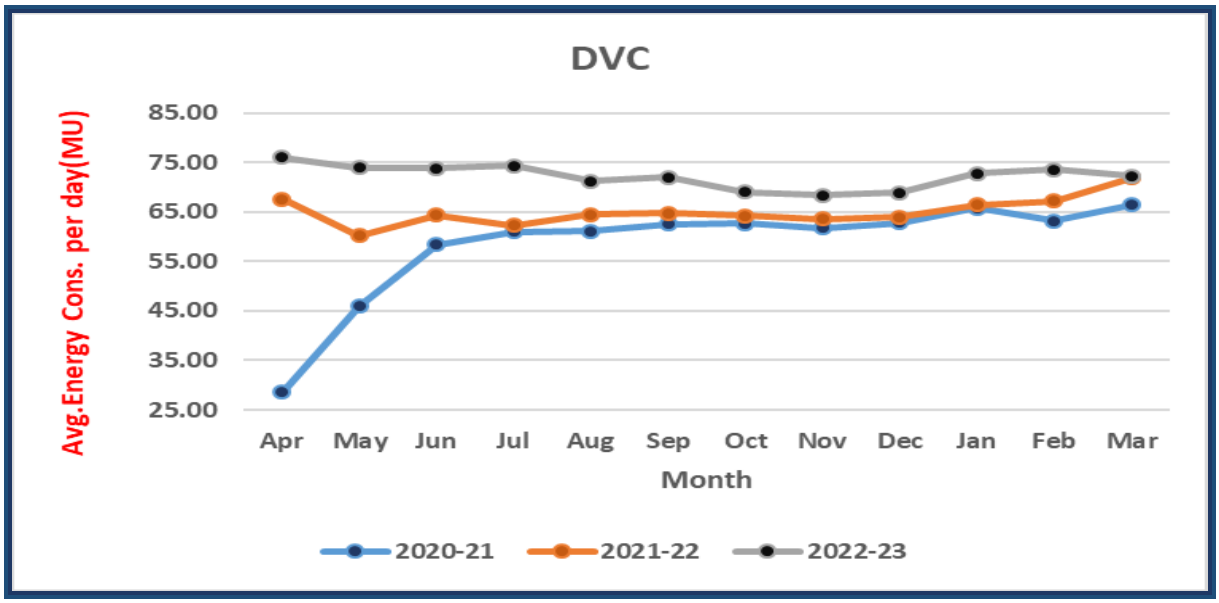

Jharkhand
Total Energy consumption (MU)
1200
1100
1000
900
800
700
600
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
2020-21
2021-22
2022-23

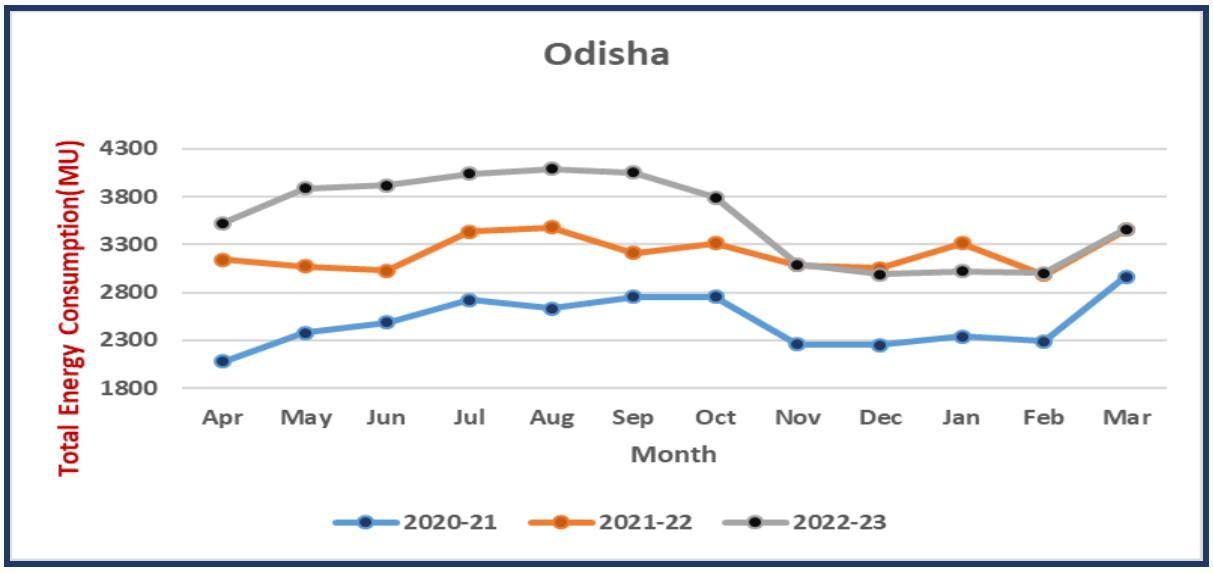

Jharkhand
Avg.Energy Cons. per day(MU)
40
35
30
25
20
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
2020-21
2021-22
2022-23

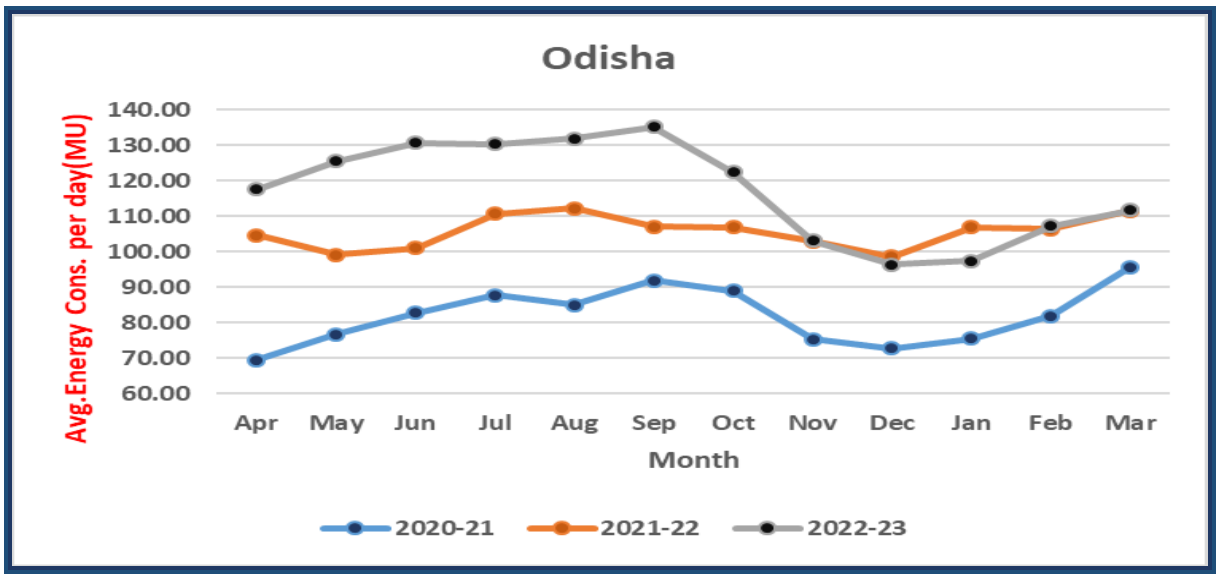

West Bengal
Total energy consumption(MU)
6000
5000
4000
3000
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
2020-21
2021-22
2022-23

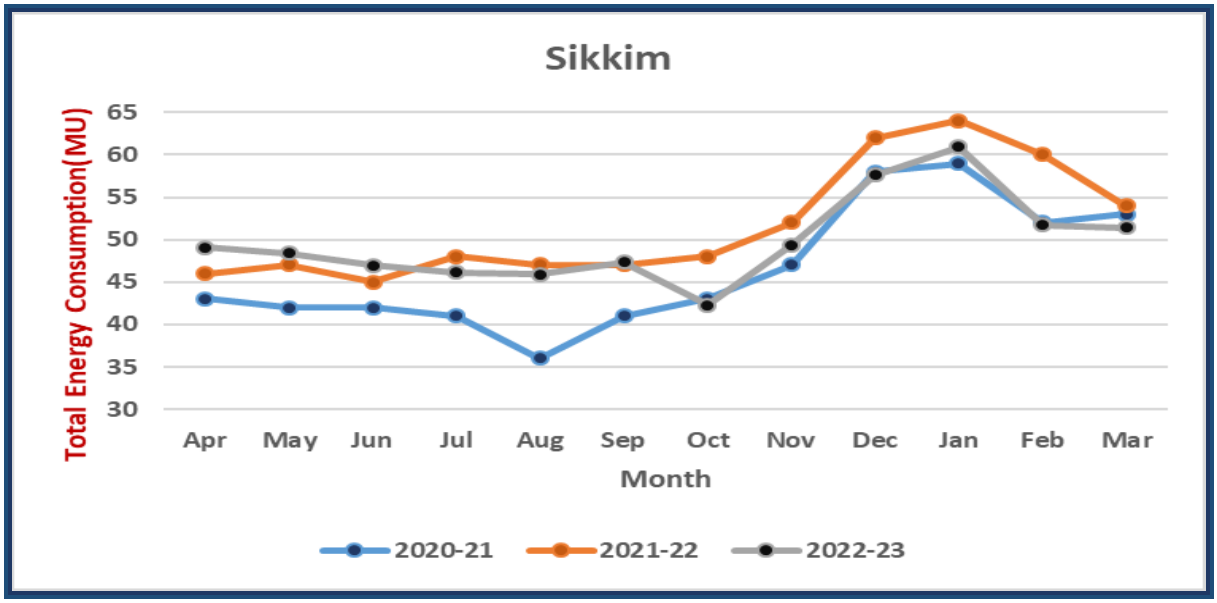

West Bengal
Avg.Energy Cons. per day(MU)
200.00
180.00
160.00
140.00
120.00
100.00
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
2020-21
2021-22
2022-23

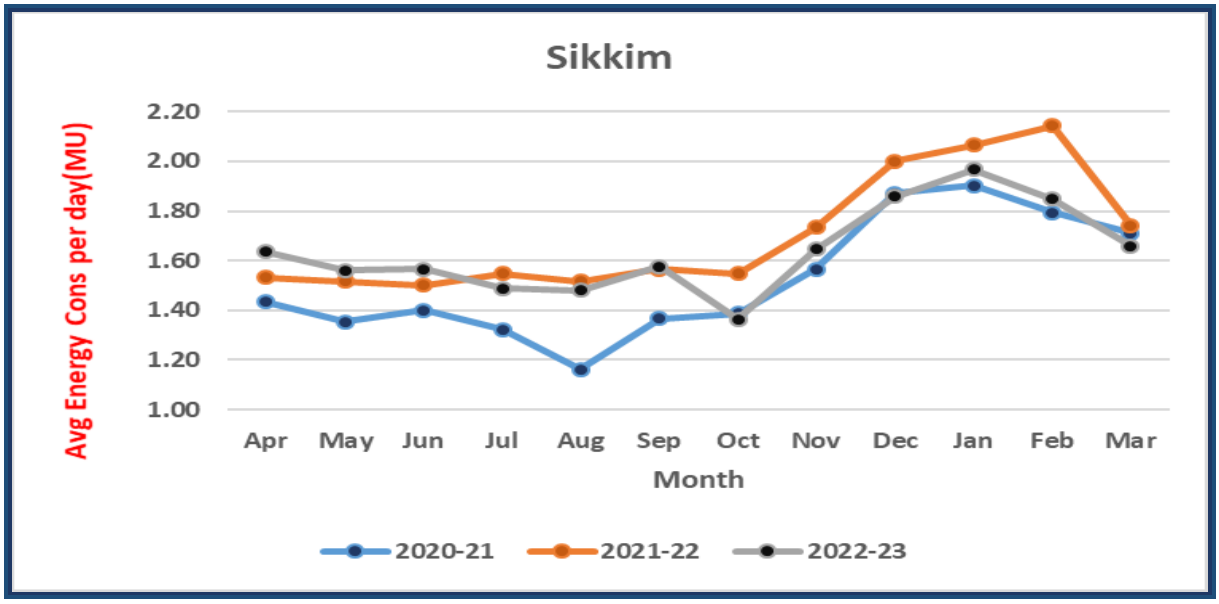

DVC
Total energy consumption(MU)
7500
6500
5500
4500
3500
2500
1500
500
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
2020-21
2021-22
2022-23


DVC
Avg.Energy Cons. per day(MU)
85.00
75.00
65.00
55.00
45.00
35.00
25.00
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
2020-21
2021-22
2022-23


Odisha
Total Energy Consumption(MU)
4300
3800
3300
2800
2300
1800
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
2020-21
2021-22
2022-23


Odisha
Avg.Energy Cons. per day(MU)
140.00
130.00
120.00
110.00
100.00
90.00
80.00
70.00
60.00
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
2020-21
2021-22
2022-23


Sikkim
Total Energy Consumption(MU)
65
60
55
50
45
40
35
30
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
2020-21
2021-22
2022-23



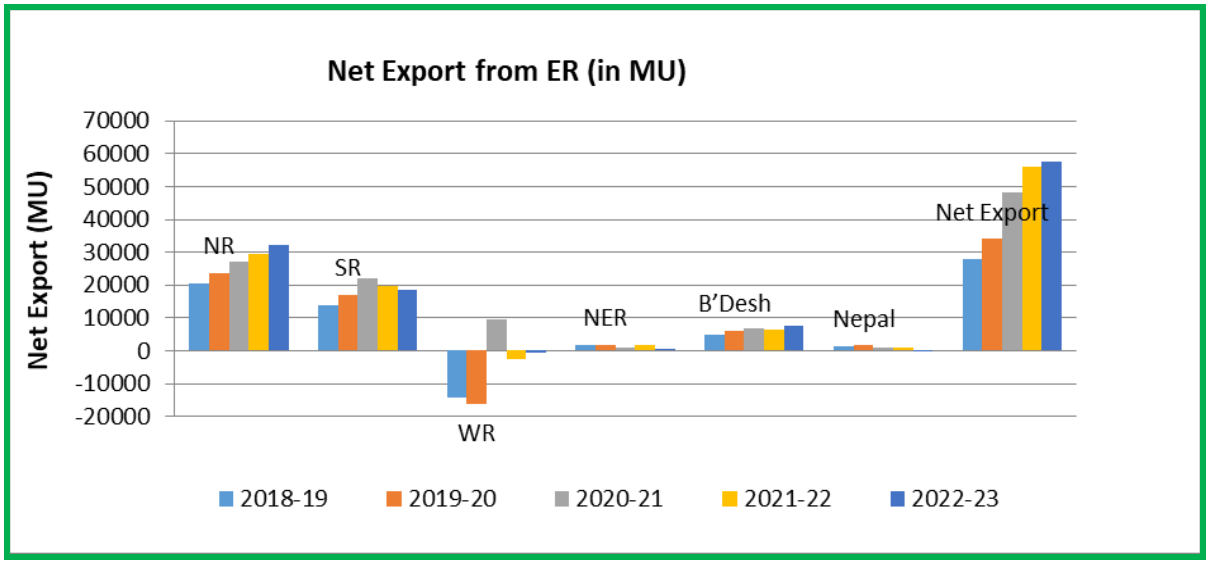
2.2.4 EXPORT TO OUTSIDE REGION

During the year 2022-23, the total net export of energy outside the region was 57583.71MU compared to 55,963.3 MU in the last year (i.e. 1620.41 MU) or 2.9% more than the last year). Increase in export is due to increase of energy generation of Eastern Region. As per decision of the MoP, GoI, the power export to Bangladesh has been undertaken and regular supply has been commenced from through 400 kV D/C Berhampur – Bheramara line with HVDC (B-t-B 2x500MW) station at Bheramara (Bangladesh). Also, power flow from ER grid to Nepal has been started from February'2016 through 400 kV (charged at 220 kV) Muzaffarpur - Dhalkheber (Nepal) line and other radial 33 kV as well as 132 kV feeders in Bihar. The details regarding export of net energy from ER Grid including transmission loss are shown in table below:

Table: Net Energy Export (in MU) From Eastern Grid

Year	NR	SR	WR	NER	B'Desh	Nepal	Net Export	Growth
2018-19	20491	13783	-14311	1685	4808	1340	27796	-5.1%
2019-20	23613.2	17122.2	-16194	1816.38	6046.8	1571.71	33976.24	22.2%
2020-21	27179	22068.5	-9664.4	893.5	6680.0	1025.6	48182*	41.8%
2021-22	29558.9	19782.5	-2468.2	1565	6478	1047	55963.7	16%
2022-23	32164.4	18621.8	-659.6	75.4	7547.7	-166.1	57583.7	2.9%

Growth of net export of Energy (MU) outside Eastern Region during last five years is given below:



2.2.4 VOLTAGE

During the year 2022-23, the voltage profile except a few important 400 kV sub–stations and 220 kV sub-stations remained satisfactory. Maximum & Minimum Voltage touched during 2022-23 at some of the important 765 kV & 400 kV sub-stations are shown below:

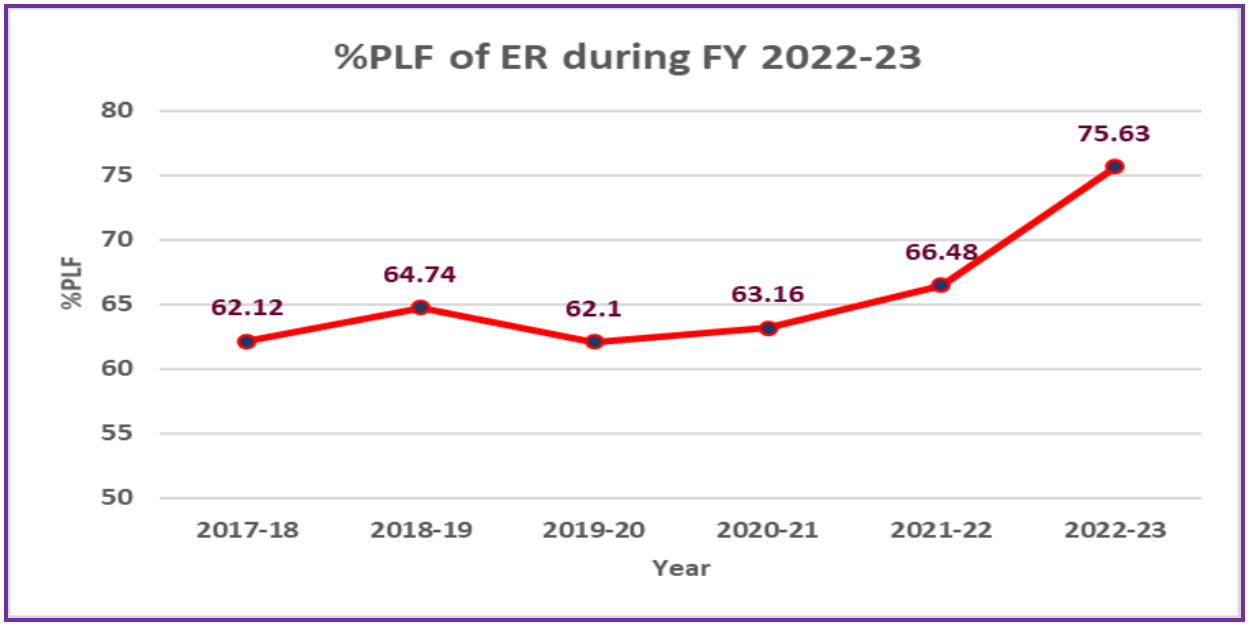
Sub-Station	Max. Voltage (kV)	Min. Voltage (kV)
765 kV		
New Ranchi	797	758
Sasaram	809	740
400 kV		
Binaguri	423	397
Jeerat	424	384
Biharshariff	424	396
Muzaffarpur	420	386
Jamshedpur	416	387
Rourkela	414	390
Jeypore	419	393
Maithon	416	396
Meramundali	417	388

2.3 PLANT LOAD FACTOR (PLF)

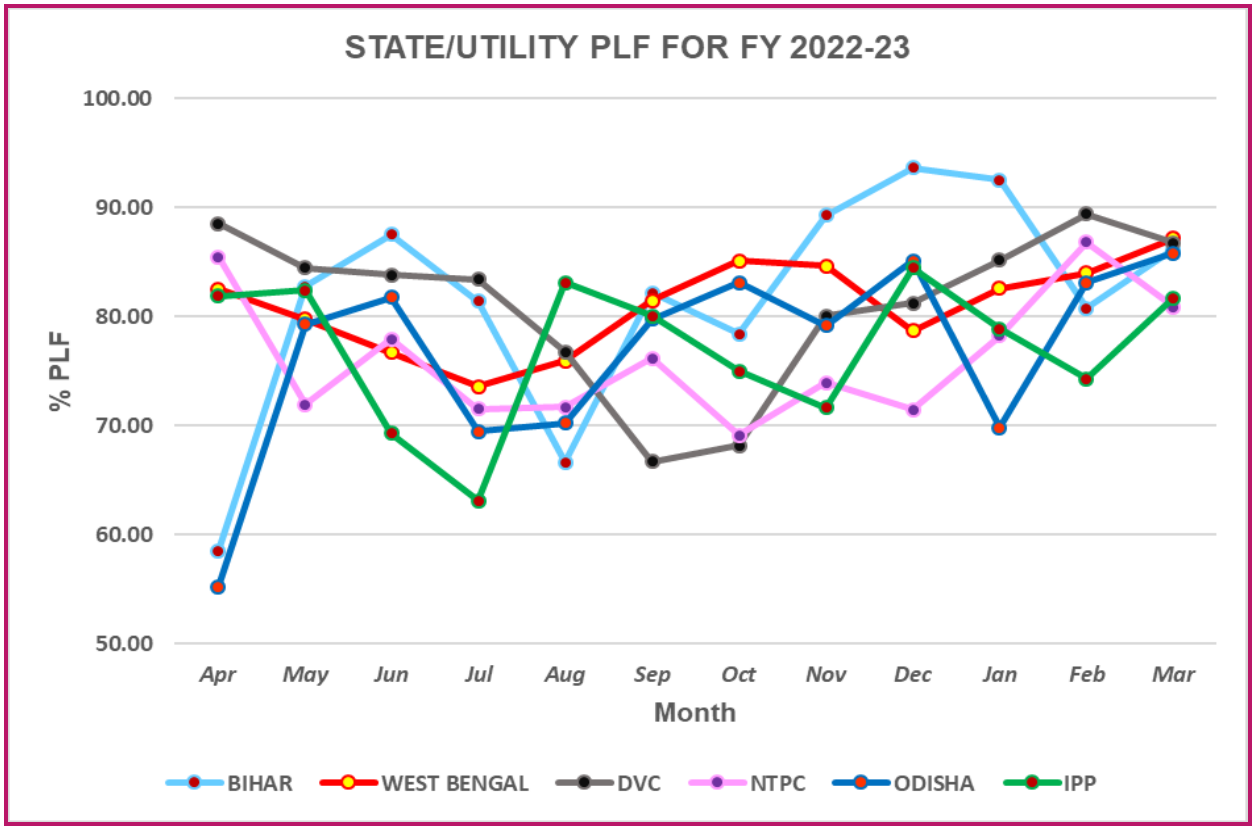
The average annual Plant Load Factor (PLF) of the thermal power stations in the Eastern Region for the year 2022-23 was 75.63% against 66.48% for 2021-22. The PLF has been calculated based on the capacity and generation of the commercially declared units only. Infirm generation and their injection period have not been considered for PLF calculations. Details of PLF have been shown at **Annexure-X.**

The average PLF of ER for the last six years is shown below: -

YEAR	Avg. PLF (in %)
2017-18	62.12
2018-19	64.74
2019-20	62.10
2020-21	63.16
2021-22	66.48
2022-23	**75.63**

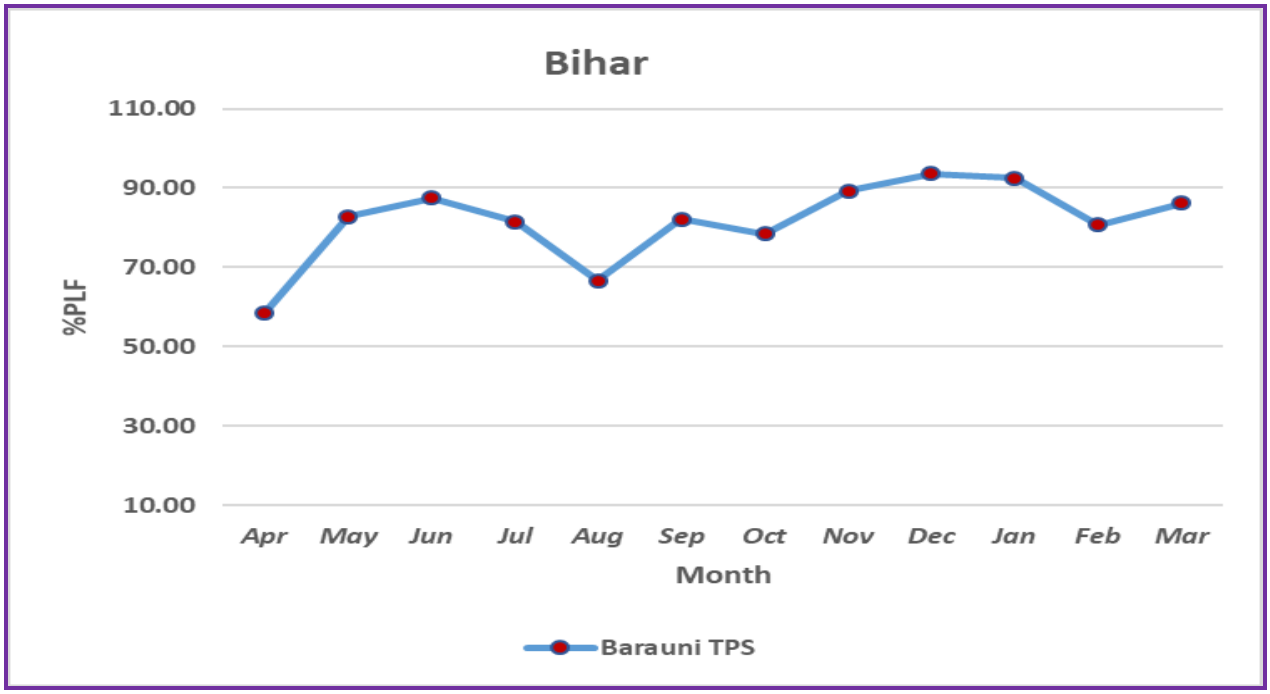


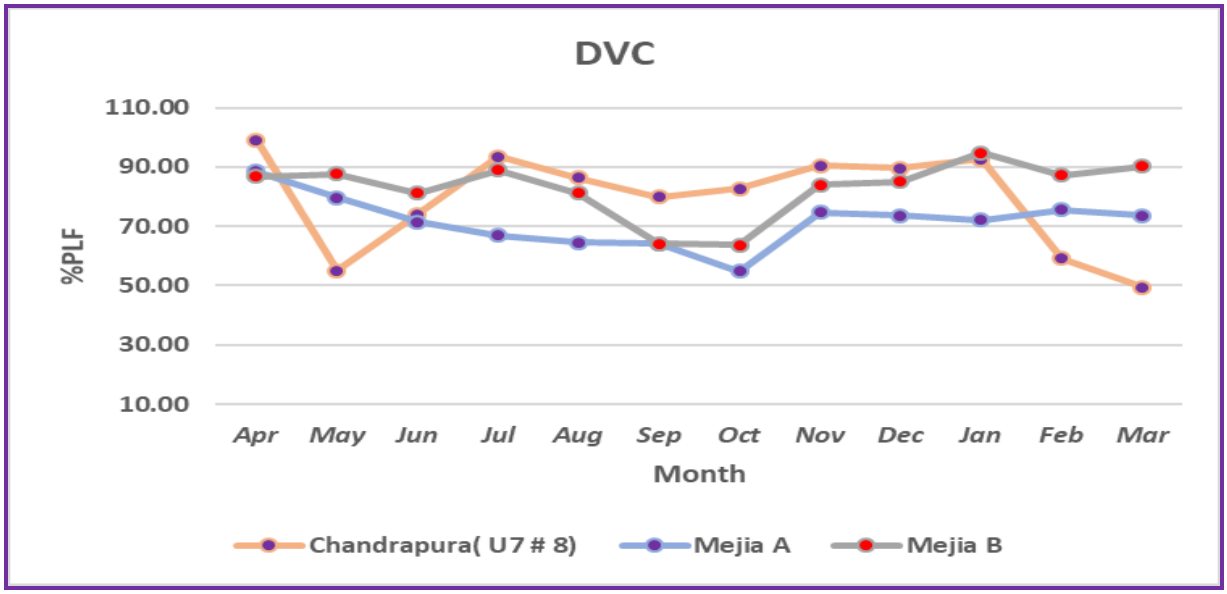
State/Utility wise PLF for FY 2022-23 is shown below:

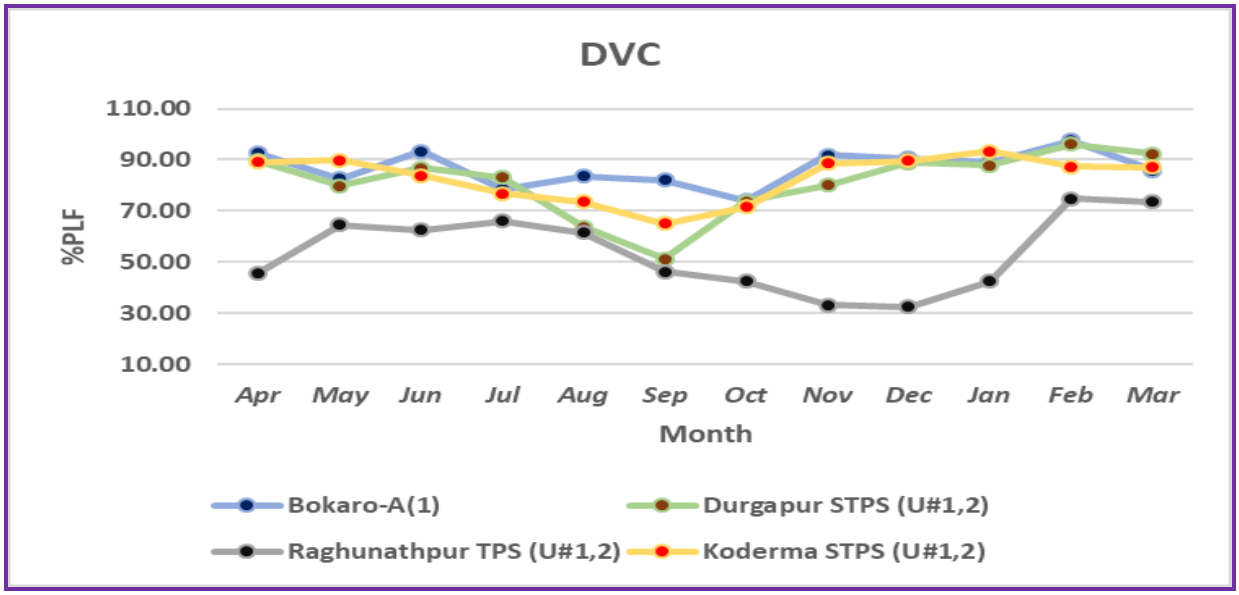


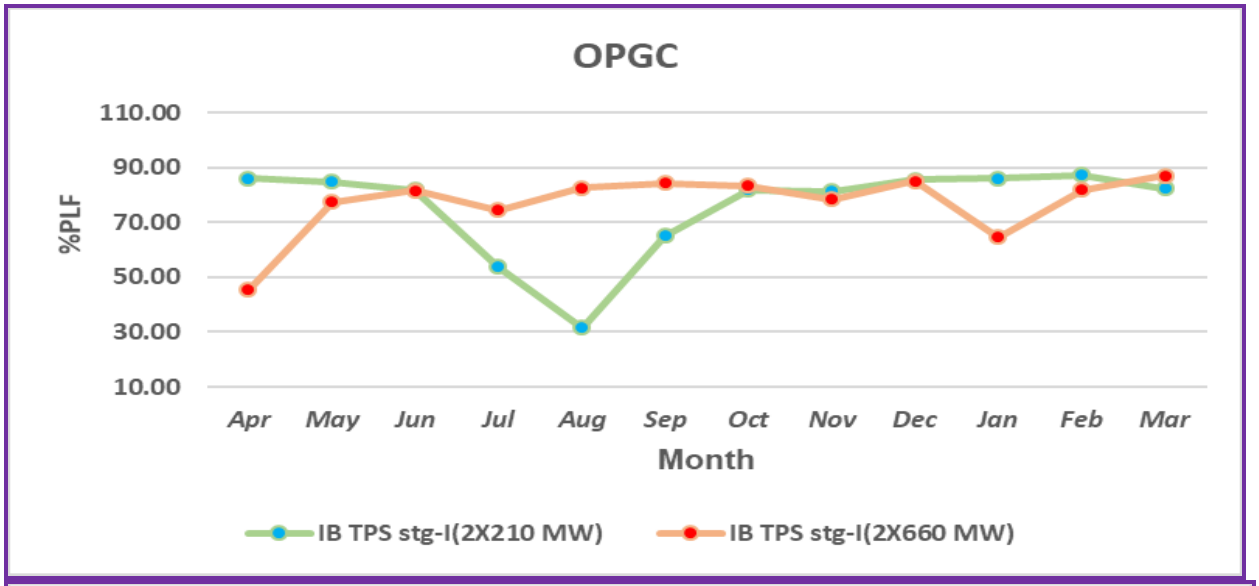
 # West Bengal-WBPDCL generating stations and dedicated stations for the state

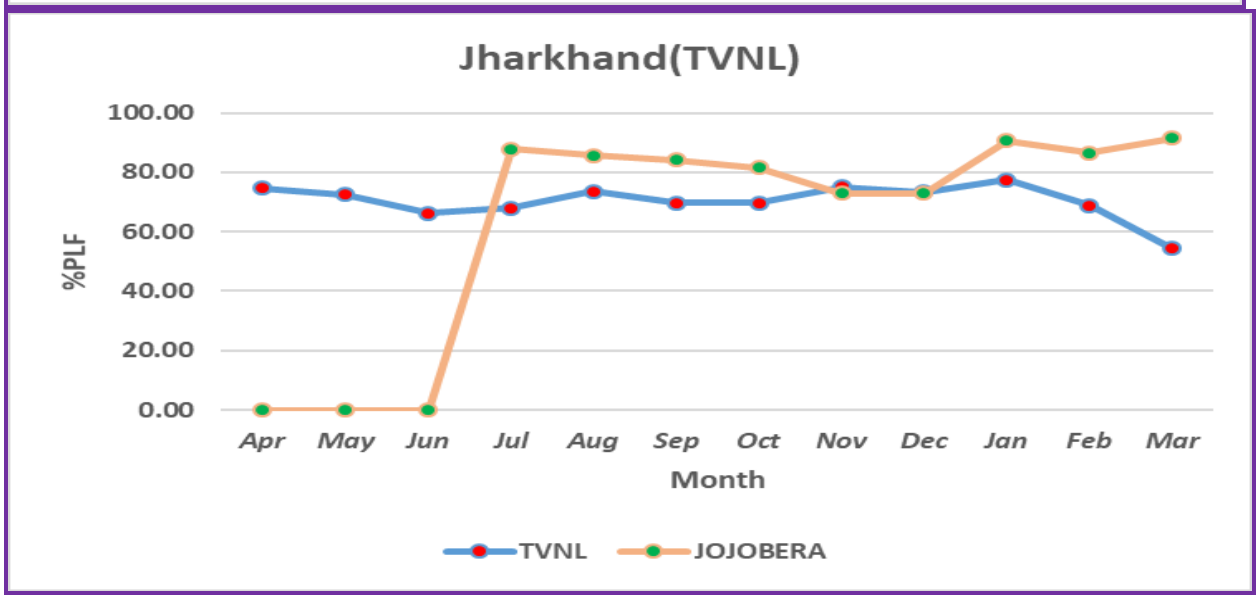
Utility-wise & Plant-wise average thermal PLF is shown below:

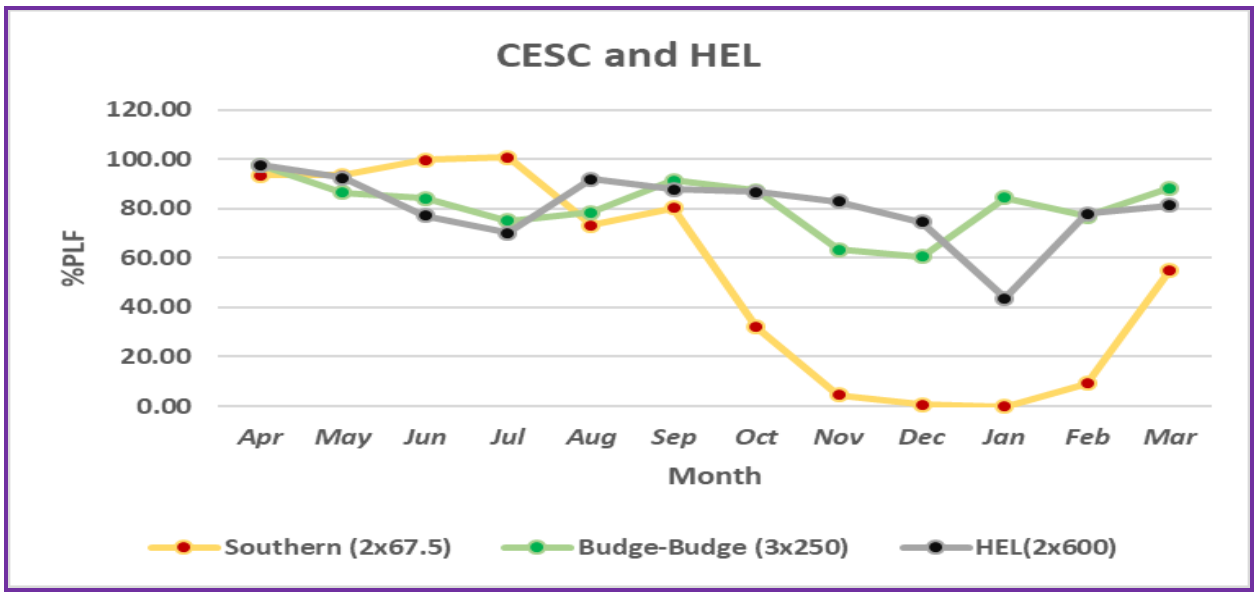


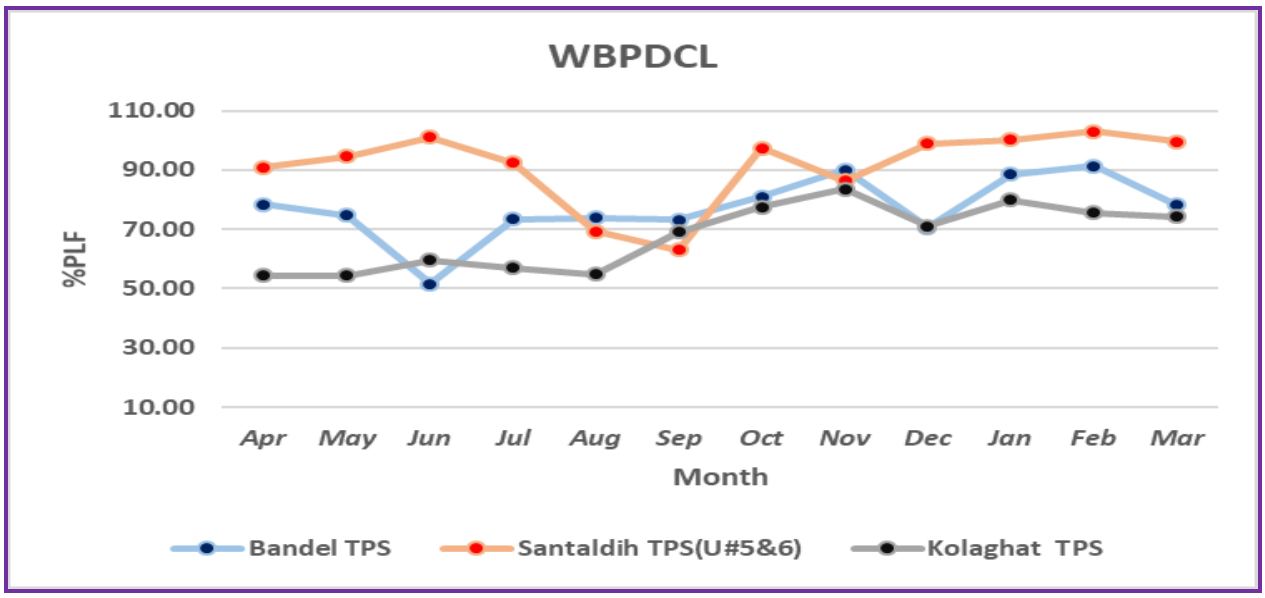

DVC
110.00
90.00
70.00
50.00
30.00
10.00
%PLF
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Month
Chandrapura(U7 # 8)
Mejia A
Mejia B

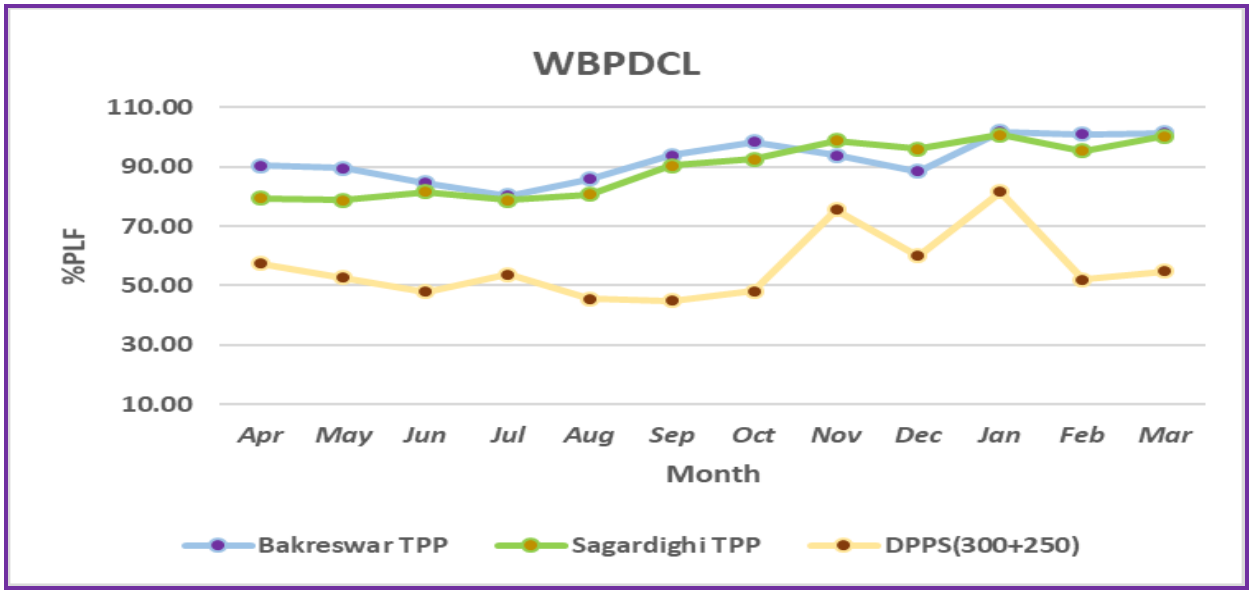

DVC
110.00
90.00
70.00
50.00
30.00
10.00
%PLF
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Month
Bokaro-A(1)
Durgapur STPS (U#1,2)
Raghunathpur TPS (U#1,2)
Koderma STPS (U#1,2)

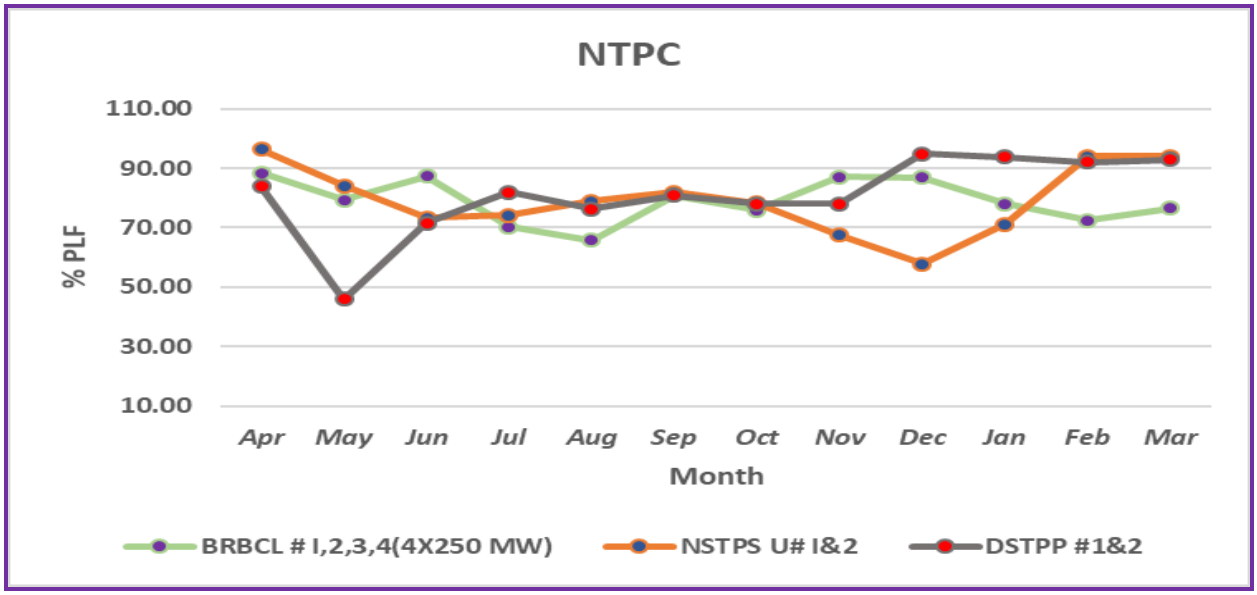

OPGC
110.00
90.00
70.00
50.00
30.00
10.00
%PLF
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
IB TPS stg-I(2X210 MW)
IB TPS stg-I(2X660 MW)

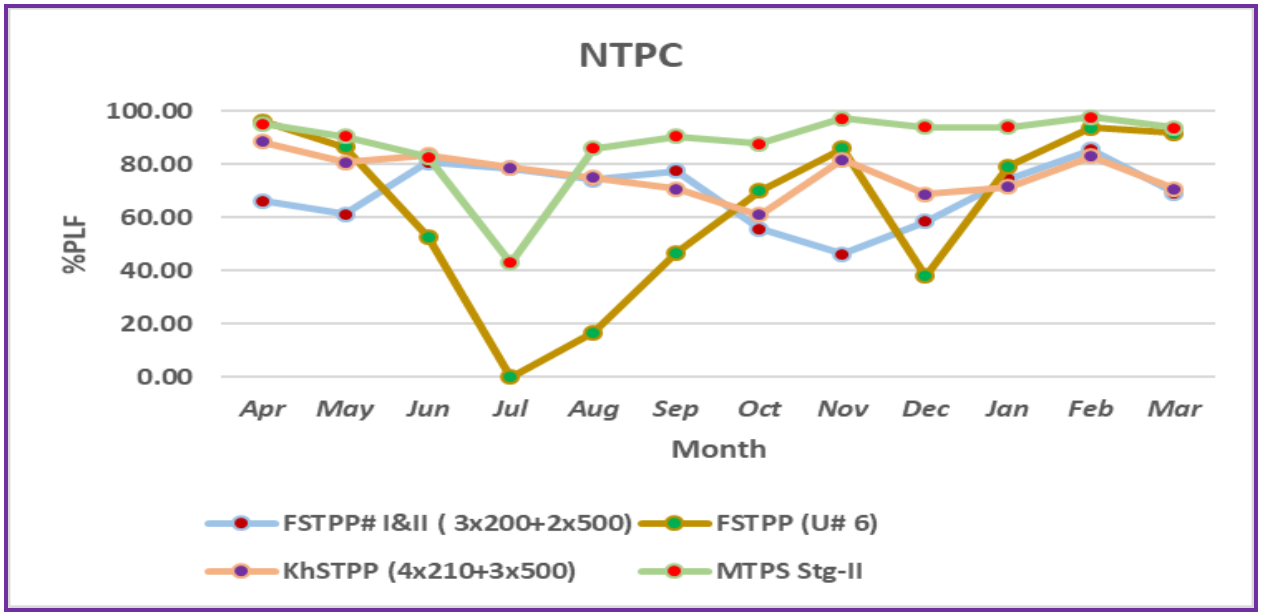

Jharkhand(TVNL)
100.00
80.00
60.00
40.00
20.00
0.00
%PLF
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
TVNL
JOJOBERA

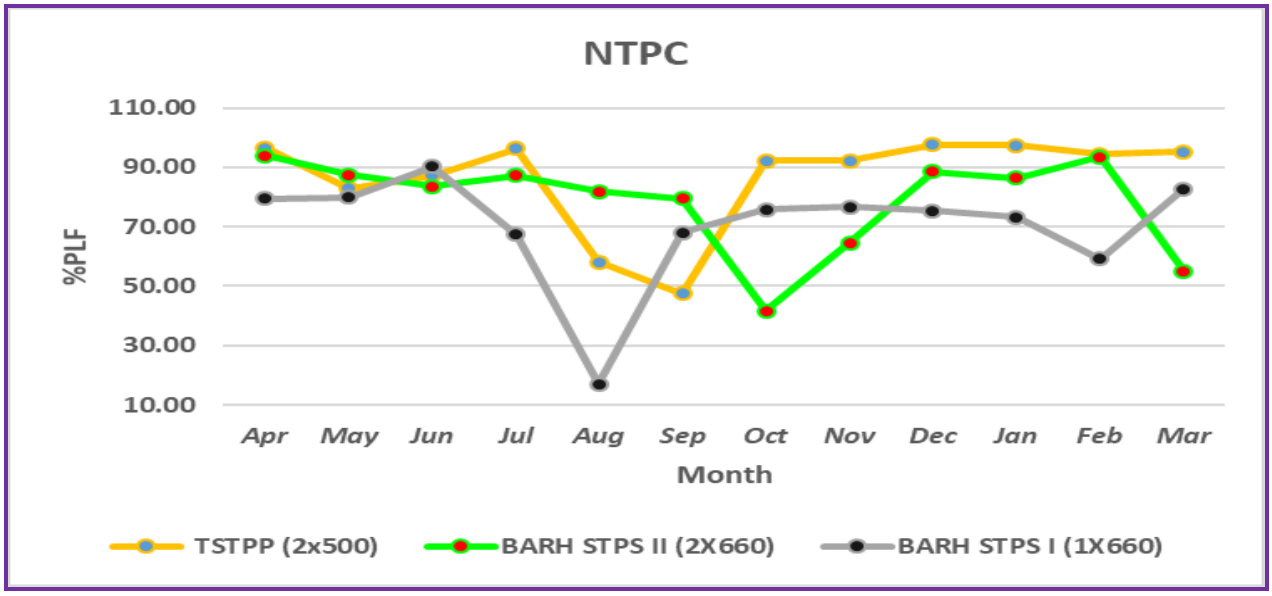

CESC and HEL
120.00
100.00
80.00
60.00
40.00
20.00
0.00
%PLF
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
Southern (2x67.5)
Budge-Budge (3x250)
HEL(2x600)

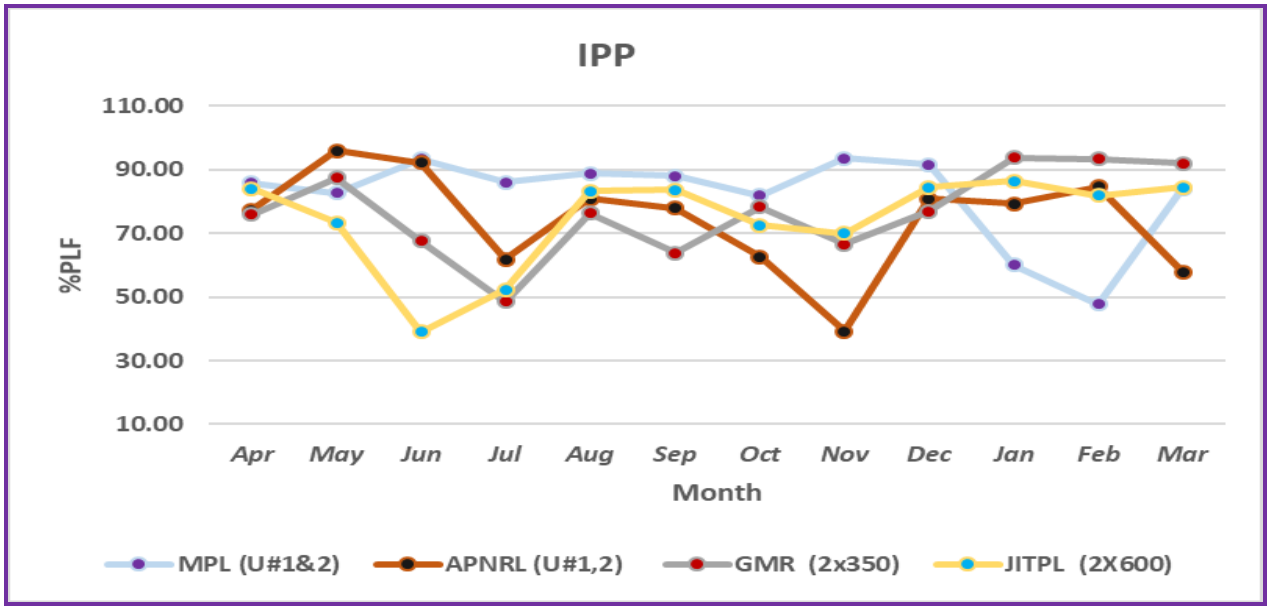

WBPDCL
110.00
90.00
70.00
50.00
30.00
10.00
%PLF
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
Bandel TPS
Santaldih TPS(U#5&6)
Kolaghat TPS


WBPDCL
110.00
90.00
70.00
50.00
30.00
10.00
%PLF
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
Bakreswar TPP
Sagardighi TPP
DPPS(300+250)


NTPC
110.00
90.00
70.00
50.00
30.00
10.00
% PLF
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
BRBCL # I,2,3,4(4X250 MW)
NSTPS U# I&2
DSTPP #1&2


NTPC
100.00
80.00
60.00
40.00
20.00
0.00
%PLF
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
FSTPP# I&II (3x200+2x500)
FSTPP (U# 6)
KhSTPP (4x210+3x500)
MTPS Stg-II


NTPC
110.00
90.00
70.00
50.00
30.00
10.00
%PLF
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
TSTPP (2x500)
BARH STPS II (2X660)
BARH STPS I (1X660)


IPP
110.00
90.00
70.00
50.00
30.00
10.00
%PLF
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Month
MPL (U#1&2)
APNRL (U#1,2)
GMR (2x350)
JITPL (2X600)

2.4 SYSTEM LOAD FACTOR

The Annual Load Factor of the Eastern Region during 2022-23 was 76.38% compared to 74.5% in the preceding year. The load factor was highest in DVC areas (88.52%) due to mostly industrial flat load and it was lowest in Sikkim (54.82%) mainly due to domestic & commercial load.

2.5 INTERNATIONAL EXCHANGE

Eastern Region has a unique geographical advantage of having inter-Regional links with all the regions of the country along with international lines to neighbouring countries namely Nepal, Bhutan and Bangladesh. Eastern Region exchanges power to the other regions of the country. It imports power from Chukha, Kuruchhu, Tala, Daghachu and Mangdechhu HEPs of Bhutan and exports power to Nepal & Bangladesh. Power export to Bangladesh is through 400 kV D/C Berhampur (WB) – Bheramara (Bangladesh) line. Power export from ER grid to Nepal is through 400 kV (charged at 220 kV) Muzaffarpur - Dhalkheber (Nepal) line. In addition to this, Bihar state network also supplies power to Nepal which has been shown separately.

The table below depicts quantum of power import from Bhutan and exchange (Net) with Nepal & Bangladesh in last five years:

YEAR	Import from Bhutan (Chukha, Kuruchhu, Tala, Mangdechhu & Daghachhu) (in MU)	Net Export to Nepal (in MU)		Net Export to Bangladesh (in MU)
		Through Bihar State network by BSPHCL	Through CTU network by NVVN	
2018-19	4395.87	1335.62	1340.43	4808.11
2019-20	6350.63	599.84	1571.71	6046.81
2020-21	9251.7	592.65	1025.6	6680
2021-22	7939.4	614.51	1047.4	6478
2022-23	6672.48(Excluding **266.3 MU** export to HEPs of Bhutan)	314.03	-480.11	7548

Though all the international lines are not operational all the times however, details of existing lines are indicated below:

1. **Between ER – NEPAL**

   (a) **Through Bihar System**

   132 kV Kataiya (Bihar) - Duhabi (Nepal)
   132 KV D/C Kataiya – Kusaha
   132 kV Raxual-Parwanipur line
   33 kV Raxaul (Bihar) - Birganj (Nepal)

33 kV Kataiya (Bihar) - Biratnagar (Nepal)
33 kV Jaynagr (Bihar) - Siraha (Nepal)
33 kV Kataiya (Bihar) - Rajbiraj (Nepal)
33 kV Pupri (Sursand)(Bihar) - Jaleswar (Nepal)
132 kV Valmiki Nagar-Surajpura Feeder

(b) **Through CTU System**

400 kV (charged at 220 kV) Mazaffarpur-Dhalkheber (Nepal)

2. Between ER – BHUTAN

400 kV Binaguri (PGCIL) - Tala-I (Bhutan)
400 kV Binaguri (PGCIL) -Tala- II (Bhutan)
400 kV Binaguri (PGCIL) -Tala- IV (Bhutan)
400 kV Binaguri (PGCIL) -Malbase-III (Bhutan)
400 Kv Alipurduar(PGCIL)- Jigmelling Ckt-I
400 Kv Alipurduar(PGCIL)- Jigmelling Ckt-II
220 kV Birpara (PGCIL) - Chukha - I (Bhutan)
220 kV Birpara (PGCIL) -Chukha - II (Bhutan)
220 kV Birpara (PGCIL) - Malbase (Bhutan)
11 kV Kalchini (WBSETCL) - Phuntsholing (Bhutan)
11 kV Jaldhaka (WBSETCL) -Sibsoo (Bhutan)
11 kV Banarhat (WBSETCL) - Samchi (Bhutan)

3. Between ER – BANGLADESH

400 kV D/C Berhampur (PGCIL) - Bheramara (Bangladesh)

4. Between NER - BHUTAN

Power is also exchanged between Bhutan and India through the following lines of NER, but the exchange of power is booked against/from ER only.

132 kV Salakati (Assam, PG) – Gelephu (Bhutan)
132 kV Rangia (AEGCL) – Deothang (Bhutan)
11 kV Bongaigaon (AEGCL) -Gaylegphug (Bhutan)
11 kV Tamalpur (AEGCL) -SamdrupJongkhar (Bhutan)
11 kV Dampuri (AEGCL) -Daifan (Bhutan)

2.6 SALIENT FEATURES OF HYDRO RESERVOIR

Salient data regarding FRL, MDDL and the water level reached on the last day of the month in respect of major hydro reservoirs are given in **Annexure - XI.**

2.7 POWER CUTS IN THE REGION

Power supply position in Eastern Region was by and large satisfactory except for sub-transmission and distribution constraints in some of the constituents and shortage in area served by SBPDCL, NBPDCL and JBVNL during peak hours.

2.8 GENERATING UNITS COMMISSIONED / DECOMMISSIONED DURING THE YEAR

New Generating units which have been declared their commercial operation and the units which have been retired during the year 2022-23 is given at **Annexure – IV B**.

2.9 PROGRESS OF CONSTRUCTION OF GENERATING UNITS & TRANSMISSION LINES

List of ongoing Power Projects / Generating Units and progress of construction of ongoing transmission lines are given at **Annexure – XII and Annexure –XIII** respectively**.**

2.10 ALLOCATION OF POWER FROM CENTRAL GENERATING STATIONS.

Allocation of power from Central generating stations in Eastern Region during 2022-23 is given at **Annexure – XIV (A & B).**

CHAPTER-3

GRID INCIDENTS / DISTURBANCES

3.1 INTRODUCTION:

As per the Central Electricity Authority (Grid Standards), 2010, "Grid Disturbance (GD)" means tripping of one or more power system elements of the grid like a generator, transmission line, transformer, shunt reactor, series capacitor and static VAR compensator, resulting in total failure of supply at a sub-station or loss of integrity of the grid, at the level of transmission system at 200kV and above (132kV and above in the case of North-Eastern Region).

Based on the severity of tripping, grid disturbance has been categorised in increasing order of severity as follows:

1. **Category GD-I**: when less than 10% of the antecedent generation or load in a regional grid is lost;
2. **Category GD-2**: when 10% to less than 20% of the antecedent generation or load in a regional grid is lost;
3. **Category GD-3**: when 20% to less than 30% of the antecedent generation or load in a regional grid is lost;
4. **Category GD-4**: when 30% to less than 40% of the antecedent generation or load in a regional grid is lost;
5. **Category GD-5**: when 40% or more of the antecedent generation or load in a regional grid is lost;

"Grid Incidence (GI)" means tripping of one or more power system elements of the grid like a generator, transmission line, transformer, shunt reactor, series capacitor and static VAR compensator, which requires re-scheduling of generation or load without total loss of supply at a sub-station or loss of integrity of the grid at 220 kV and above (132kV and above in the case of North-Eastern Region).

Similar to the Grid Disturbances, Grid Incident has also been categorised based on the severity of incidents, as follows:

1. **Category GI-1**: tripping of one or more power system elements of the grid like a generator, transmission line, transformer, shunt reactor, series capacitor and static VAR compensator, which requires re-scheduling of generation or load, without total loss of supply at a sub-station or loss of integrity of the grid at 220 kV and above (132kV and above in the case of North-Eastern Region).

2. **Category GI-2**: tripping of one or more power system elements of the grid like a generator, transmission line, transformer, shunt reactor, series capacitor and static VAR compensator, which requires re-scheduling of generation or load, without total loss of supply at a sub-station or loss of integrity of the grid at 400 kV and above (220kV and above in the case of North-Eastern Region).

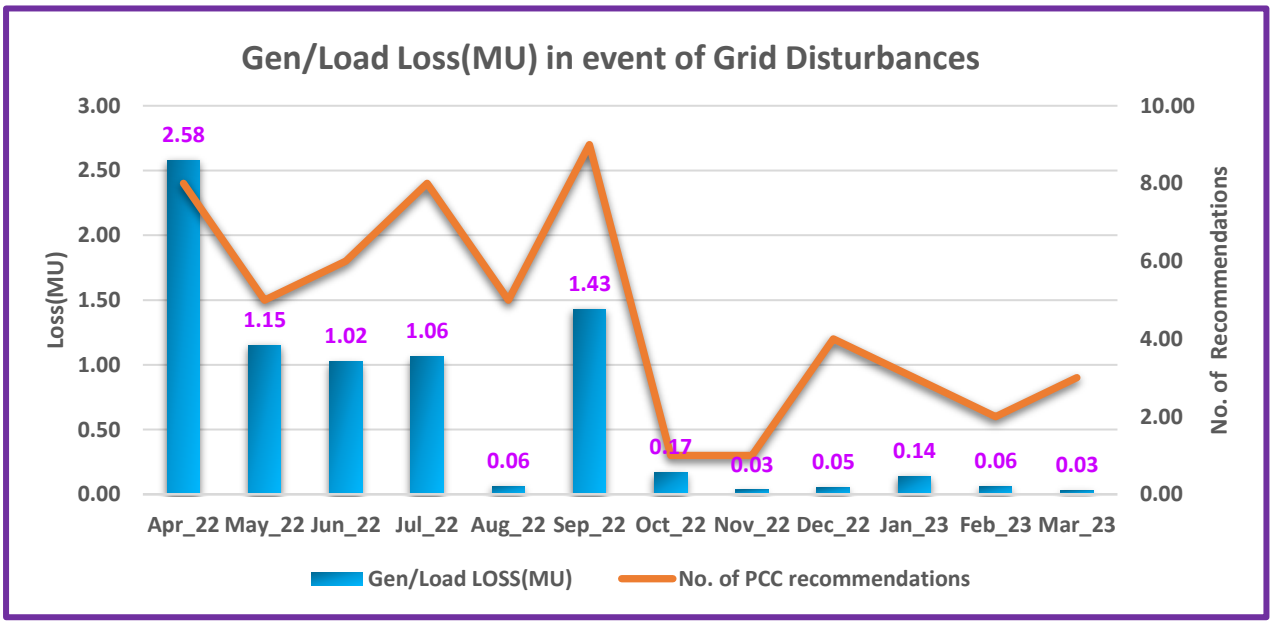
3.2 GRID INCIDENTS/ GRID DISTURBANCES IN EASTERN REGION

Details of major grid disturbances and grid incidents occurred in Eastern region during the year 2022-23 are given at **Annexure-XV** & **Annexure-XVI**, respectively.

A summary of the grid incidents and grid disturbances in Eastern Region during the year 2022-23 is given the table below:

Year	Total No. of Grid Disturbances	Category of Grid Disturbance					Total No. of Grid Incidents	Category of Grid Incidents	
		GD-1	GD-2	GD-3	GD-4	GD-5		GI-1	GI-2
2022-23	57	57	0	0	0	0	5	3	2

Month-wise Variation of Generation /Load Loss in occurrence of Grid disturbances w.r.t to PCC recommendations is shown below:



3.3 REMEDIAL ACTION

The grid disturbances and grid incidents were discussed in the Protection Coordination Sub-committee (PCC) meeting and Operation Coordination Sub-committee (OCC) held every month. The analysis of these incidents/disturbances was carried out and remedial measures were suggested. Implementation of suggested remedial measures was also being monitored in PCC and OCC meetings. Recommendations of PCC against occurrence of Grid disturbances in each month summarized in **Annexure- XVII**

CHAPTER- 4

COMMERCIAL

4.1 REGIONAL ENERGY ACCOUNTING (REA)

CERC Regulations on Availability Based Tariff (ABT), applicable for accounting of Capacity charges and Energy charges of Central Sector Generating Stations; transmission charges of Central Sector Transmission Systems and transactions of interstate power through exchange and bilateral mechanisms, was implemented in Eastern Region (ER) w.e.f. 01.04.2003. CERC has issued "*CERC Tariff Regulations, 2019-24 (Terms and Conditions of Tariff)"* which has come into force on and from 01.04.2019. This regulation shall remain in force for a period of five years i.e. up to 31.03.2024 from the date of commencement unless reviewed earlier or extended by the Commission.

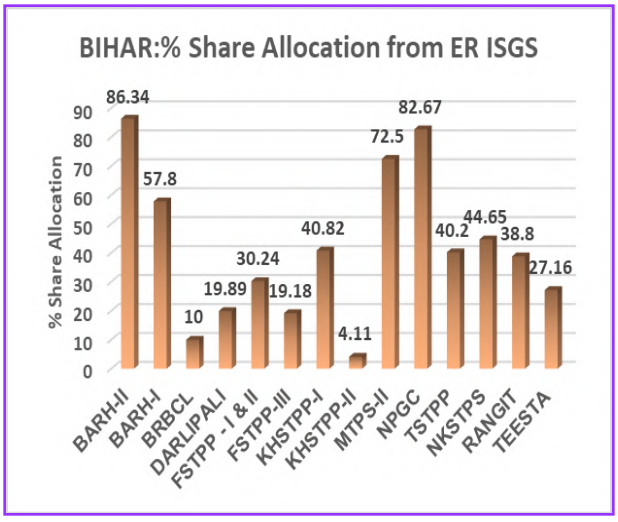
The following are the major components of Availability Based Tariff (ABT):

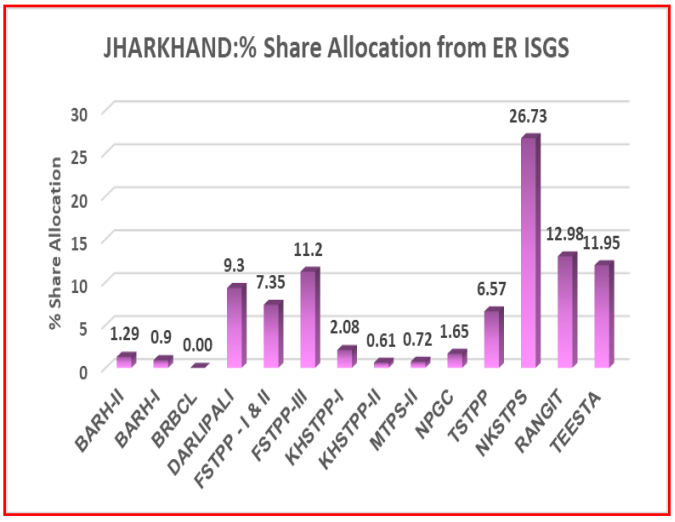
i) Capacity Charge inclusive of incentive (for recovery of Annual fixed cost)
ii) Energy Charge (for recovery of primary fuel cost)
iii) Transmission Charges (for recovery of annual fixed cost of transmission system)
iv) Deviation Settlement Mechanism, etc.

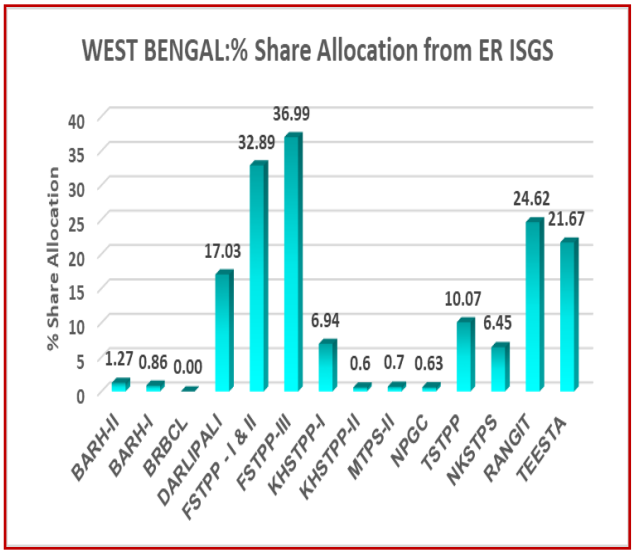
The regional energy accounts bring out the transactions/accounts for Central Generating Stations (CGSs), IPPs, LTOA, STOA, etc.

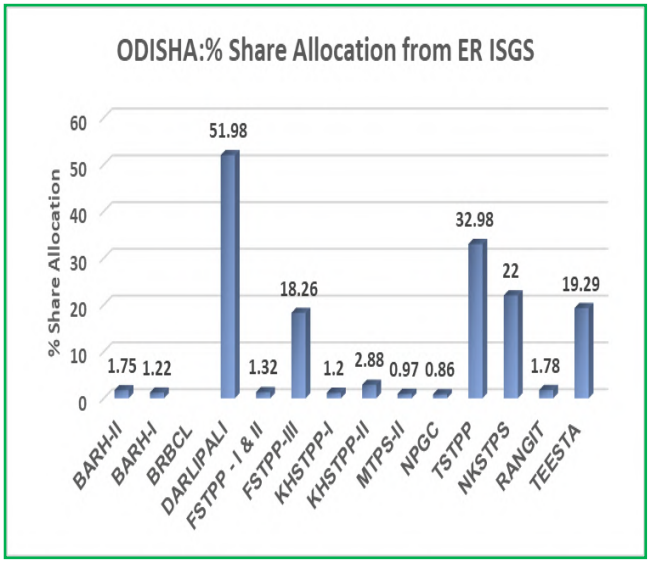
4.1.1 SHARE ALLOCATION OF ER STATES FROM CENTRAL GENERATING STATIONS

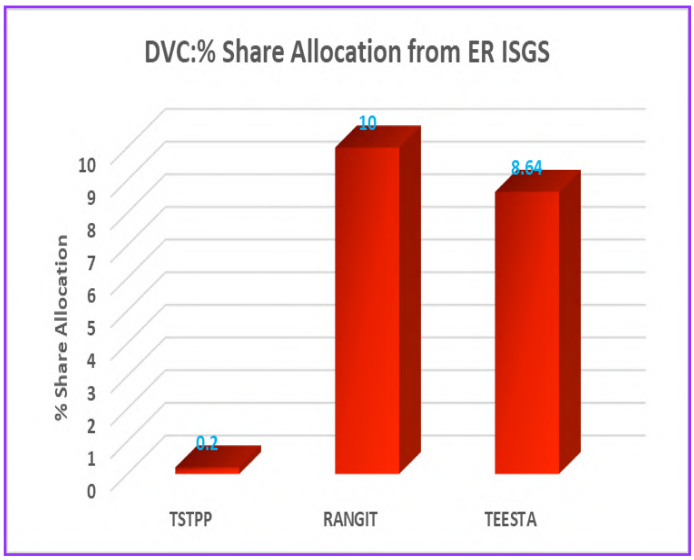
Regional Energy Accounting for central generating stations is based on the allocation orders from Ministry of Power /Central Electricity Authority. The percentage share of total capacity of each ISGS in Eastern Region is allocated to the beneficiaries of Eastern, Northern, Western, Southern and North Eastern Region, which is revised from time to time. Weighted average allocation of shares from each ISGS in Eastern Region during 2022-23 are given at **Annexure-XIV.** The percentage share allocation of ER states from ER Central Generating Stations for F.Y 2022-23 has been shown below(as on **31.03.2023)**:

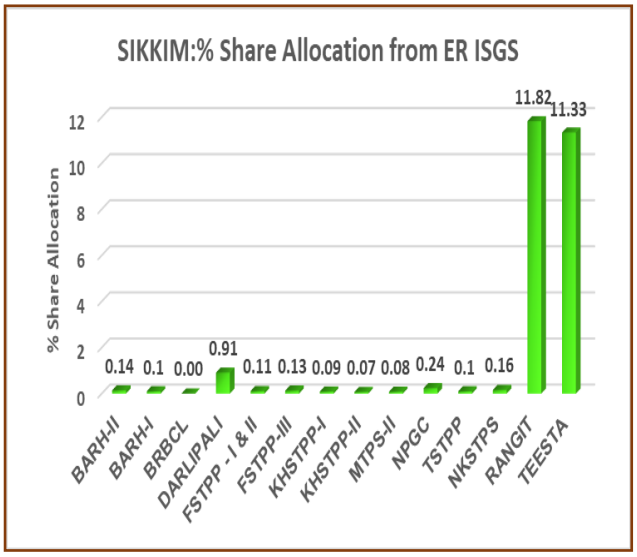












In case of Un-requisitioned surplus (URS) power, the statement of URS is being issued for adjustment of share allocation of the month based on the surrender/avail of URS power.

4.1.2 ACCOUNTING OF CENTRAL GENERATING STATIONS

Capacity Charges:

The capacity charge (inclusive of incentive) payable to a thermal or hydro generating station for a calendar month is ensured if availability of 85% or more is achieved in line with the prevailed tariff regulations.

For hydro generating stations the Annual Capacity charge is recoverable from the beneficiaries as per percentage share allocation of each beneficiary after adjustment of 12% free share of home state. The

payment of capacity charge is independent of the energy drawn by the beneficiary and is dependent only on the Plant Availability Factor for the Month (PAFM). To minimize the cost of power procurement, the beneficiary has the option of lower drawl of energy (paying full capacity charge for its share) and to meet demand from other source such as bilateral exchange and through power exchanges such as IEX/PXIL.

Energy Charges:

The Energy charges of the Central Generating Thermal Power Stations cover primary fuel cost and monthly fuel price adjustment (FPA). From July, 2011 onwards, the Fuel Price Adjustment has been included in the energy charges. The energy charges payable by every beneficiary for the total energy scheduled to be supplied to such beneficiaries during the month on ex-power plant basis. In case of Hydro Generating stations, the energy charge shall be payable by beneficiaries in proportional to their respective allocation in the saleable capacity of the generating station.

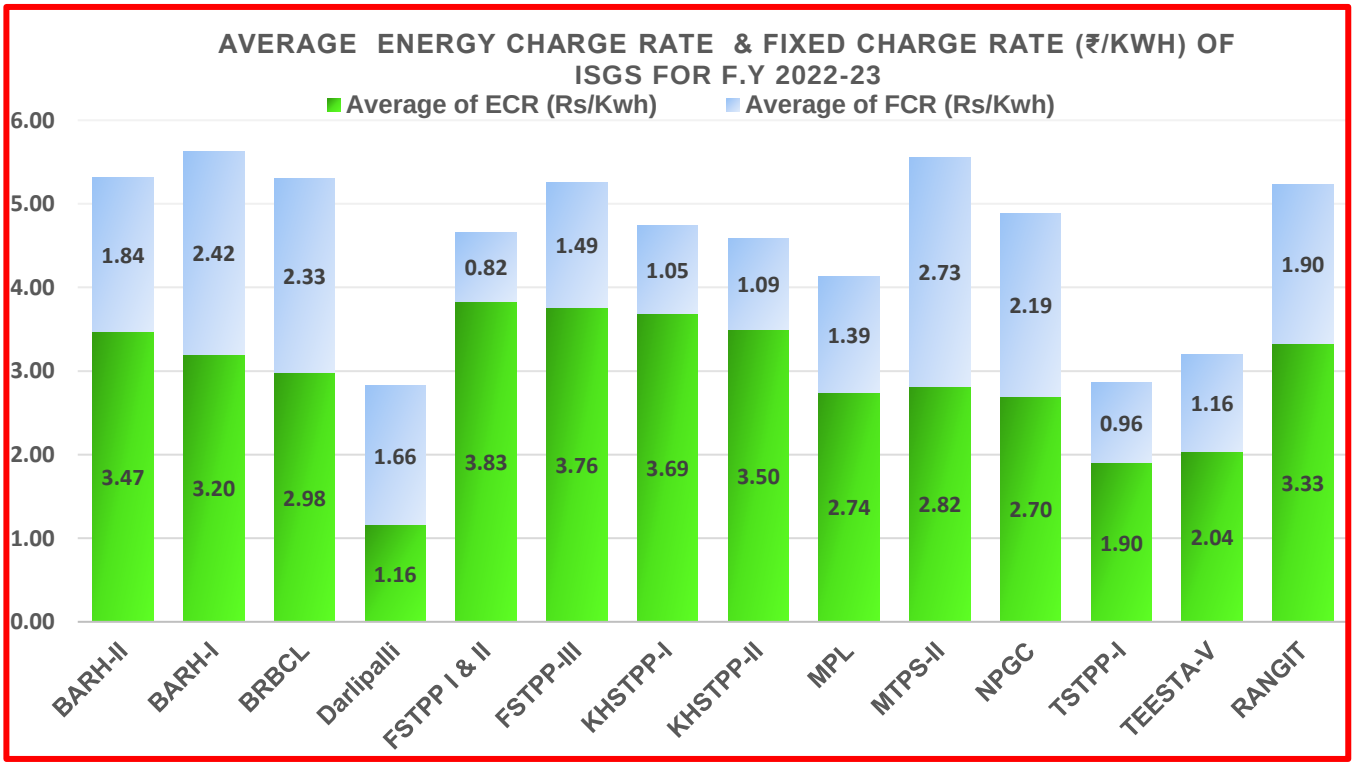
The indicative average energy rate for Central Sector Thermal stations in ER for the year 2022-23 were as under:

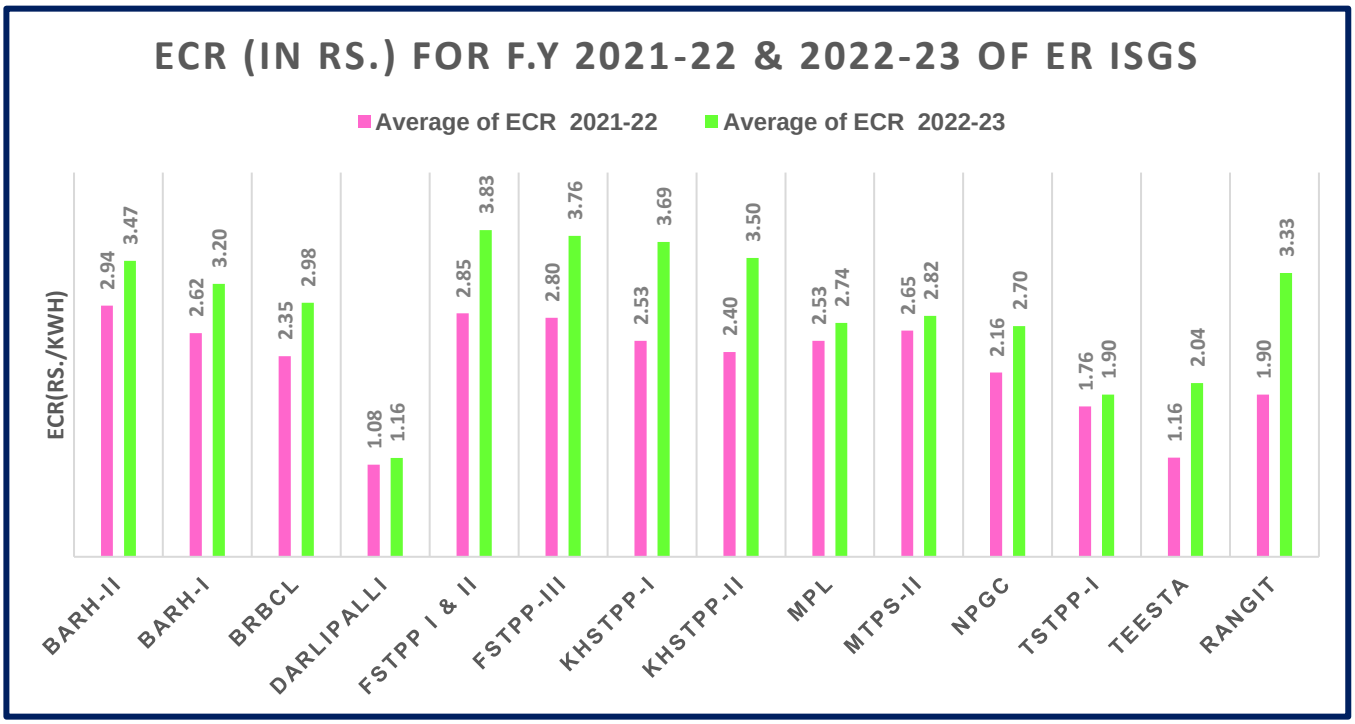
Average unit rate (₹ /kWh) during 2022-23 vis-à-vis 2021-22:

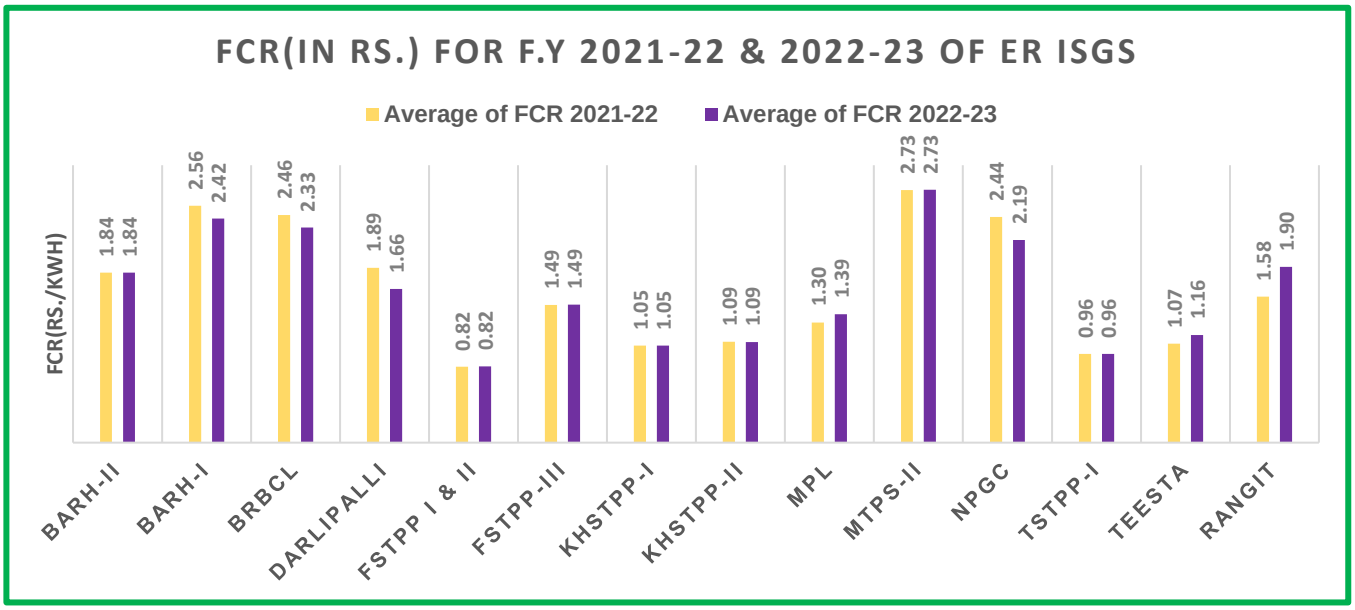
Generator (ISGS)		Average of FCR (Rs./kWh)	Average of ECR (Rs./kWh)		Average Unit rate (Rs./kWh)	
			2021-22	2022-23	2021-22	2022-23
THERMAL	BARH-II	1.84	2.94	3.47	4.78	5.31
	BARH-I	2.42	2.62	3.20	5.18	5.62
	BRBCL	2.33	2.35	2.98	4.81	5.30
	Darlipalli	1.66	1.08	1.16	2.97	2.82
	FSTPP I & II	0.82	2.85	3.83	3.67	4.65
	FSTPP-III	1.49	2.80	3.76	4.29	5.25
	KHSTPP-I	1.05	2.53	3.69	3.58	4.74
	KHSTPP-II	1.09	2.40	3.50	3.49	4.59
	MPL	1.39	2.53	2.74	3.83	4.13
	MTPS-II	2.73	2.65	2.82	5.38	5.56
	NPGC	2.19	2.16	2.70	4.60	4.89
	TSTPP-I	0.96	1.76	1.90	2.72	2.86
HYDRO	TEESTA-V	1.16	1.16	2.04	2.23	3.20
	RANGIT	1.90	1.90	3.33	3.48	5.23

ECR: Energy Charge Rate; FCR: Fixed Charge Rate.

The year-wise variation in energy charge rate as well as fixed charge rate for ISGS of ER for the year 2021-22 & 2022-23 are given below for reference.

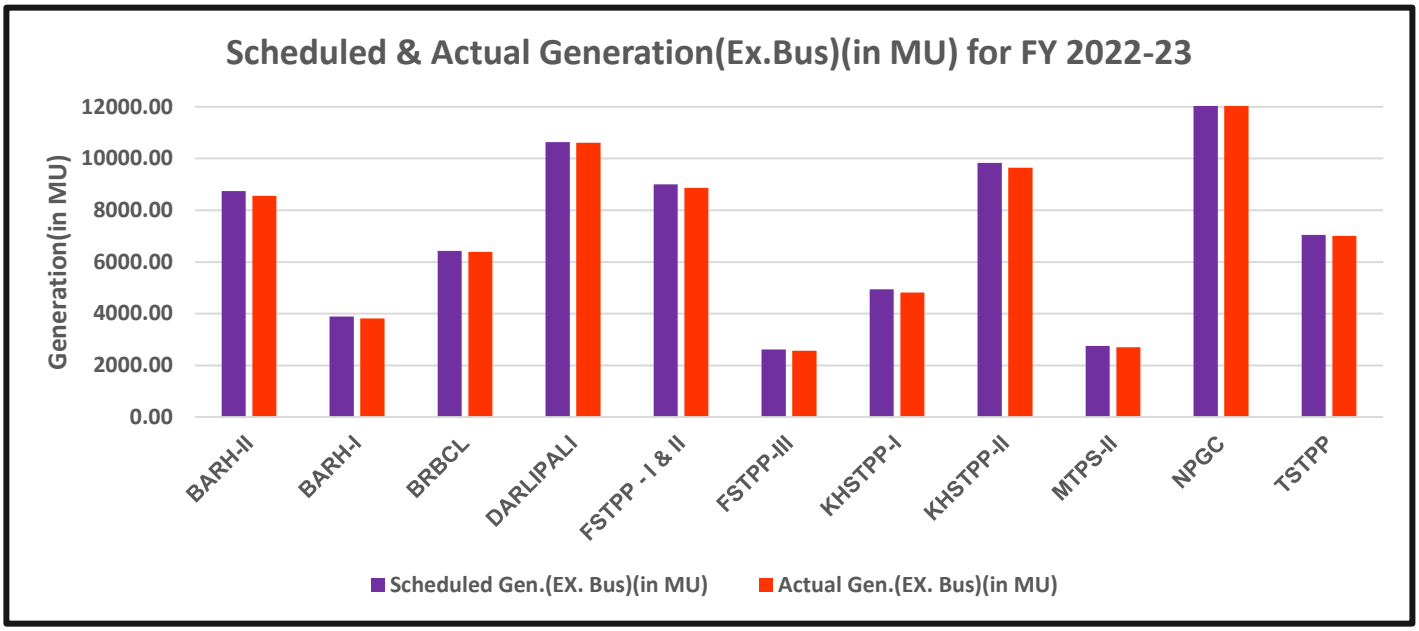






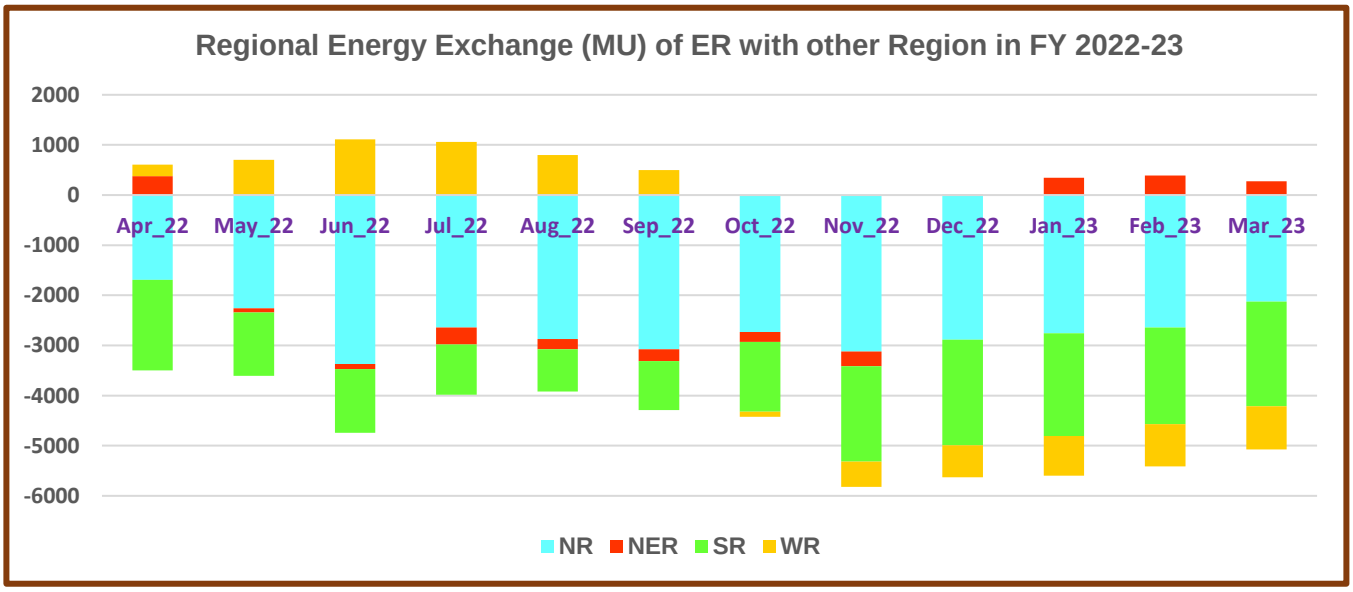
4.1.3 Annual Generation of NTPC and NHPC stations in ER during the year 2022-23:

Generating Station (ISGS)	Scheduled Generation (Ex-Bus) in MU	Actual Generation (Ex-Bus) in MU	Actual Generation as % of Scheduled Generation
BARH-II	8746.89	8555.53	97.81%
BARH-I	3894.57	3810.05	97.83%
BRBCL	6427.96	6395.14	99.49%
DARLIPALI	10635.18	10611.29	99.78%
FSTPP - I & II	9004.04	8862.81	98.43%
FSTPP-III	2618.82	2565.60	97.97%
KHSTPP-I	4936.78	4819.96	97.63%
KHSTPP-II	9831.21	9648.85	98.15%
MTPS-II	2747.72	2705.16	98.45%
NPGC	12428.66	12168.75	97.91%
TSTPP	7041.13	7014.28	99.62%
Rangit HEP	311.84	322.80	103.51%
Teesta-V HEP	2698.19	2836.21	105.12%



The details of net exchange of actual energy (MU) from Eastern Region including transmission loss with other regions for the year 2022-23 [Import (+) / Export (-)] is furnished below:

WR	SR	NR	NER	TOTAL
659.59	-18621.84	-32164.39	-75.44	-57583.71

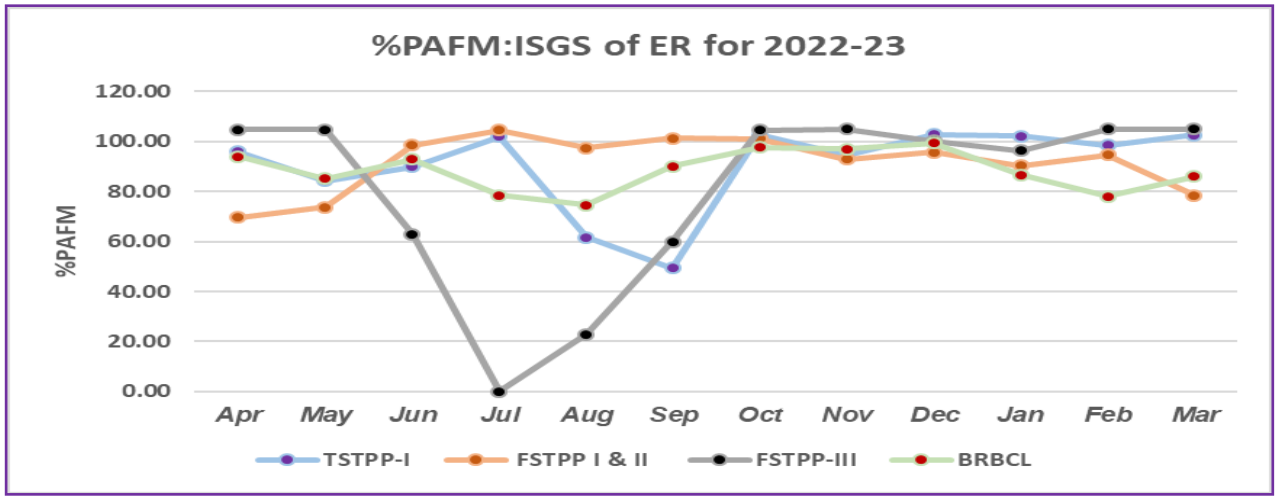


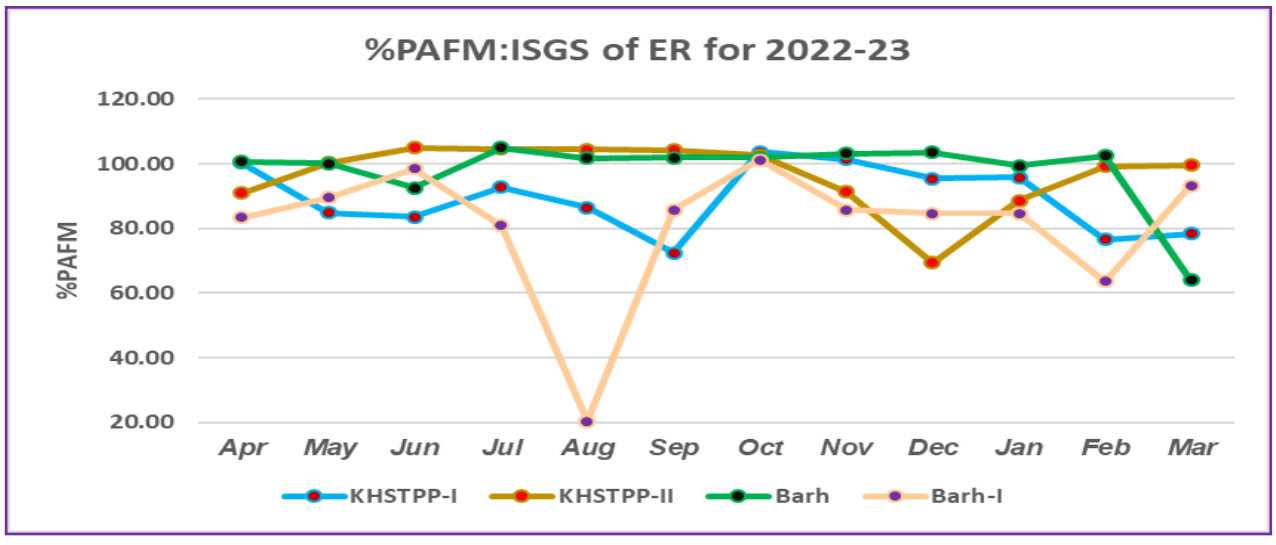
4.1.4 PAF & Schedule PLF of ISGS Thermal Stations in ER in F.Y 2022-23:

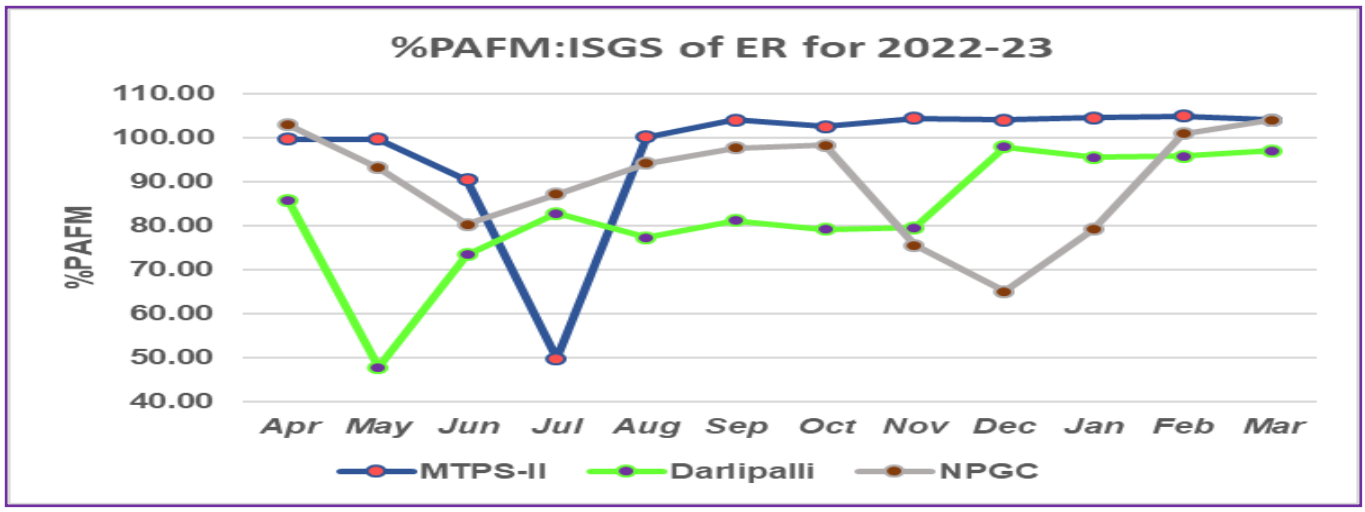
Plant Availability Factor (PAF) refers to whether a plant is available for generation or not. PAF of a generating station means the average of the daily declared capacities (DCs) for the period expressed as a percentage of the installed capacity in MW less the normative auxiliary consumption. The annual fixed cost (AFC) of a generating station would be recovered based on the cumulative availability of station.

Schedule PLF of a plant refers to percentage schedule generation against its schedule generating capacity. It is used for recovery of primary and secondary fuel cost of station and charged to beneficiaries to the extent of their drawl schedule.

The month wise **Plant Availability Factor (PAF)** & Schedule PLF for year 2022-23 for NTPC stations in Eastern Region is shown below:

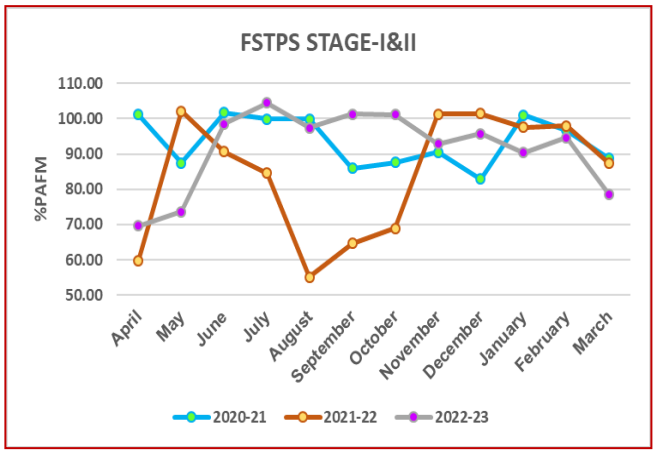


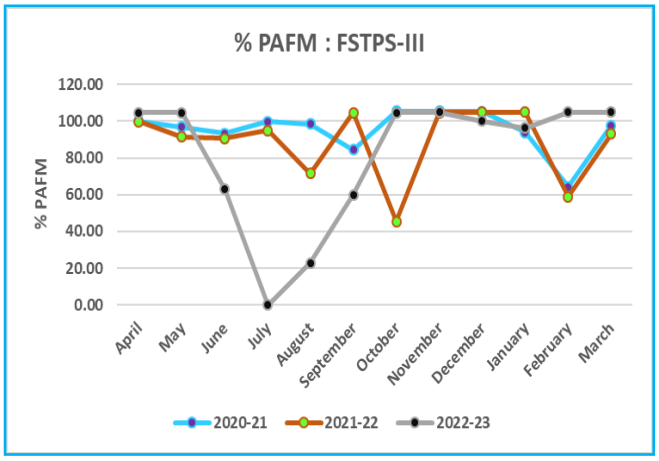


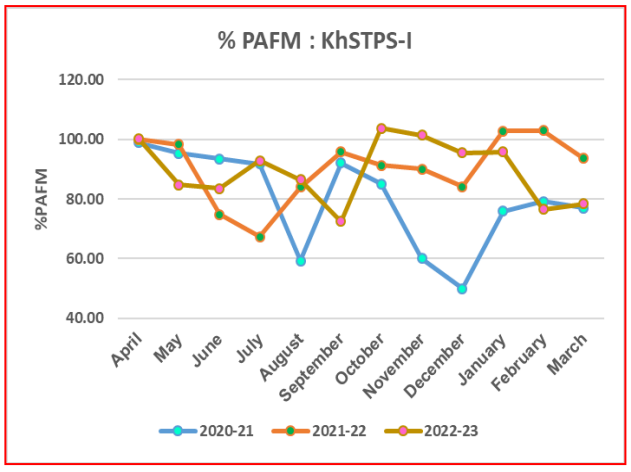


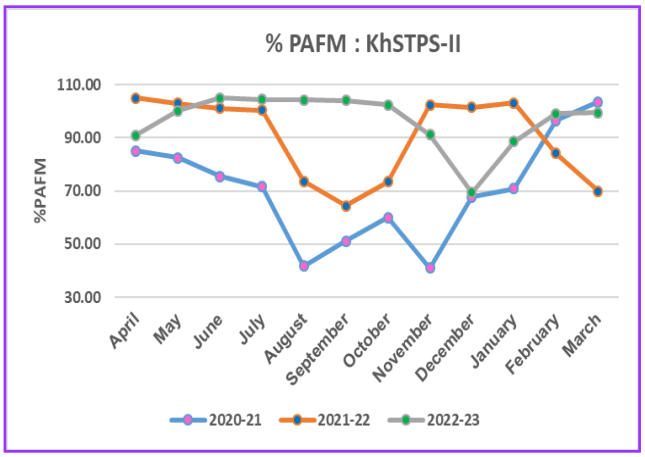
Comparative Performance of NTPC Thermal Generating Stations in ER:

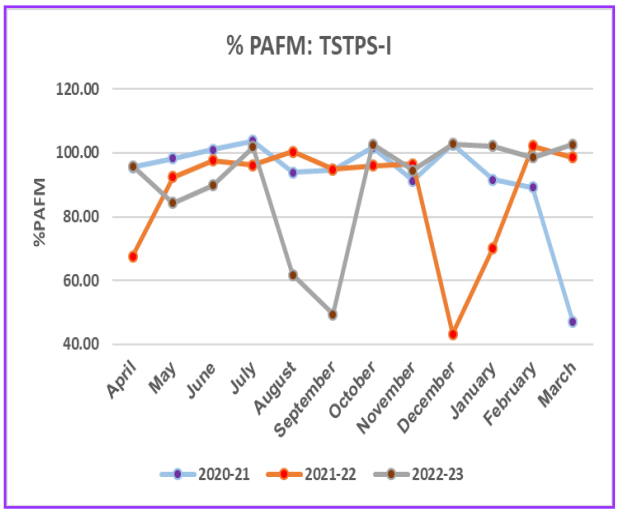
The month wise Plant Availability Factor (PAF) for years 2020-21, 2021-22 & 2022-23 for NTPC stations in Eastern Region is illustrated below:










% PAFM: TSTPS-I
120.00
100.00
80.00
60.00
40.00
%PAFM
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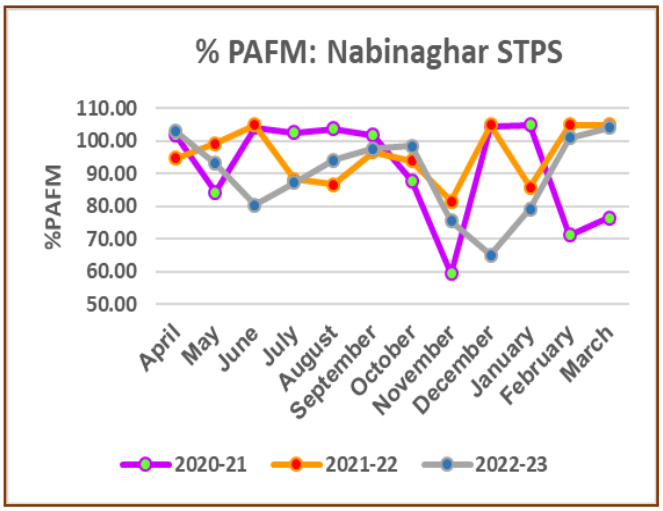
March
2020-21
2021-22
2022-23


% PAFM: Nabinaghar STPS
110.00
100.00
90.00
80.00
70.00
60.00
50.00
%PAFM
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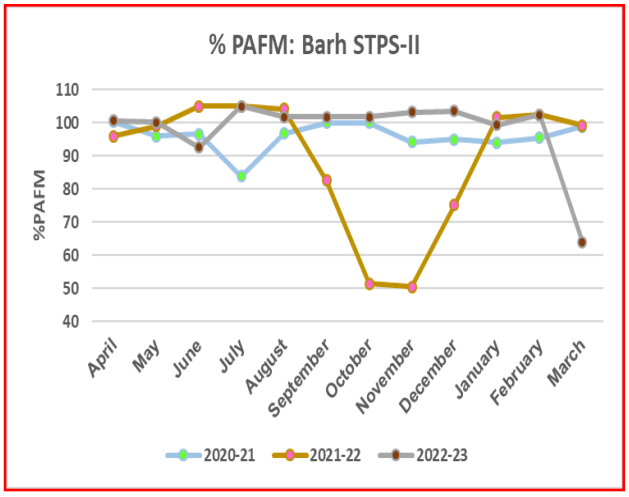
2020-21
2021-22
2022-23


% PAFM: Barh STPS-II
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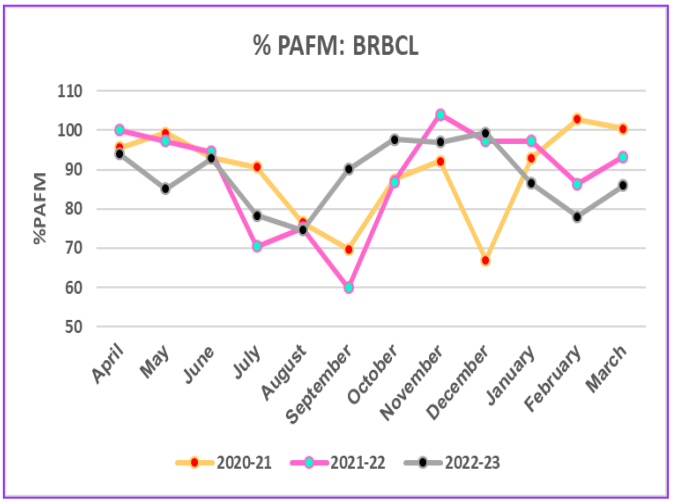
2022-23


% PAFM: BRBCL
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%PAFM
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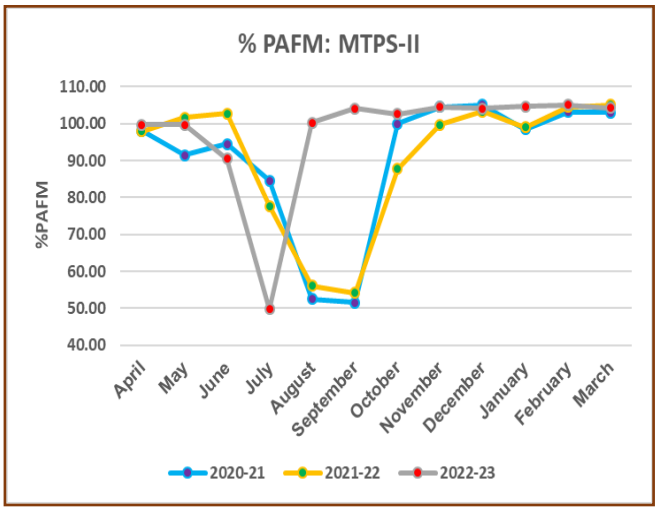
2020-21
2021-22
2022-23


% PAFM: MTPS-II
110.00
100.00
90.00
80.00
70.00
60.00
50.00
40.00
%PAFM
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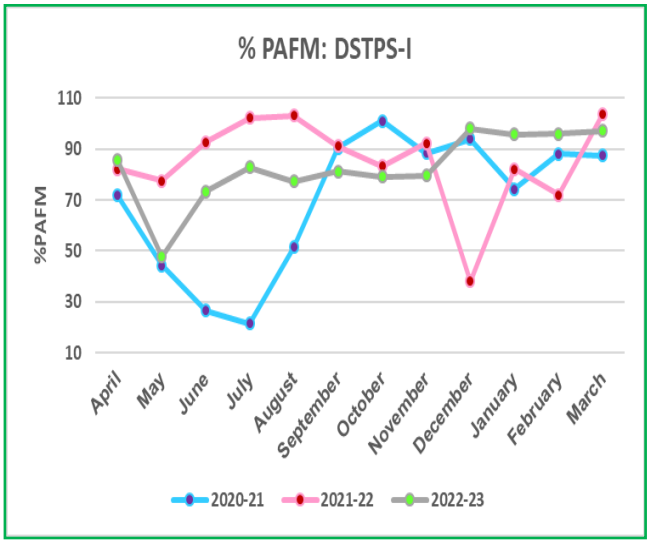
2020-21
2021-22
2022-23


% PAFM: DSTPS-I
110
90
70
50
30
10
%PAFM
April
May
June
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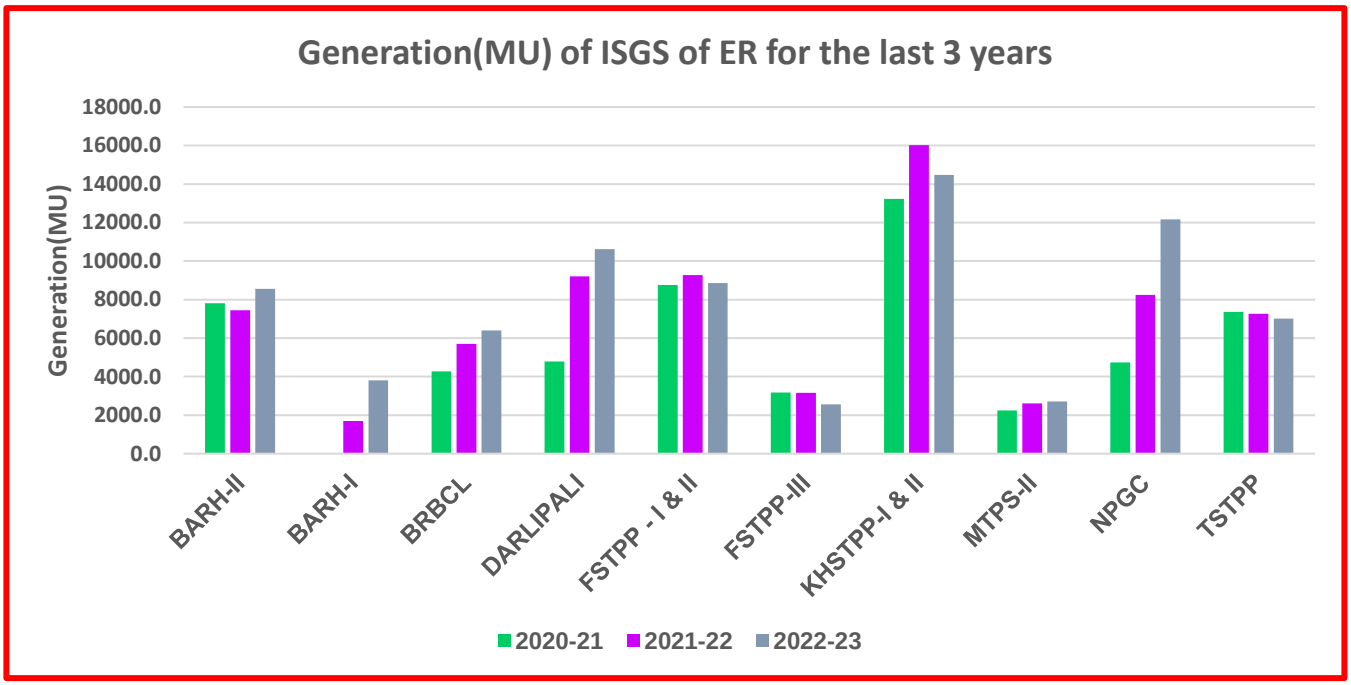
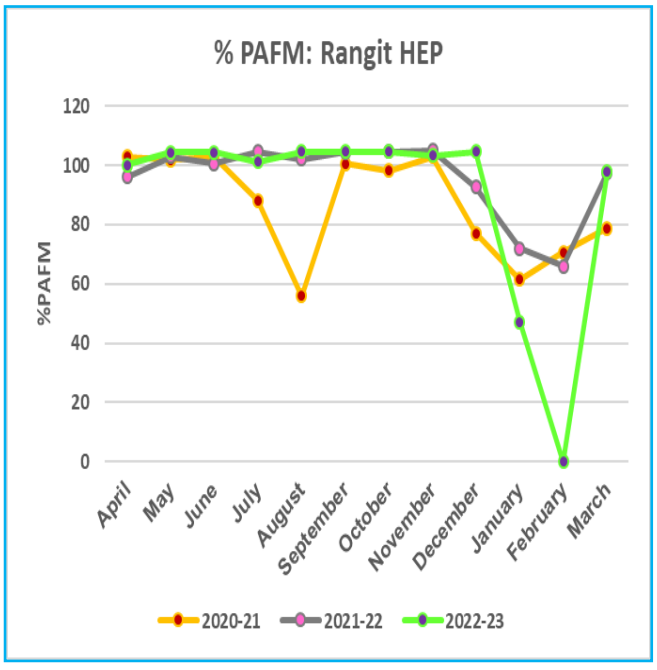
December
January
February
March
2020-21
2021-22
2022-23

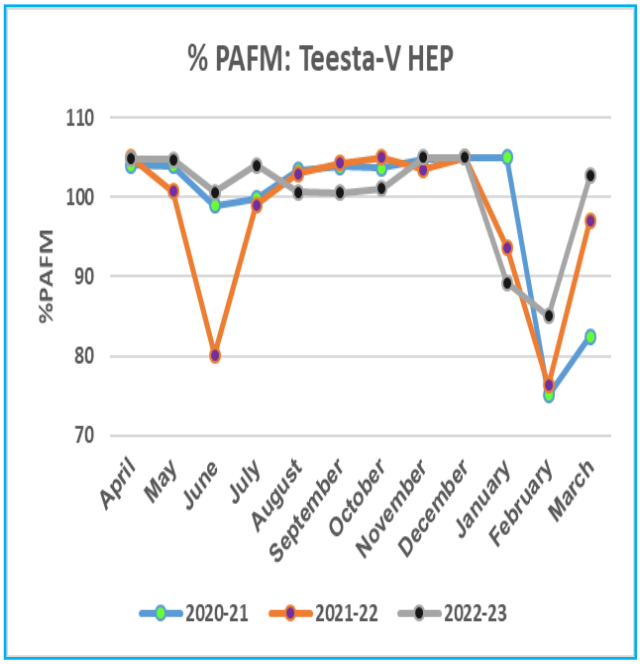
Actual Generation of NTPC Stations of ER for the last three years has been shown below:



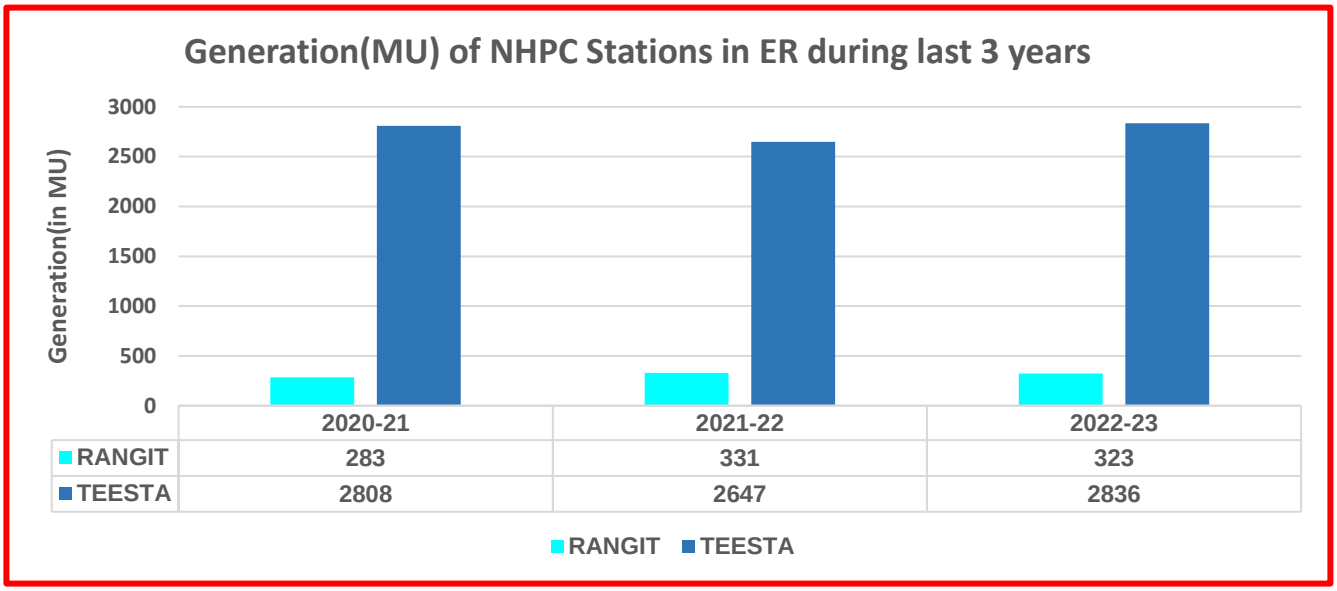
4.1.5. Performance of NHPC stations in ER:

The month wise Plant Availability Factor (PAF) for years 2020-21, 2021-22 & 2022-23 for NHPC stations in Eastern Region is shown below:





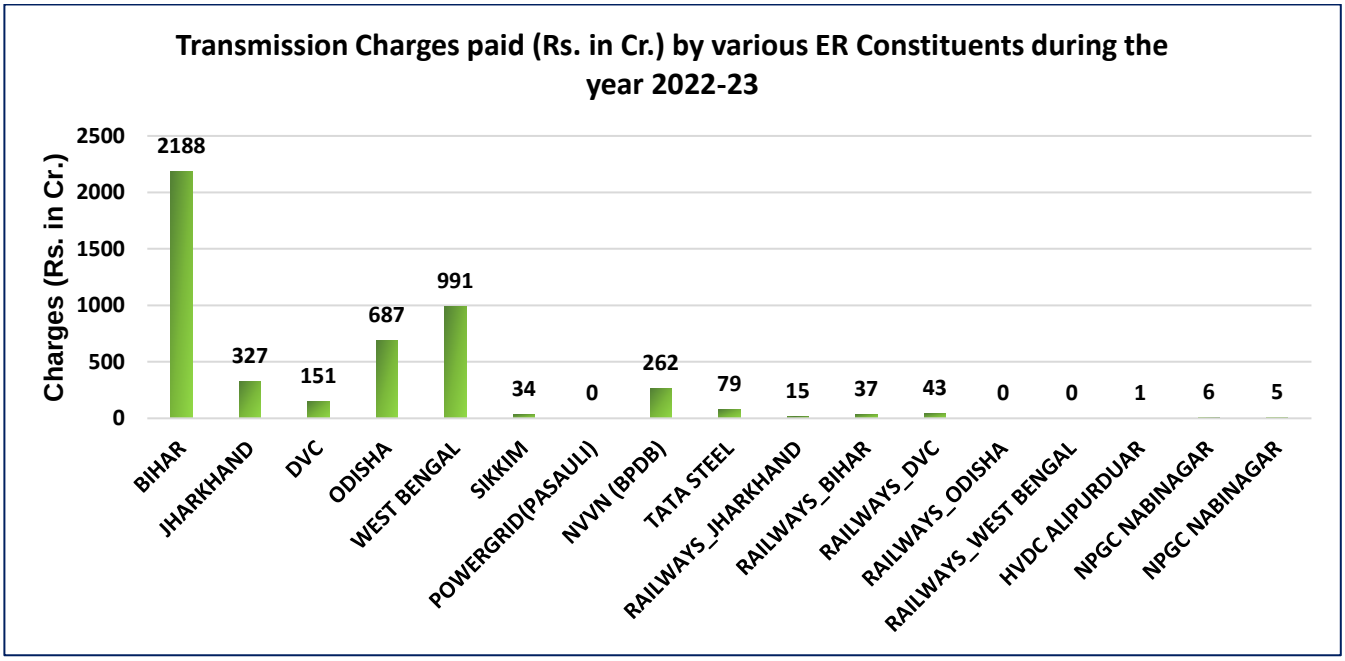
Actual Generation of NHPC stations of ER for the last three years has been shown below:



4.2 TRANSMISSION CHARGE

4.2.1 Regional Transmission Account:

The Regional transmission charges are the charges payable for the energy transacted through the Inter State Transmission network which are billed by the CTU as published by the RPC secretariat. The transmission charges of the beneficiaries are calculated based on CERC (Sharing of Inter-State Transmission Charges & Losses) Regulations, 2020 which are notified for implementation from November-2020.



Regional Transmission Account is being prepared by ERPC Secretariat based on the new methodology as per the data furnished by NLDC, which is also the Implementing Agency for these new regulations. The Regional Transmission Accounts is issued for the recovery of transmission charges corresponding to Long term open Access and Medium-term open Access transactions. A transmission charge paid by various constituents of Eastern Region during the year 2022-23 is furnished in **Annexure- XVIII.**

4.2.2 Transmission Charges for Short Term transactions:

In case of bilateral and collective transactions, transmission charges for the energy approved for transmission separately for each point of injection and for each point of drawl, shall be payable in accordance with the provisions of Central Electricity Regulatory Commission (Sharing of Inter State Transmission Charges and Losses) Regulations, 2020 and as amended from time to time.

The intra-State entities shall pay the transmission charges for use of the State network as fixed by the respective State Commission in addition to the charges specified under clauses (1) of the above regulation. Where the State Commission has not determined the transmission charges, the charges for use of respective State network shall be payable at the rate of Rs.80/MWh for the energy approved.

4.3 COLLECTION & DISBURSEMENT OF SHORT-TERM TRANSMISSION CHARGES:

The Transmission charges and the operating charges payable by the utilities allowed for short-term open access shall be indicated by nodal agency while approving the Open Access. The Transmission charges payable for Inter-State Transmission system and Transmission Charges for State network shall be indicated separately. The Transmission Charges and the Operating Charges shall be collected by the nodal agency except for transmission charges for State network in the case of collective transaction.

The transmission charges collected by the nodal agency for use of the transmission system other than State network, for a bilateral or collective transaction for each point of injection and each point of drawl shall be given to Central Transmission Utility (CTU) for disbursement. The CTU shall disburse these transmission charges to the long-term customers of the synchronously connected grid where the point of injection or point of drawl is situated, as the case may be, in proportion to the monthly transmission charges payable by them after adjusting against Long-term Access to target region in accordance with the Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2020 as amended from time to time. The transmission charges for use of State network shall be disbursed to the State Transmission Utility concerned.

4.4 OPEN ACCESS AND BILATERAL ENERGY TRANSACTIONS

4.4.1. Bilateral Trading 2022-23

Short term transactions are governed by "Central Electricity Regulatory Commission (Open Access in inter-State Transmission) Regulations, 2008" as amended from time to time for exchange of energy (MWh) between a specified buyer and a specified seller, directly or through a trading licensee or discovered at power exchange through anonymous bidding.

Trading of power in line with the CERC regulations on Short Term Open Access in transmission system started in Eastern Region with effect from 06.05.2004, and over the years the volume of bilateral trade has seen continuous increase. The number of traders and utilities indulging in bilateral trade and collective transactions through the IEX and PXI has also seen healthy growth. The indicative volume of trade in Eastern Region during 2022-23 by various traders through LTA, MTOA & STOA is provided in **Annexure – XIX**.

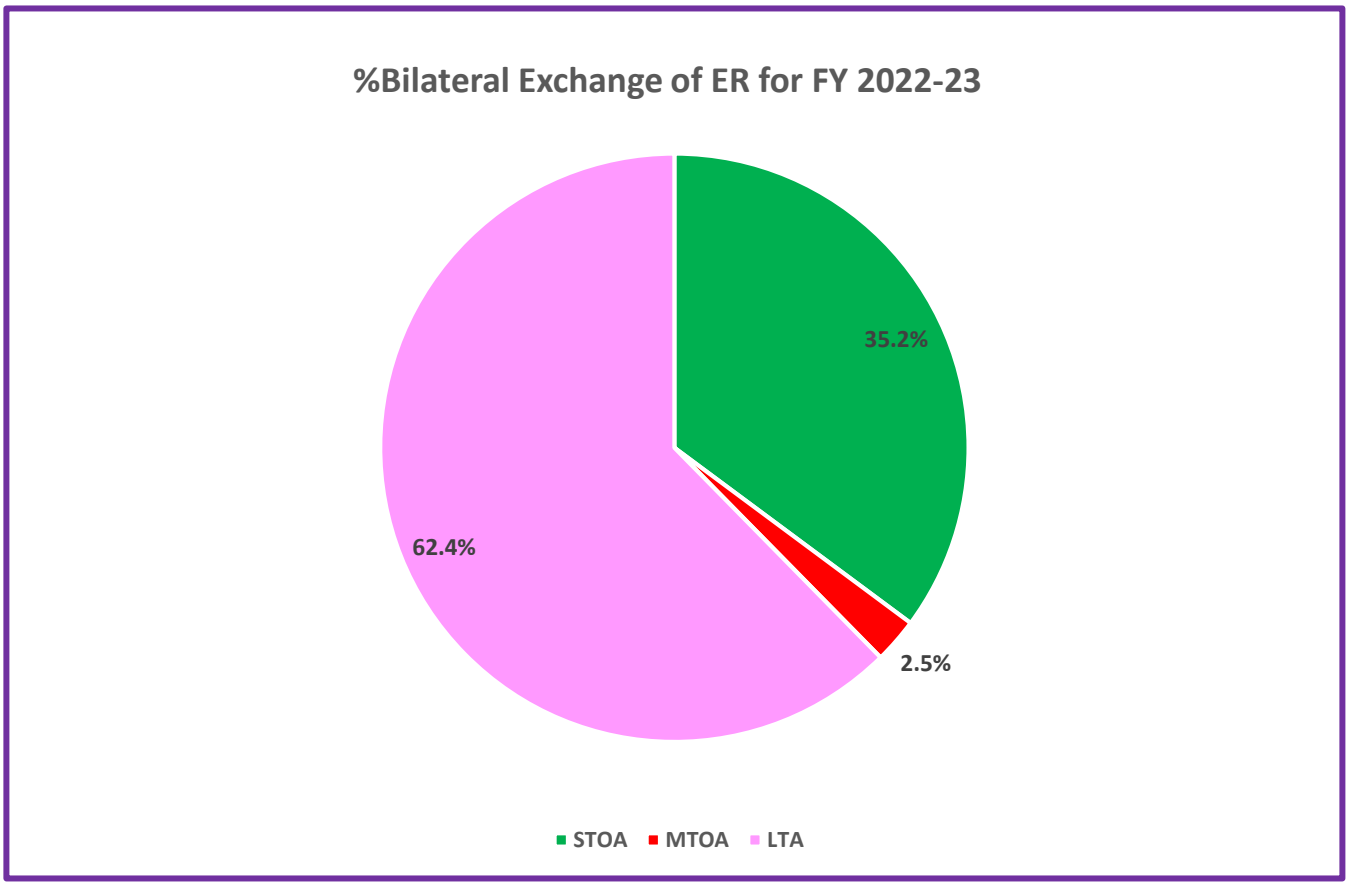
TRADERS involved in Short Term Transactions in ER	
AHEJ3L_S_FTG2	MPPMCL
AHEJ3L_W_FTG2	NVVNL
AMNSIL	ODISHA
APPCPL	PTC
CSPJPL_BHDL	PXIL
GMRETL	REFEX
IEXL	RSUPL_FTG2
JBVNL	TATASTL_KPL
KEIPL	TISCO
MANIKARAN	TPTCL
WBSEDCL	CSEB_Beneficiary
HARYANA	DADRI_SOLAR
IPCL_WB	DSTPS I&II
ITC_DAIRY	DVC
ITC_Munger	GIWEL_SECI-II_RE

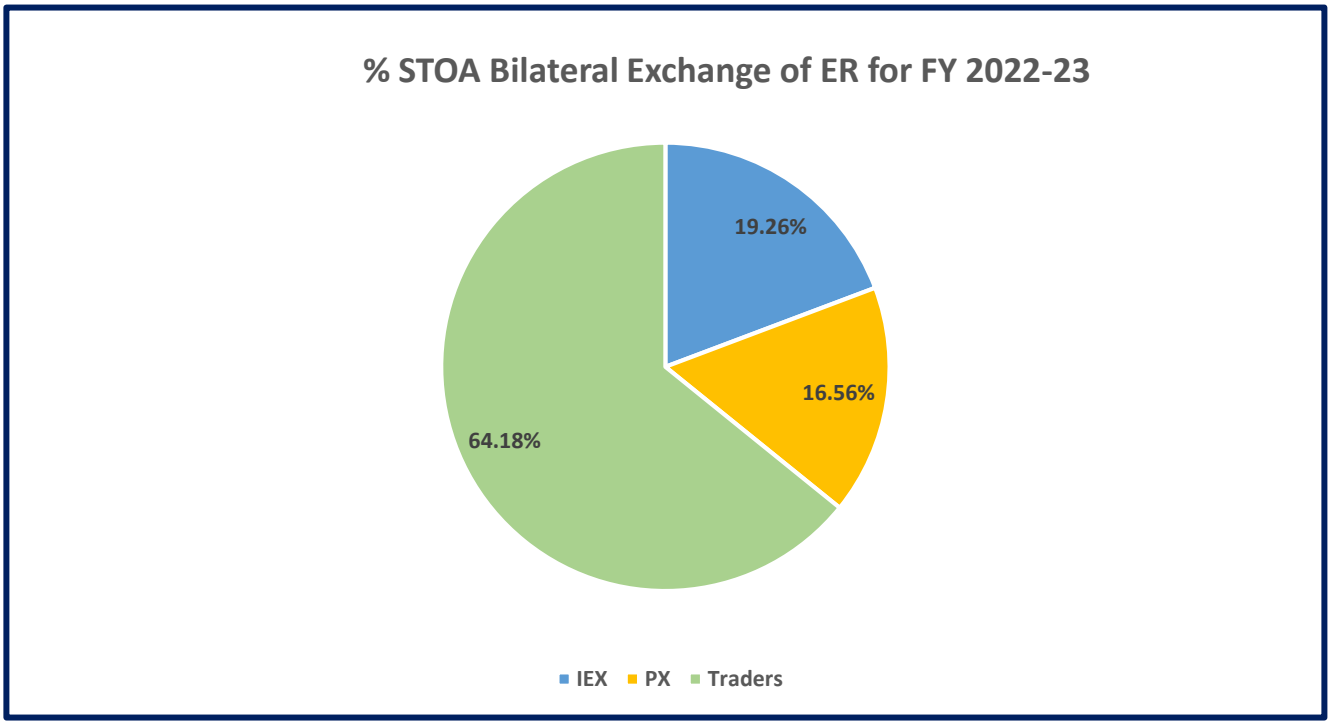
JITPL	GIWEL_SECI-III_RE
AlfanarWind_SECI-III	GMRKEL
AP43PL_BKN	HIRIYUR_OSTROKANNADA
APNRL	IWISL
AWEK1L	KSEB
BESCOM	MPL
CHUZACHEN	OKWPL_RE
Rongnichu	NR-UP
RWE_AP2_SECI-III	NWR-RAJ
SBE6PL	REFIND
SECI_Trader	SPTPL
SEILP2	WR_IR_GEB
SIKKIM	SRIJAN_MORJAR_BHJ2_W
SOUTH	MPSEB_Beneficiary
Teesta_III	ITC Kolkata
Tuticorin_BETAMWIND	NBVL OTCL
Tuticorin_GIREL	SAPLTL
Tuticorin_GRTJIPL	SCL
DCL_RCW	
NACL_Odisha	
NALCOAP	
SJVNL	
UPPCL	

The bilateral transactions consist of long term, medium term and short-term trades through traders, direct or via IEX/PXI. The participants in the short-term market trade electricity to meet short term demand or surplus situation or peaks requirement. It is also helpful in evacuation of generators for which LTA have not yet operationalized due to various constraints.

While short term market helps in balancing the energy pool by making small adjustments, it suffers from lack of assured access in case of congestion and depleted network scenario.

The breakup of bilateral trades in LTOA, MTOA, IEX/PXI, Direct and via Traders in Eastern Region is provided in the Pie-Chart as given below:


%Bilateral Exchange of ER for FY 2022-23
35.2%
2.5%
62.4%
STOA
MTOA
LTA

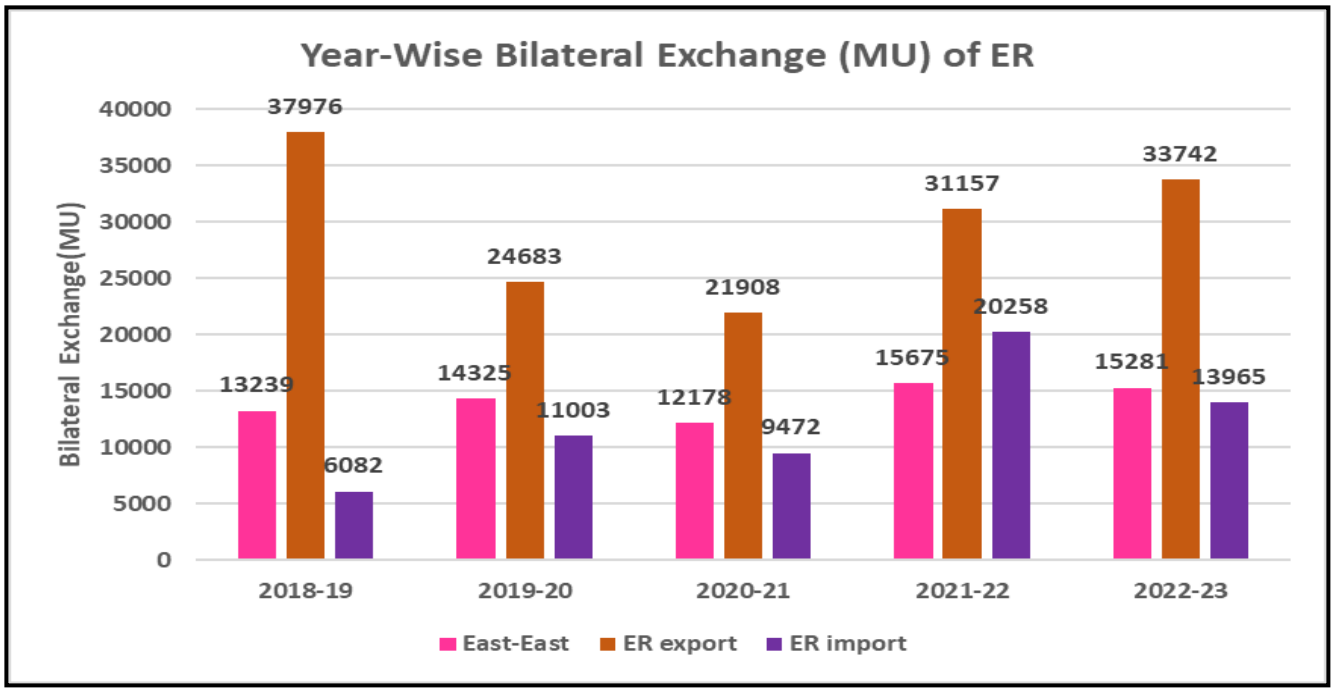

% STOA Bilateral Exchange of ER for FY 2022-23
19.26%
16.56%
64.18%
IEX
PX
Traders

Figures in MU

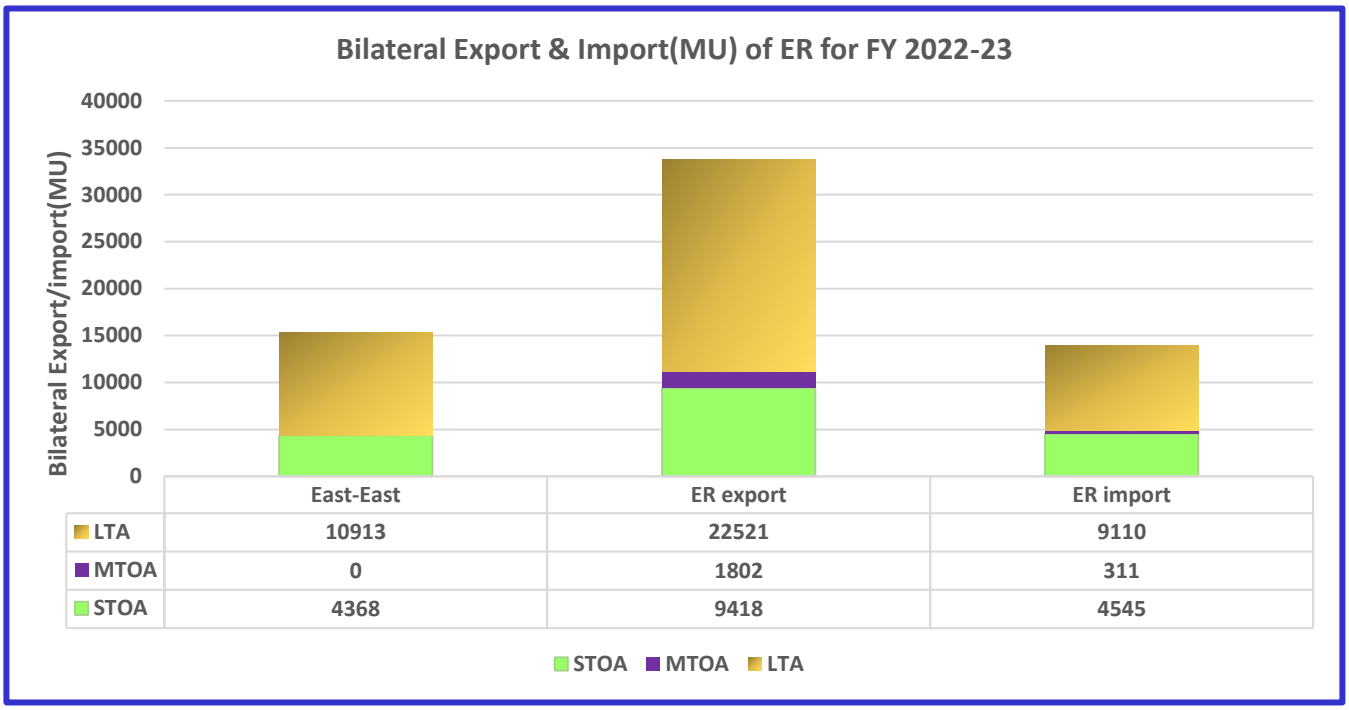
Long Term & Medium Term		Short Term Bilateral Transactions	
LTOA	MTOA	IEX/PXI	Traders
44175	1753	8921	15984

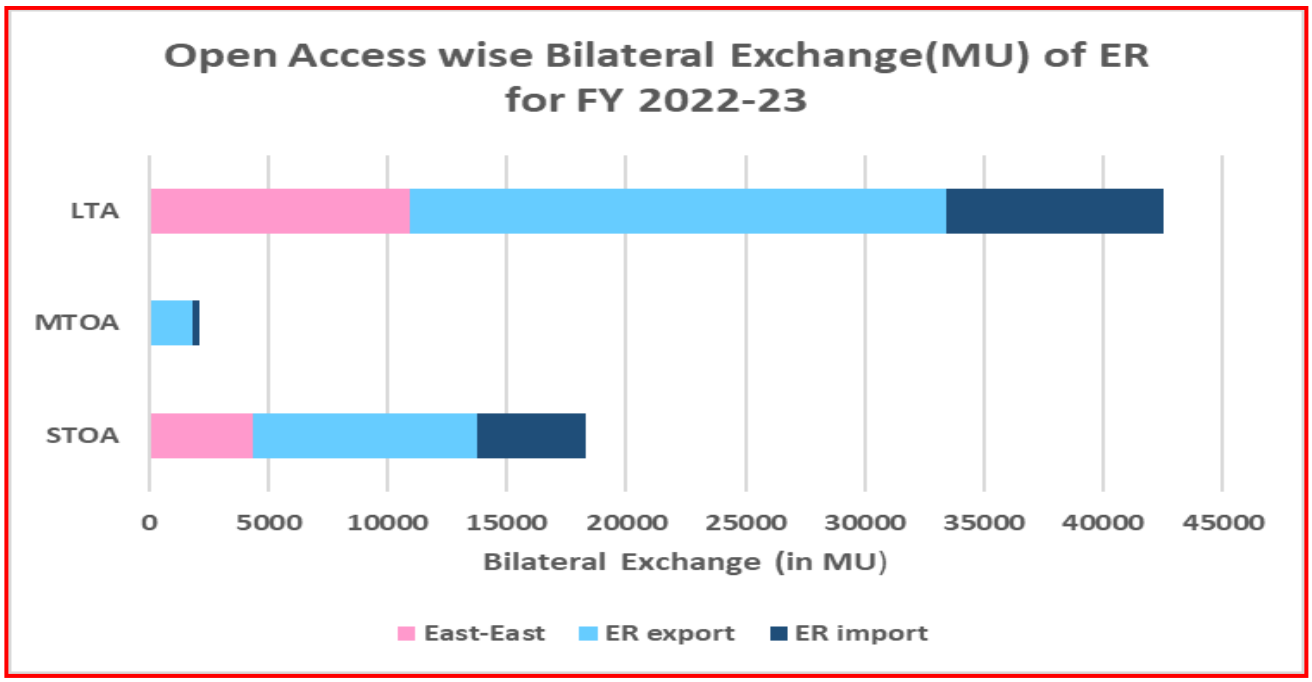
During 2022-23, scheduled bilateral transaction of power through ER was to the tune of 70,833.7 MU. The breakup of year on year scheduled bilateral transactions has been shown below for years 2018-19, 2019-20, 2020-21,2021-22 & 2022-23.

It has been indicated that the out of total bilateral transactions the contribution of short-term open access was 35.2 %, medium-term open access was 2.5 % and LTA was about 62.4 %. Due to introduction of various products of power procurement by power Exchanges like Real time market through which the states are meeting their power demand in shortest possible time. In the short- term market the share of the IEXL is 19.26% and PXIL was 16.56 % and the bilateral traders is about 64.18 %.



During the year substantial amount of transaction took place through IEX/PXI by means of anonymous bidding. The quantum of energy transactions in MU through different open access segments such as LTA, MTOA & STOA within ER Export from ER and import to ER has shown below:

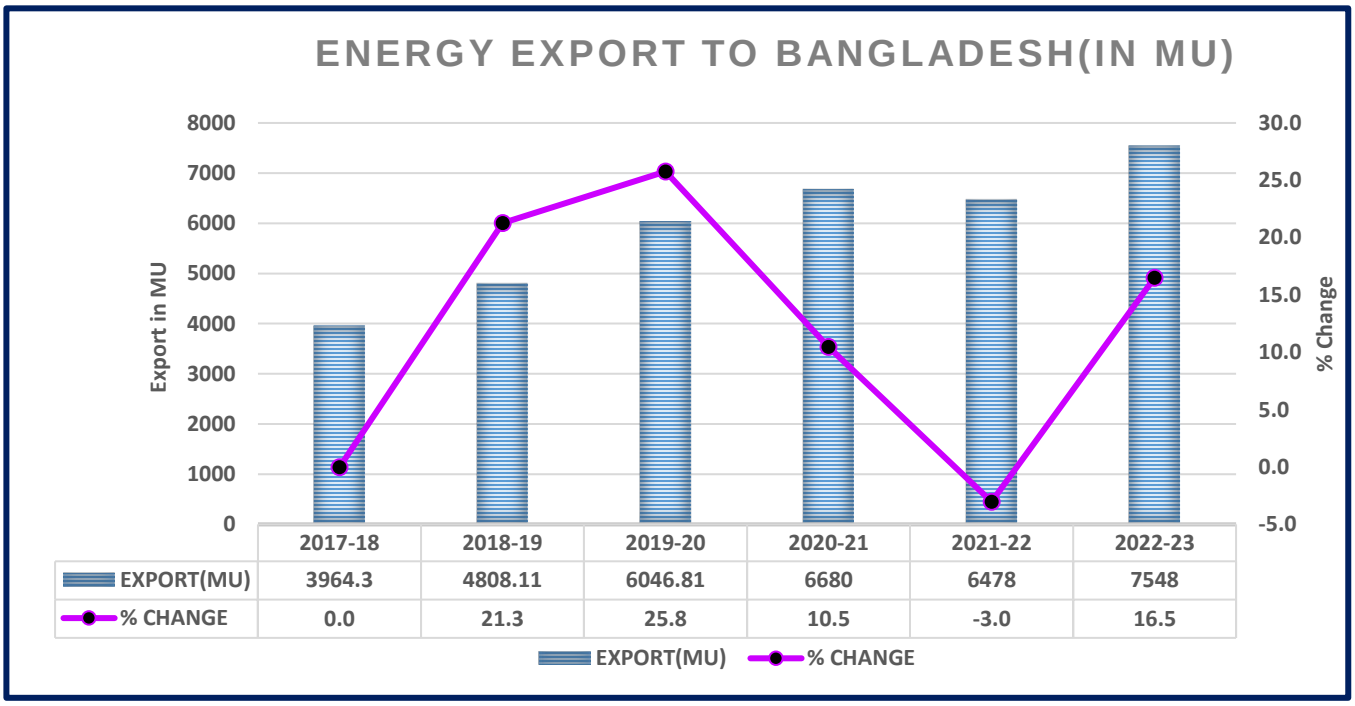




4.4.2 International Trades for year 2022-23

4.4.2.1 Trading of Power with Bangladesh:

Based on MoU between the two countries of India and Bangladesh, Ministry of Power, Govt. of India allocated 250 MW power round the clock (in Stages) to Bangladesh from coal based NTPC stations in the country. NTPC Vidyut Vyapar Nigam Ltd. (NVVN) as nodal agency has entered into a Power Purchase Agreement (PPA) with Bangladesh counterpart (BPDB) through cross border trading of power and to facilitate delivery of such power.



Accordingly, the export of power from India (through 400 kV Behrampur (West Bengal) – Bheramara (Bangladesh) D/C line and 500 MW HVDC back-to-back at Bheramara to Bangladesh through BPDB commenced from 05.10.2013. The 2nd 500 MW Back to Bach HVDC block was commissioned in June-2018. Presently 800 MW power is being exported to Bangladesh comprising 250 MW (Net 232.42 MW) power from NTPC Stations, 300 MW Long term power from DVC through NVVNL and 250 MW from SEMBCORP Private power plant. The actual energy (including transmission loss) exported to Bangladesh during 2022-23 was to the tune of 7548 MU from Eastern Region.

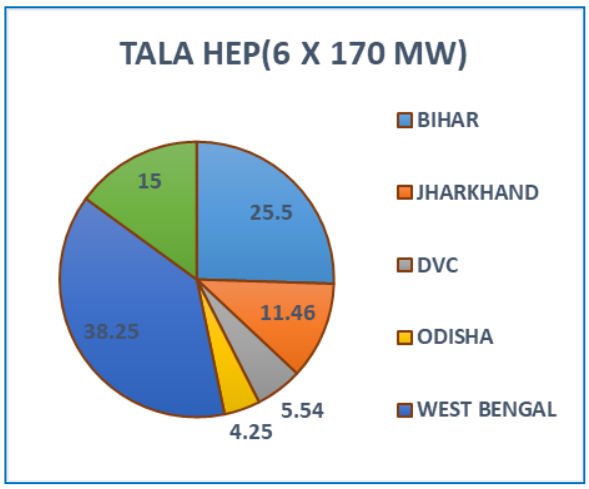
4.4.2.2 Trading of power with Bhutan:

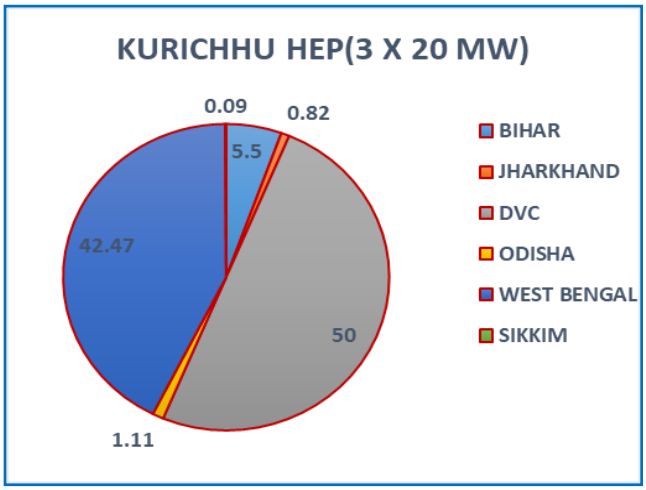
Over and above the availability of power from NTPC and NHPC stations in ER, the region has imported power from Govt. of Bhutan through PTC and TPTCL as given below:

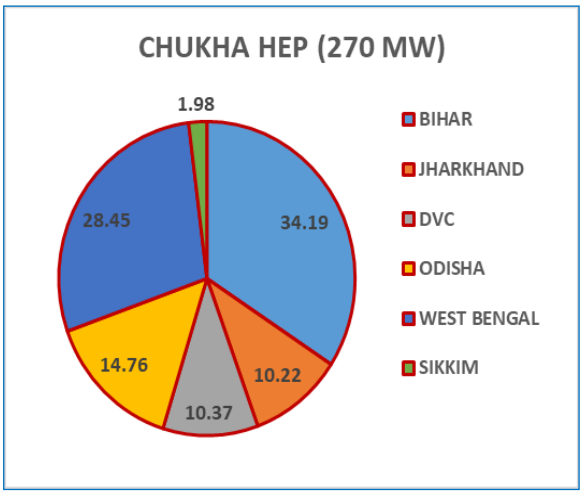
Import to India from	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Bhutan **(in MU)**	5824	5072.08	4395.87	6350.6	9251.7*	7939.4$	#6672.48

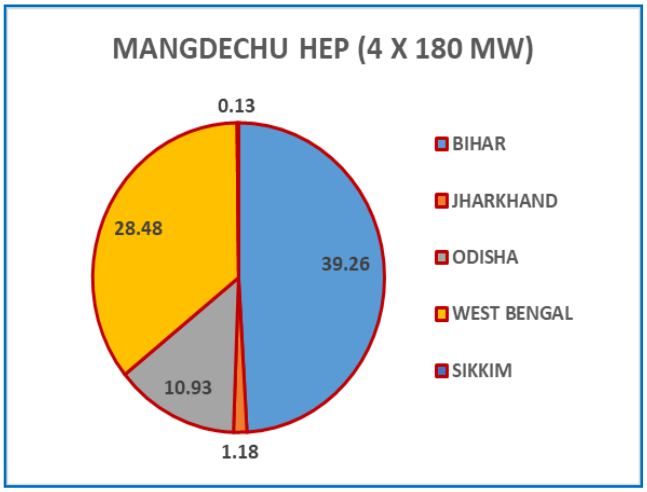
Excluding export of **266.3 MU** to Bhutan from India Through NVVN in FY 2022-23
*Excluding export of 53 MU to Kuruchhu HEP of Bhutan in FY 2020-21.
$Excluding export of 228.7 MU by HEPs of Bhutan FY 2021-22.

As per GoI orders the majority of power from Hydro stations of Bhutan has been allocated to Eastern Region States as shown below:





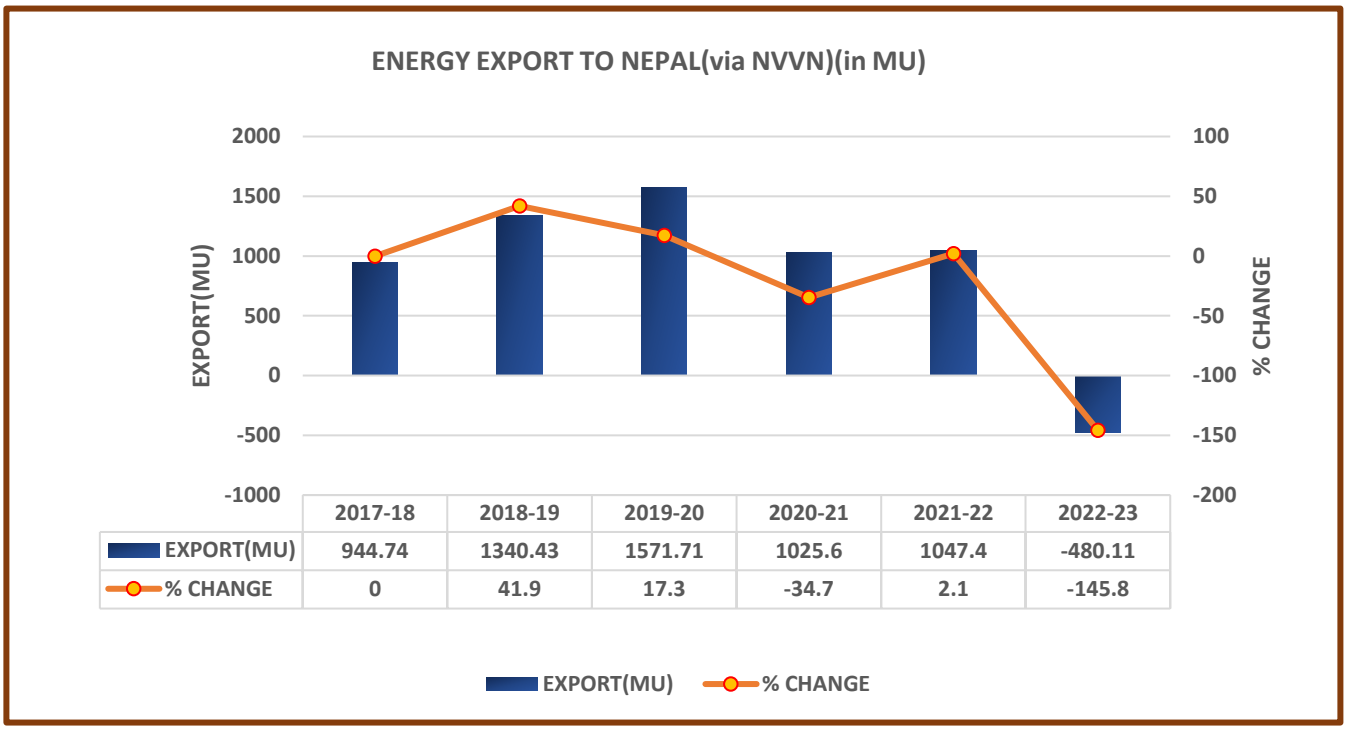




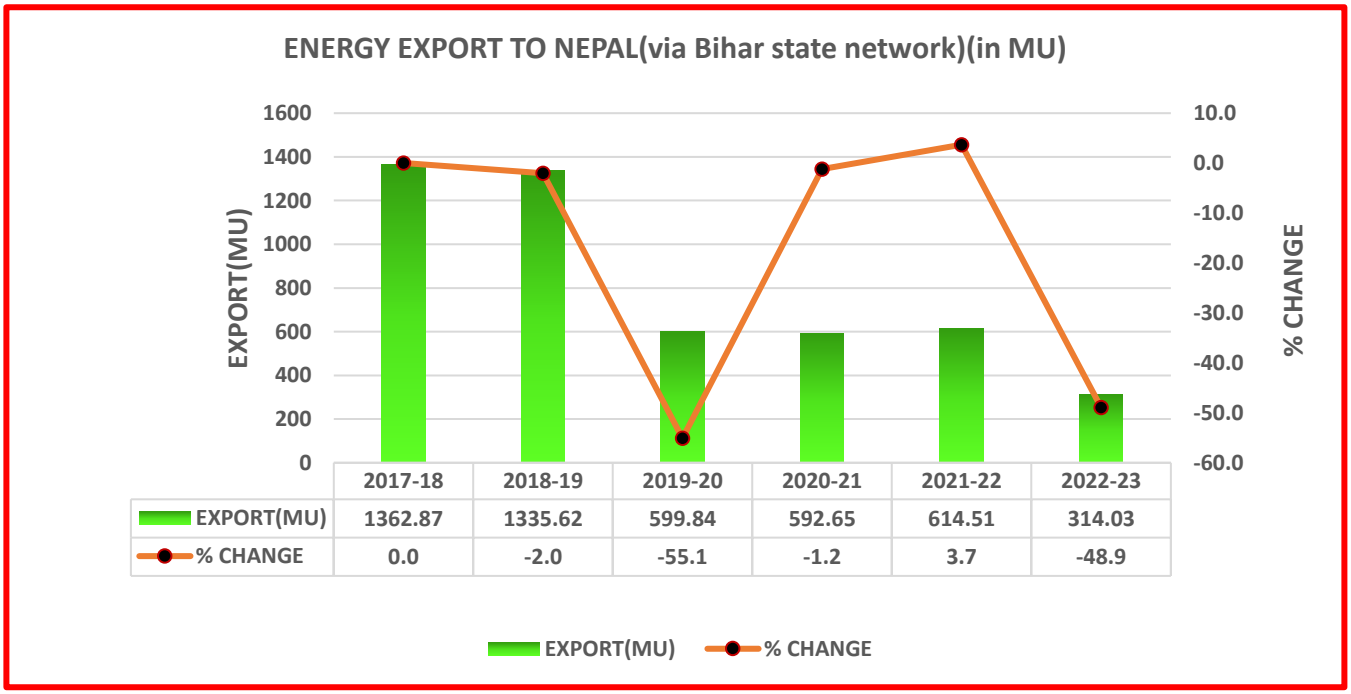
*The above share allocation from Hydro power stations of Bhutan is as on **31.03.2023**

4.4.2.3 Trading of power with Nepal:

Net Energy imported from Nepal during 2022-23 was to the tune of 166.08 MU which comprises net import of 480.11 MU through NVVN trader and net export of 314.03 MU through Bihar state network . Year wise variation of cross-border energy transaction with Nepal via NIVVN trader as well as Bihar state network is shown.



	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
EXPORT(MU)	944.74	1340.43	1571.71	1025.6	1047.4	-480.11
% CHANGE	0	41.9	17.3	-34.7	2.1	-145.8



	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
EXPORT(MU)	1362.87	1335.62	599.84	592.65	614.51	314.03
% CHANGE	0.0	-2.0	-55.1	-1.2	3.7	-48.9

4.5 LONG TERM AND MEDIUM-TERM ACCESS

Long term transactions are governed by "Central Electricity Regulatory Commission (Grant of Connectivity, Long-term Access and Medium-term Open Access in inter-State Transmission and related matters) Regulations, 2009" on 07.08.2009.

The LTA & MTOA status from Eastern Region informed by NLDC as on 31.03.2023 is given at **Annexure – XIX.**

4.6 COMMERCIAL DECLARATION OF NEW GENERATING STATIONS IN ER

During the year 2022-23, there was addition of 660 MW generating capacity in Eastern Region. Out of which, entire 660 MW capacity is thermal and 0 MW is Hydro. Details of commercial declaration of new generation stations is given at **Annexure-IV(B**).

4.7 SOLAR POWER GENERATION IN THE REGION

The renewable sources of electricity have zero marginal cost and are must run in nature. The development of Solar Power generation in India has been initiated for quite some time. The development of solar power generation process confronts several barriers like financial, investment, technology, institutional and other incidental factors. To overcome these barriers substantial support is required for development of solar power generation. Foremost among them is the relatively high cost of solar generation. Several options were explored to give incentive to the cost of solar power and the option of "bundling" solar power with the power out of the cheaper unallocated quota of Central Coal based Stations and selling this bundled power to state distribution utilities at the CERC regulated price was decided.

In order to facilitate grid connected solar power generation in the first phase, the Mission provides for NTPC Vidyut Vyapar Nigam (NVVN) to be the designated Nodal Agency for procuring the solar power by entering into a Power Purchase Agreement (PPA) with Solar Power Generation Project Developers who will be setting up Solar Projects during the next three years, i.e. Before March 2013 and are connected to a grid at a voltage level of 33 kV and above. For each MW of installed capacity of solar power for which a PPA is signed by NVVN, the Ministry of Power (MoP) shall allocate to NVVN an equivalent amount of MW capacity from the unallocated quota of NTPC coal-based stations and NVVN will supply this "bundled" power to the Distribution Utilities.

Solar power bundling implemented in ER at present:

1) Ministry of Power (GoI) has allocated 5 MW of power to Odisha from the un-allocated power of coal based NTPC power stations in Eastern Region for bundling with the power from 5 MW solar PV power project of M/s Aftab Solar in Odisha [under JNNSM scheme (Phase-I)]. The same has been made effective from 01.05.2012 in the Regional Energy Accounts (REA) of ER.

2) Ministry of Power (GoI) has allocated 5 MW of power to GRIDCO from the un-allocated power of coal based NTPC power stations in Eastern Region for pooling with the power from 5 MW Dadri solar power project of NTPC. The same has been made effective in the Regional Energy Accounts (REA) of ER with effect from 00:00 hrs. of 30.03.2013.

3) Ministry of Power (GoI) has allocated un-allocated power of NTPC stations in ER for bundling with 65 MW of solar power from Rajasthan with effect from 00:00 hrs. of 16.08.2013 in favour of Gridco: 10 MW; West Bengal: 35 MW; DVC: 15 MW; and Assam: 5.

4) Ministry of Power (GoI) has allocated 5 MW of power to DVC from the un-allocated power of coal based NTPC power stations in Eastern Region for bundling with the power from 5 MW Talcher solar power project of NTPC. The same has been made effective in the Regional Energy Accounts (REA) of ER with effect from 00:00 hrs. of 28.03.2014.

5) Ministry of Power (GoI) has allocated 10 MW of power to DVC from the un-allocated power of coal based NTPC power stations in Eastern Region for bundling with the power from Unchahar solar power project of NTPC. The same has been made effective in the Regional Energy Accounts (REA) of ER with effect from 00:00 hrs. of 31.03.2014.

6) Ministry of Power (GoI) has allocated 5 MW of power to Gridco from the un-allocated power of coal based NTPC power stations in Eastern Region for bundling with the power from Faridabad solar power project of NTPC. The same has been made effective in the Regional Energy Accounts (REA) of ER with effect from 00:00 hrs. of 31.03.2014.

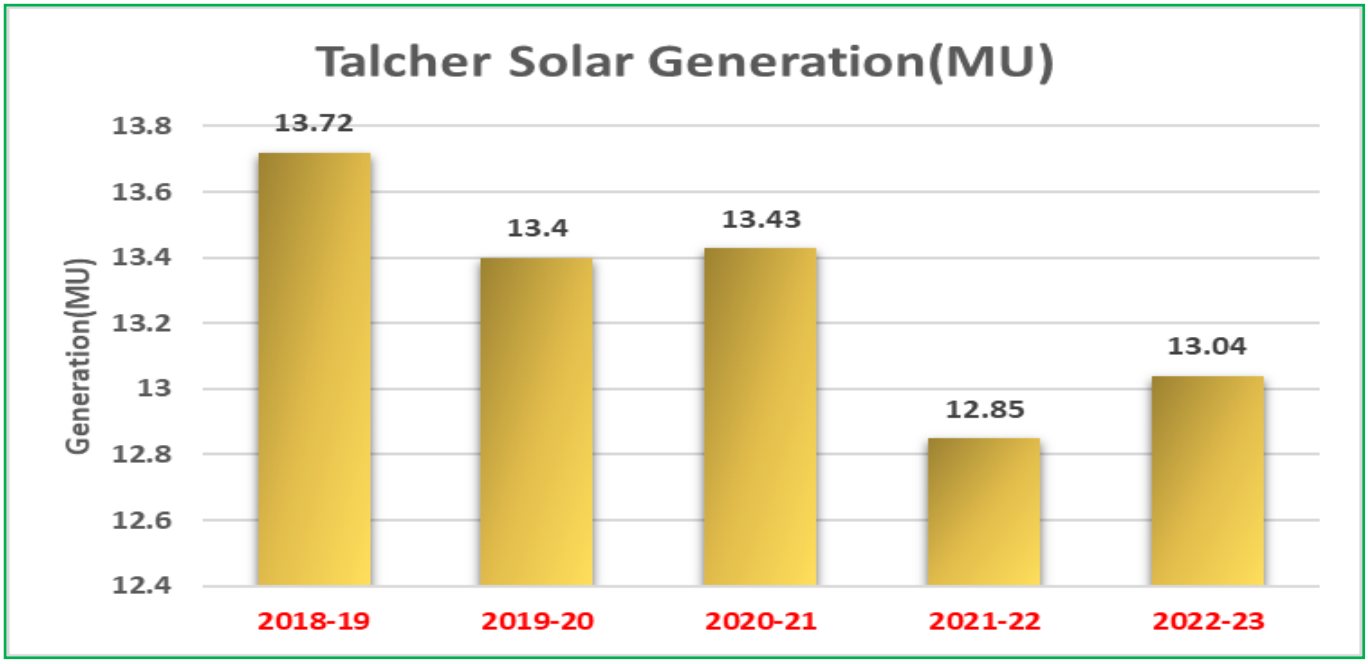
7) 25 MW of Solar Power from Rajasthan (M/s Sun Technique Solar Pvt. Ltd.) under the scheme of JNNSM Phase – I was allocated to West Bengal-15 MW, Odisha-5 MW, DVC-5 MW which have been implemented w.e.f. 00:00 Hrs. of 05.12.2014.

8) Subsequently, DVC has surrendered its share of 40 MW of coal power from ER NTPC stations and 1.09 MW from MTPS Stg-II, KBUNL w.e.f. 01.12.2017; the same has been allocated to Telangana for bundling with 100 MW of solar power under National Solar Mission Phase-II Batch-II Tranche-I.

9) Ministry of Power (GoI) has allocated 50 MW (41.09 MW surrendered power of DVC and 8.91 MW from Barh STPS) to Telangana for bundling with 100 MW of solar power under National Solar Mission Phase-II Batch-II Tranche-I w.e.f. 00:00 Hrs of 01.12.2017.

10) Total generation from Talcher Solar Station of NTPC for 2022-23 is 13.04 MU.

The variation in Generation of Talcher Solar Station for last five years is as given below:



4.8 FUNDS TRANSFERRED TO POWER SYSTEM DEVELOPMENT FUND FROM EASTERN REGION

The Power System Development Fund (PSDF) Regulations were notified by CERC on 04.06.2010. As per this regulation the following funds are transferred to the PSDF:

1. Congestion charges standing to the credit of the "Congestion Charge Account" after release of amounts payable to Regional Entities entitled to receive congestion charge along with interest, if any, in accordance with the Central Electricity Regulatory Commission (Measures to relieve congestion in real time operation) Regulations, 2009 as amended from time to time;

2. Congestion amount arising from the difference in the market prices of different regions as a consequence of market splitting in power exchanges in accordance with Central Electricity Regulatory Commission (Power Market) Regulations, 2010.

3. Unscheduled Interchange charges standing to the credit of the "Unscheduled Interchange Pool Account Fund" after final settlement of claims of Unscheduled Interchange Charges in accordance with the Central Electricity Regulatory Commission (Unscheduled Interchange Charges and related matters) Regulations, 2009 as amended from time to time;

4. RLDC reactive energy charges standing to the credit of Reactive Energy Charges Account.

4.9 DEVIATION SETTLEMENT MECHANISM (DSM)

4.9.1 Introduction

In ABT tariff system apart from Capacity (Fixed) charges and Energy charges the third important component is Deviation charges. It is the payment for deviations from schedule at a rate dependent on

system conditions (Frequency) at that time. The deviation from schedule is technically termed as Unscheduled Interchange (UI) in ABT terminology. CERC vide its notification no No. L-1/132/2013/CERC dated 06.01.14 directed for implementation of Deviation Settlement Mechanism w.e.f. 17.02.2014 in place of UI regulations. Subesequently vide notification no. L-1/260/2021/CERC dated 14.03.2022 notified DSM regulatio-2014 and the same was implemmented w.e.f. 05.12.2022. With the implementation of this regulation, the UI regulation & DSM Regulation-2014 stood repealed.

For a generator, Deviation is the difference between Actual generation (ex-bus) and Schedule generation (ex-bus), whereas for a beneficiary, it is equal to Actual drawl (periphery) and Schedule drawl (periphery). Deviation charge is obtained by multiplying the Deviation with deviation rate. The normal rate of charges for deviation for a time block shall be equal to the higher of [the weighted average ACP of the Day Ahead Market segments of all the Power Exchanges; and the weighted average ACP of the Real Time Market segments of all the Power Exchanges, for that time block. DSM penealty/incentive is a frequency dependent rate notified by Central Electricity Regulatory Commission as per DSM Regulation-2022. A constituent may receive/pay Deviation charge depending on whether it has assisted/undermined the grid frequency.NLDC will publish Normal rate of Charge of Deviation blockwise.

- 'Reference Charge Rate' means (i) in respect of a general seller whose tariff is determined under Section 62 or Section 63 of the Act, Rs/ kWh energy charge as determined by the Appropriate Commission, or (ii) in respect of a general seller whose tariff is not determined under Section 62 or Section 63 of the Act, the daily weighted average ACP of the Day Ahead Market segments of all the Power Exchanges, as the case may be.

- In case of multiple contracts, the contract rate or the reference rate referred to in Regulation 8 of the DSM Regulations, 2022 shall be the weighted average of the contract rates of all such contracts

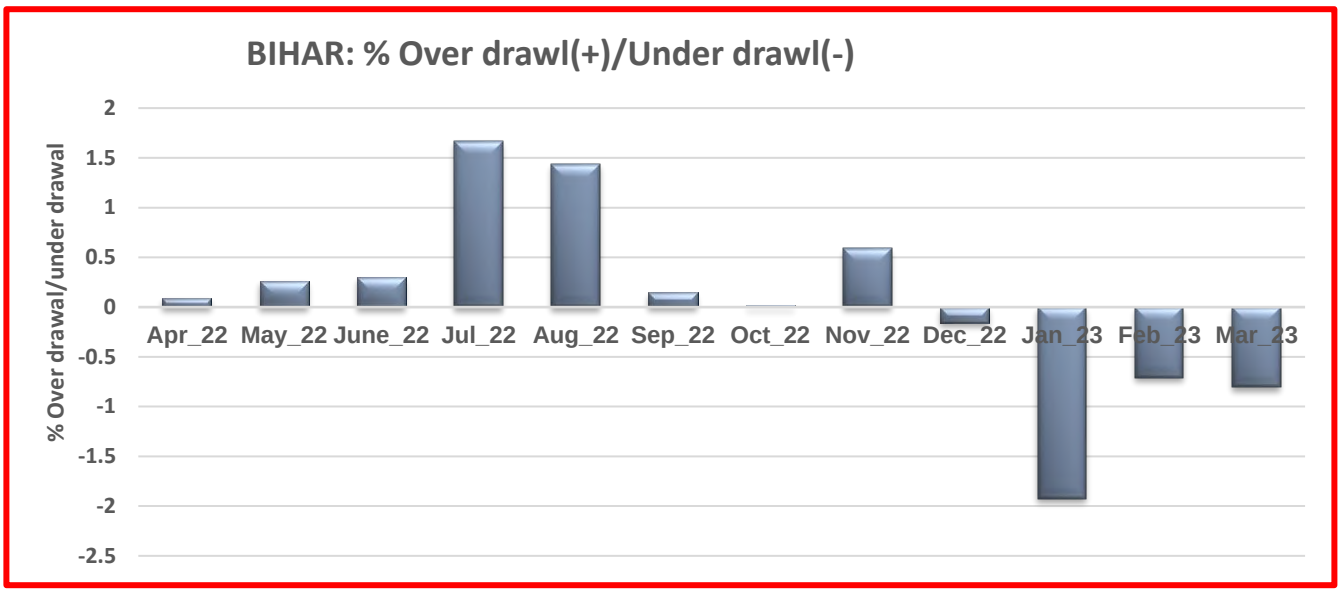
- In case of forced outage of a seller, the charges for deviation shall be @ the reference charge rate, for a maximum duration of eight time blocks or until the revision of its schedule, whichever is earlier.
- The charges for deviation for drawal of start up power before COD of a generating unit or for drawal of power to run the auxiliaries during shut down of a generating station shall be payable at the reference charge rate or contract rate or in the absence of reference charge rate or contract rate, the weighted average ACP of the Day Ahead Market segments of all Power Exchanges for the respective time block, as the case may be

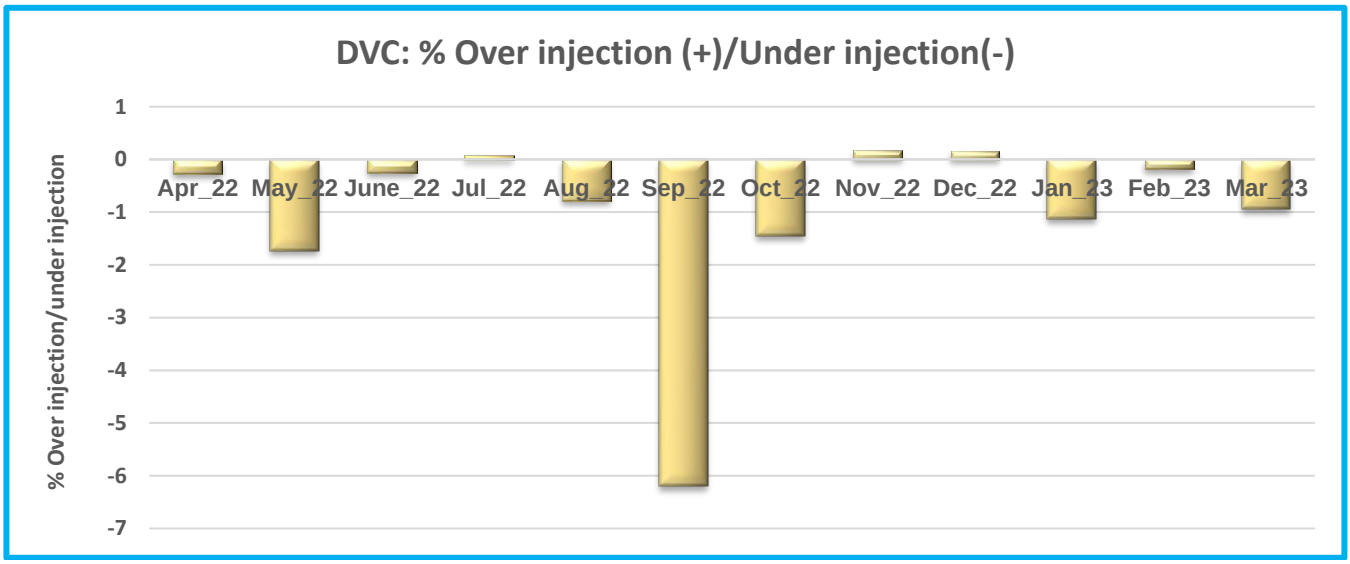
- It acts like a financial barometer, which measures a licensee's responsiveness towards healthiness of the regional grid. The DSM mechanism has established a real time balancing market that is workably competitive and provides a powerful force for efficiency and innovation.

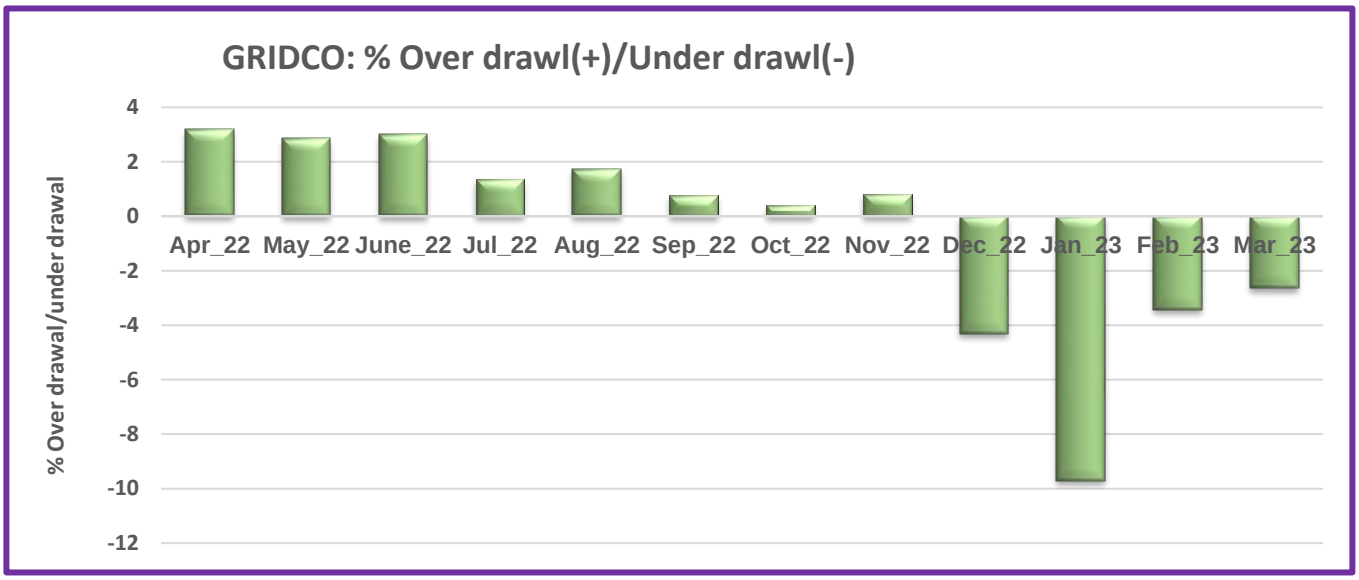
4.9.2 Performance of the constituents:

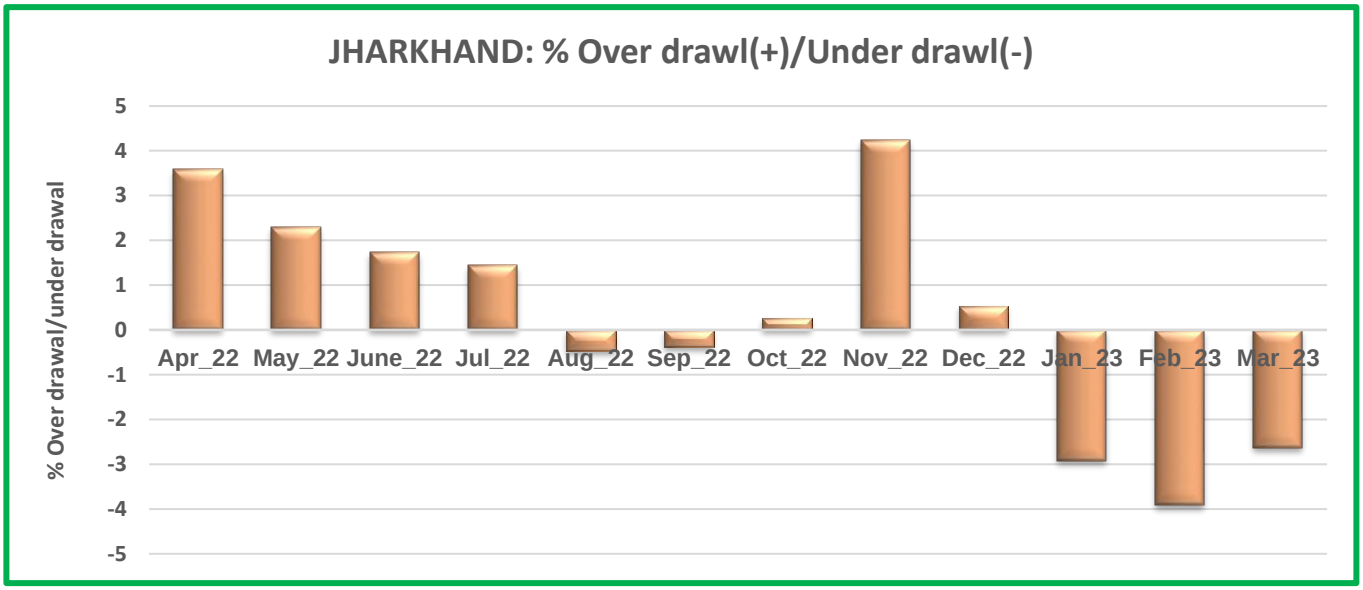
Details of month-wise Schedule Drawal/Generation, Actual Drawal/Generation, Receivable/Payable of UI/Deviation Charge amount for the year 2022-23 are furnished in **Annexure-XX-A & Annexure-XX-**

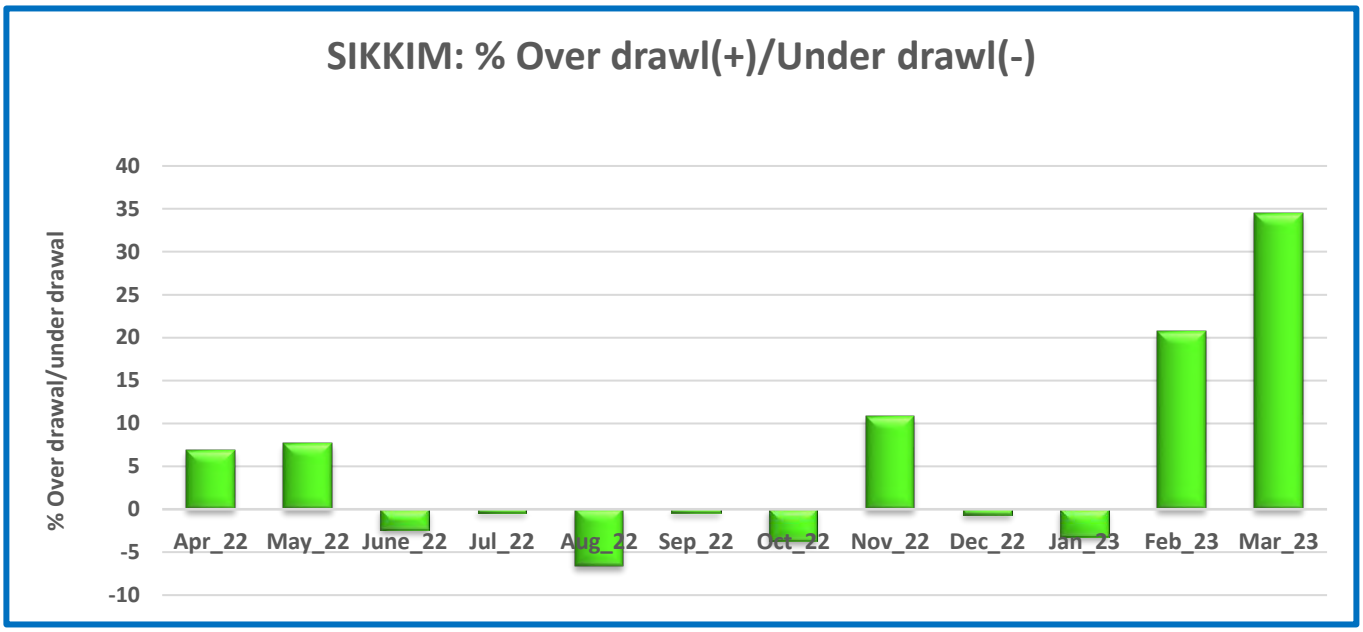
B. Graphical representation is given below for ready reference.Monthwise injection and drawl by respective constituents detailed at **Annexure-XXI-A & Annexure-XXI-B** respectively.

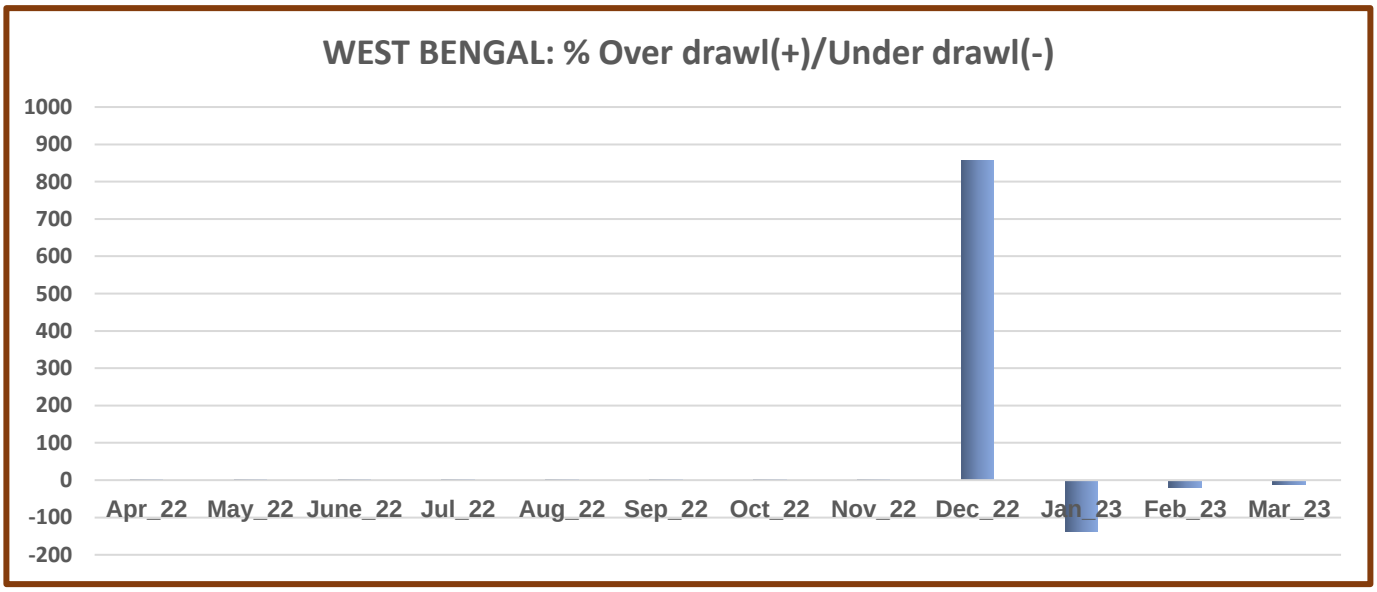





GRIDCO: % Over drawl(+)/Under drawl(-)
% Over drawal/under drawal
4
2
0
-2
-4
-6
-8
-10
-12
Apr_22
May_22
June_22
Jul_22
Aug_22
Sep_22
Oct_22
Nov_22
Dec_22
Jan_23
Feb_23
Mar_23


JHARKHAND: % Over drawl(+)/Under drawl(-)
% Over drawal/under drawal
5
4
3
2
1
0
-1
-2
-3
-4
-5
Apr_22
May_22
June_22
Jul_22
Aug_22
Sep_22
Oct_22
Nov_22
Dec_22
Jan_23
Feb_23
Mar_23





4.10 REACTIVE ENERGY CHARGES:

Reactive power compensation should ideally be provided locally, by generating reactive power as close to the reactive power consumption as Possible. The Regional Entities except Generating Stations are therefore expected to provide local VAr compensation/generation such that they do not Draw VArs from the EHV grid, particularly under low-voltage condition. To Discourage VAr drawals by Regional Entities except Generating Stations, VAr Exchanges with ISTS shall be priced as follows:

i) The Regional Entity except Generating Stations pays for VAr drawl when voltage at the metering point is below 97%

ii) The Regional Entity except Generating Stations gets paid for VAr return when voltage is below 97%
iii) The Regional Entity except Generating Stations gets paid for VAr drawl when voltage is above103%
iv) The Regional Entity except Generating Stations pays for VAr return when Voltage is above 103%.

Provided that there shall be no charge/payment for VAr drawl/return by a Regional Entity except Generating Stations on its own line emanating directly from an ISGS.

As per IEGC, the beneficiary states of the region are billed for reactive energy exchange with the CTU system. ERPC also prepares reactive energy exchange for interstate system. The procedure for reactive energy charge calculation is governed by clause 1.6 and 1.7 of IEGC. The rate for reactive energy charge was 15.0 paisa/unit during the year 2022-23. The statement indicating reactive energy charge billing details during the year is enclosed at **Annexure-XXII**.

4.11 REGIONAL TRANSMISSION DEVIATION CHARGES:

As per the CERC (Sharing of Transmission charges and Losses Regulations), 2020, the 'Regional Transmission Deviation Account (RTDA)' means the monthly account of Transmission Deviation charges issued by the Secretariat of respective Regional Power Committee on the basis of which the Central Transmission Utility shall raise the third bill in the billing month under prevailing regulations

Transmission Deviation, in MW, shall be computed as under:

a) *For a generating station:* The net metered ex-bus injection, in a time block in excess of the sum of Long-Term Access, Medium Term Open Access and Short-Term Open Access.

(b) *For a State*: The net metered ex-bus injection or net metered drawal, in a time block, in excess of the sum of Long-Term Access and Medium-Term Open Access.

(c) *For any drawee DIC*: This is a regional entity other than distribution licensees, net metered drawl in a time block in excess of the sum of Long-Term Access, Medium Term Open Access and Short-Term Open Access.

Transmission Deviation Rate in Rs./MW, for a State or any other DIC located in the State, for a time block during a billing month shall be computed as under:

TDR = 1.05 X (transmission charges of the State for the billing month in Rs.)/ (quantum in MW of Long-Term Access plus Medium-Term Open Access of the State for the corresponding billing period X 2880)

The transmission Deviation charges shall be recovered through the third bill and shall be reimbursed to the DICs in proportion to their share in the first bill in the following billing month.

4.12 ANCILLARY SERVICES

Power systems require ancillary services to maintain reliability and support their primary function of delivering energy to customers. Ancillary services are principally real-power generator control capacity services the system operator uses over various time frames to maintain the required instantaneous and continuous balance between aggregate generations and load. Ancillary Services consist of services required for:

a) Maintaining load – generation balance (frequency control)
b) Maintaining voltage and reactive power support
c) Maintaining generation and transmission reserves

Renewable energy generation is variable in nature (diurnal & seasonal) and implementation of ancillary services would facilitate integration of renewable energy generation in the country. Ancillary services will certainly help in controlling the variability of renewable generation.

- **Primary Control**

Continuous load changes result in mismatch of generation and load leading to variation in frequency of interconnected power system. Governors free to operate would enable smooth control of frequency fluctuations as well as security against grid disturbances. Time frame for primary governor control action is about a few seconds i.e. 2- 5 seconds.

- **Secondary Control**

If the load generation imbalance caused by an outage of large generator or load causing sudden variation in frequency of interconnected power system, primary response through governor action described above would help arrest the change fall in frequency. However, the frequency has to be brought back to 50 Hz through corrective action taken by the Control Area within which the generation or load is affected. Supplementary corrective action or secondary control has to be taken to bring frequency back to 50 Hz. For large interconnection system this automatic secondary control is known as Automatic Generation Control (AGC). Time line of secondary control action is a few minutes.

- **Tertiary Control**

Loss of large generator (or load) may cause a large enough system excursion that cannot be handled by regulatory reserve alone. The above secondary control reserves also need to be restored through tertiary reserves. Tertiary reserve provides significant insurance against wide spread outages.

The ancillary services are a potent tool in the hands of the system operator. The Central Commission is actively considering bringing in regulation to implement full-fledged ancillary services in the country.

4.13 RESERVE REGULATORY ANCILLIARY SERVICES (RRAS)

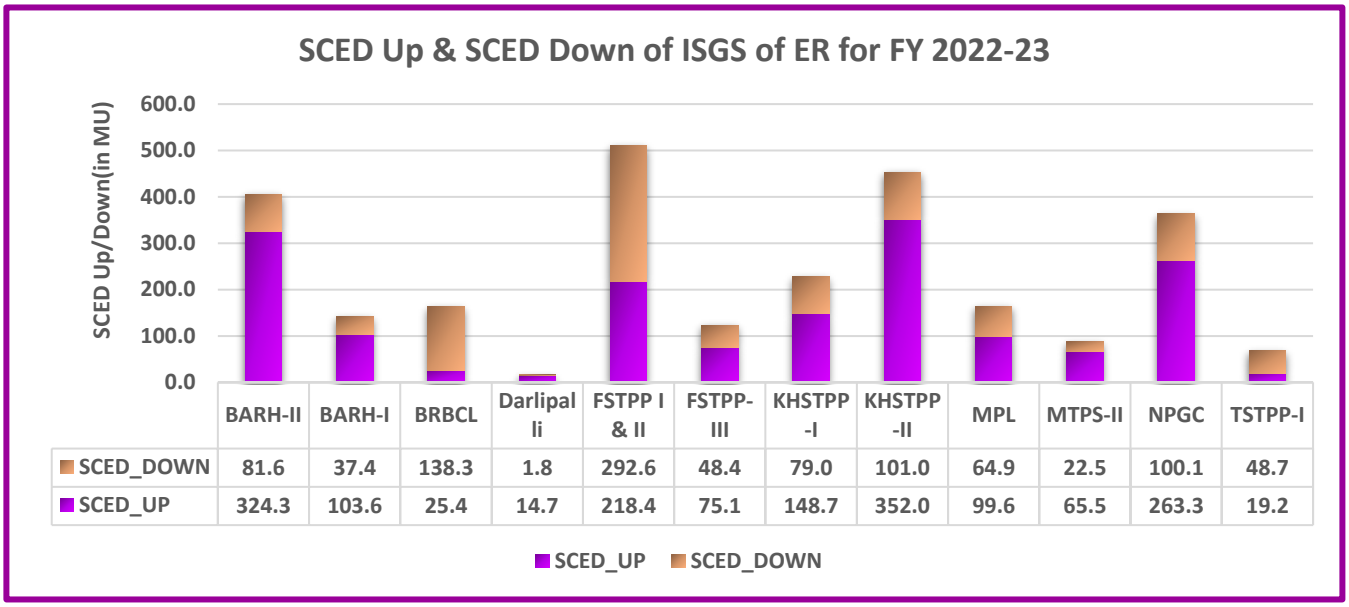
Ancillary services refer to functions that help grid operators maintain a reliable electricity system. Ancillary services maintain the proper flow and direction of electricity, address the imbalances between supply and demand, and help the system recover after a power system event. In the present system with significant variable renewable energy (RE) penetration, additional ancillary services may be required to manage increased variability and uncertainty.

Currently, the reserve capacity of Central generators i.e. URS power has been considered as the tertiary reserve of the generators. Tertiary reserve provides significant insurance against wide spread outages. Tertiary reserve had been a luxury in our system that was perennially short of generation. Since generators reserve situation is getting better, it is proposed to use such surplus reserve by procuring tertiary reserve which can be utilised for frequency regulation of the national grid to avoid the deviation from desired frequency of 50 Hz.

As per Regulation 12 of the CERC (Ancillary Services Operations) Regulations 2015, the secretariat of Regional Power Committees (RPCs) is required to issue the weekly accounts for RRAS along with the weekly DSM accounts. The RRAS account include the fixed charges, variable charges and mark up charges. RRAS provider shall refund back the fixed charge to the original beneficiaries in proportion to the quantum surrendered from its generating station.
The payments made from/to the DSM pool.

4.14 SECURITY CONSTRAINED ECONOMIC DISPATCH

CERC vide Suo-Motu order dated 31.01.2019 in petition no. 02/SM/2019 has directed implementation of SCED for the Inter-State Generating Stations on pilot basis w.e.f. 01.04.2019. RPCs and POSOCO have been directed to conduct stakeholder awareness programs for smooth implementation of SCED pan-India. Hon'ble Commission, vide Order in Petition No. 02/SM/2019 (Suo-Motu) dated 31st January, 2019, directed for Pilot on SCED of Inter-State Generating Stations (ISGS) Pan India.
The Central Commission observed that there is an overarching objective to optimize the Scheduling and dispatch of the generation resources and reduce the overall cost of Production of electricity without major structural changes in the existing System/framework. SCED is a desired step in the Indian grid operation towards optimization methodologies.



4.15 FAST RESPONSE ANCILLARY SERVICE

Hon'ble CERC vide its order dated 16.07.2018 in petition No.07/SM/2018/Suo-Motu directed for implementation of FRAS on pilot basis. FRAS pilot service implemented w.e.f. 26.11.2018. Fast Response Ancillary Services (FRAS) is a Frequency Regulation service. FRAS instruction has been given for every discrete 5-min time block starting from 0000 hrs of the day (e.g. 1000-1005, 1005-1010…). Central sector Hydro Generating Station with pondage/Storage facility will participate in FRAS pilot service (i.e. TEESTA-V & RANGIT of Eastern Region).

For implementing Hydro Power as FRAS, all constraints and commitments declared by the hydro stations shall be honoured and the total energy delivered over the day shall be maintained as declared by the hydro station. The total energy dispatched under FRAS shall be squared off by the end of the day. Triggering of FRAS shall be done on the stack prepared based on the balance energy available in the hydro station. The Schedules of the beneficiaries shall not be disturbed in the despatch of FRAS and the Payment for FRAS shall be based on "mileage" basis. The mileage during the day shall be computed as follows:

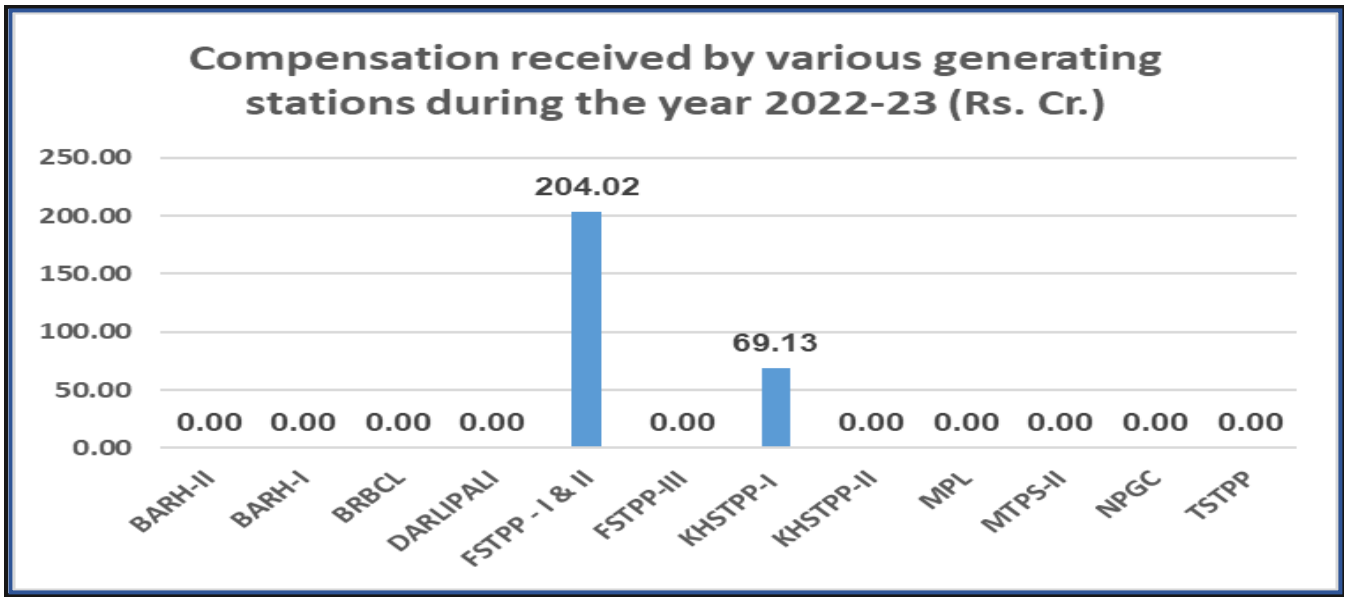
Net energy Enet = S(Eup) - S(Edown) (in MWh) (should be zero over the day)

Mileage Em = S | Eupt |+ S | Edownt| (in MWh)

No additional fixed charge or variable charges shall be paid for providing FRAS support. Existing fixed charges and variable charges shall continue to be paid by the beneficiaries for the normal schedules as per existing practice. The total energy despatched for hydro under FRAS shall be made zero and hence, no energy charges shall be payable to the hydro stations. Incentive shall be paid from the DSM pool on mileage basis at the rate of 10 paisa per kWh for both "up" and "down" regulation provided by Hydro station.

4.16 COMPENSATION FOR DEGRADATION OF HEAT RATE, AUX CONSUMPTION AND SECONDARY FUEL OIL CONSUMPTION, DUE TO PART LOAD OPERATION AND MULTIPLE START/STOP OF UNITS

Central Electricity Regulatory Commission (Indian Electricity Grid Code) (Fourth Amendment) Regulations, 2016, was notified on 6th April 2016. The Amendment Regulations contained provisions relating to Technical Minimum Schedule for operation of Central Generating Stations (CGS) and Inter-State Generating Stations (ISGS), whose tariff is either determined or adopted by the Central Commission. The Amendment Regulations further provided for compensation to Generating Stations for degradation of Heat Rate, Auxiliary Consumption and Secondary Fuel Oil consumption due to part load operation and multiple start-ups of units.



This Compensation Mechanism is applicable to Coal/Gas based Central Generating Stations and Coal/Gas based Inter-State Generating Stations, whose tariff is either determined or adopted by the Central Commission (hereinafter "designated generating stations"). In case of generating stations, whose tariff is neither determined nor adopted by the Commission but which is a regional entity, they shall be required to make appropriate provisions in their PPAs or any other supplementary agreement in the light of the Compensation Mechanism. Compensation received by various generating stations of Eastern Region during the year 2022-23 is furnished in **Annexure- XXIII.**

4.17 Automatic Generation Control (AGC)

Automatic generation control (AGC), is a major control function within a utility's energy control centre whose purpose is the tracking of load variations while maintaining system frequency, net tie-line (tie line flow within a specified parameters) interchanges, and optimal generation levels close to scheduled (or specified) values. Automatic generation control (AGC) regulates power generation in response to load

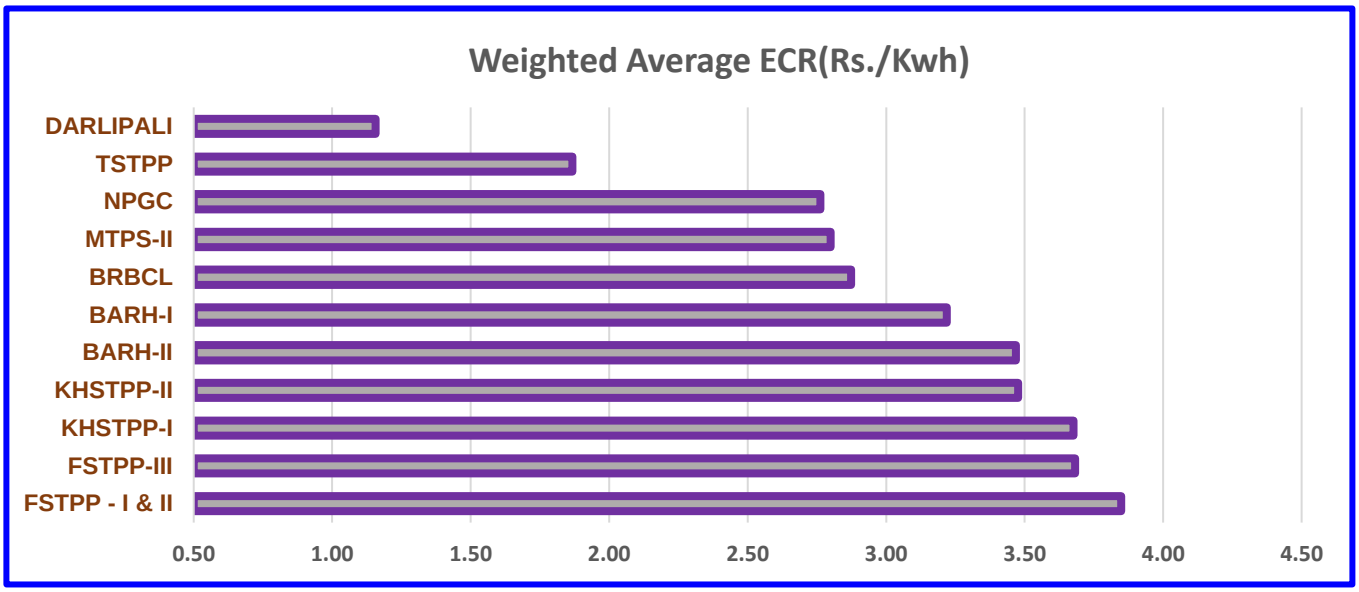
changes through local feedback control measurements. Its main objective is to maintain system frequency (through variation in generation) and keep energy balanced within each control area in order to maintain the scheduled net interchanges between control areas.

Hon'ble CERC vide its order dated 6.12.2017 in petition no 79/RC/2017, directed for implementation of Automatic Generation Control. In compliance to CERC's direction, AGC
was first implemented in NTPC Barh STPP in Eastern Region on 01st August 2019 and made operational since 23rd August, 2019.Vide order dated 28th August 2019, CERC in Petition No.: 319/RC/2018 directed that all the ISGS Stations whose tariff is determined or adopted by CERC shall be AGC-enabled and the ancillary services including secondary control through AGC shall be implemented.

All thermal ISGS stations with installed capacity of 200 MW and above and all hydro stations having capacity exceeding 25 MW excluding the Run-of-River Hydro Projects irrespective of size of the generating station and whose tariff is determined or adopted by CERC are directed to install equipment at the unit control rooms for transferring the required data for AGC as per the requirement to be notified by NLDC. AGC Settlement account and SRAS account of BARH STPS, KhSTPS-II, MPL, Tessta-V, NPGC, FSTPS-I & II and FSTPS-III is at **Annexure- XXIV.**

4.18 Merit Order Despatch of Central sector Generating stations(ER):

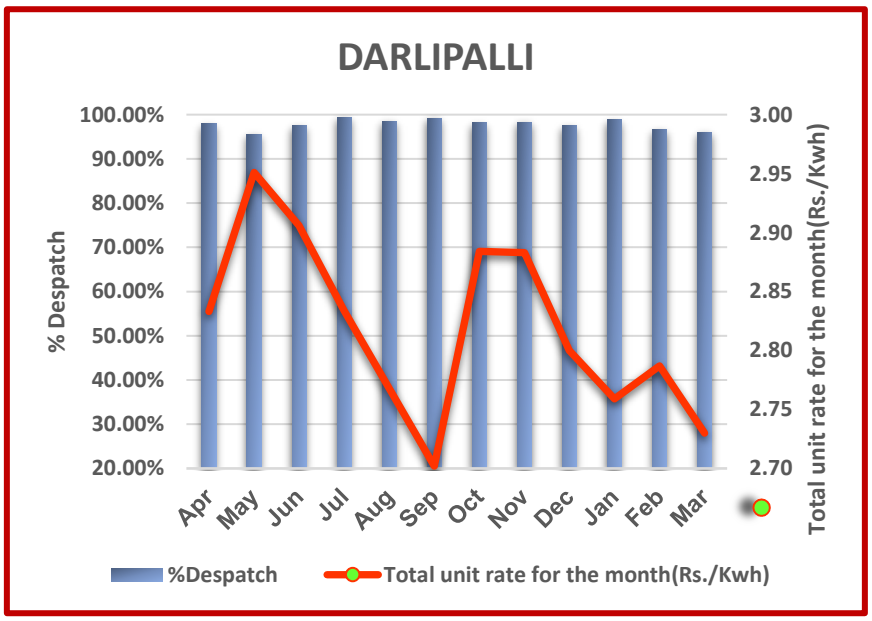
Hon'ble Commission introduced the Ancillary Services in the country vide its regulation viz. CERC(Ancillary Services Operations) Regulation, 2015 dated. 13th August'2015. With the objective to restore the frequency at desired level and to relieve the congestion in the transmission network.
The same was put into service w.e.f. 12th April'2016.For operationalising the same, Fixed charges/unit, variable charges/unit and ramp rates of all the participating stations are used to prepare the nation-wide Merit Order, and the based on the same power is despatched under Ancillary Service.
On 31st January'2019 Hon'ble Commission vide Suo-Moto order directed to implement Pilot on Security Constrained Economic Despatch (SCED) w.e.f. 01.04.2019 for ISGS. The same was extended in operation via multiple orders of the Hon'ble Commission and is still en-force. With this the commission aims to optimize the cost of despatched generation and minimizing system cost without major structural changes in the system. Under SCED the variable charges declared by the generators for the purpose of Ancillary Service/Reserve Regulation Ancillary Service(RRAS) is considered in the optimization process.
A Merit-order of the CSGSs' is prepared hereunder for FY 2022-23:



Darlipalli STPP having the lowest while FSTPP-I & II has the highest weighted average ECR w.r.t to their average DC for FY 2022-23.

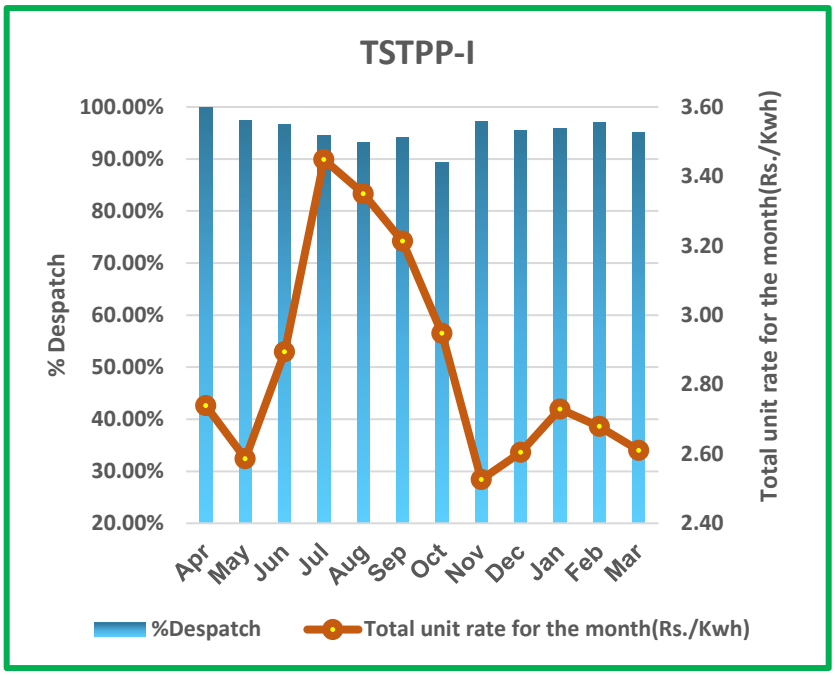
Monthly variation of Energy despatch from each of the CSGS w.r.t total unit rate(Rs./Kwh) is detailed as follows:

Darlipalli		
Month	**%Despatch**	**Total unit rate for the month(Rs./Kwh)**
Apr	97.96%	2.83
May	95.53%	2.95
Jun	97.45%	2.91
Jul	99.35%	2.83
Aug	98.50%	2.77
Sep	99.18%	2.70
Oct	98.21%	2.88
Nov	98.30%	2.88
Dec	97.52%	2.80
Jan	98.85%	2.76
Feb	96.55%	2.79
Mar	96.01%	2.73



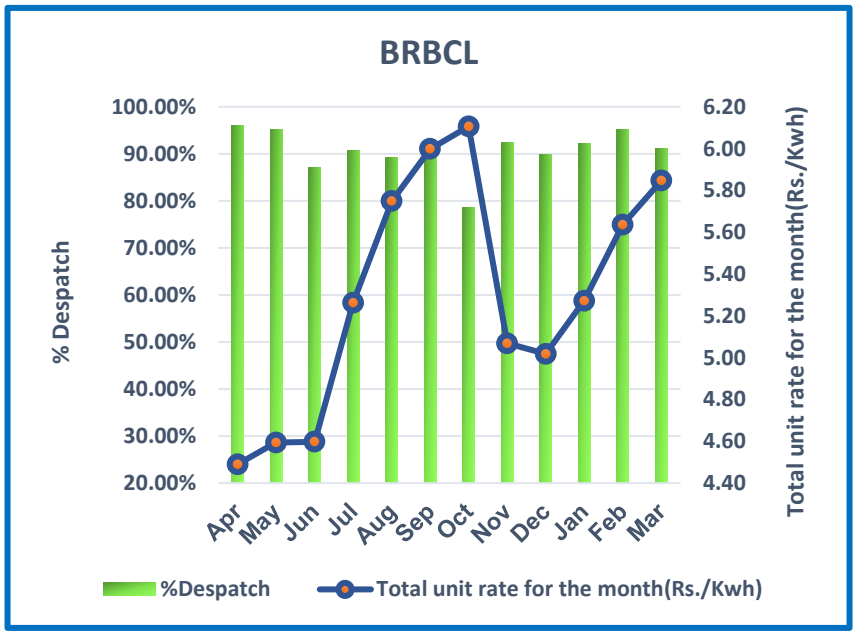
TSTPP-I

Month	%Despatch	Total unit rate for the month(Rs./Kwh)
Apr	99.99%	2.74
May	97.45%	2.59
Jun	96.68%	2.89
Jul	94.54%	3.45
Aug	93.18%	3.35
Sep	94.11%	3.21
Oct	89.27%	2.95
Nov	97.17%	2.53
Dec	95.44%	2.60
Jan	95.95%	2.73
Feb	96.99%	2.68
Mar	95.05%	2.61

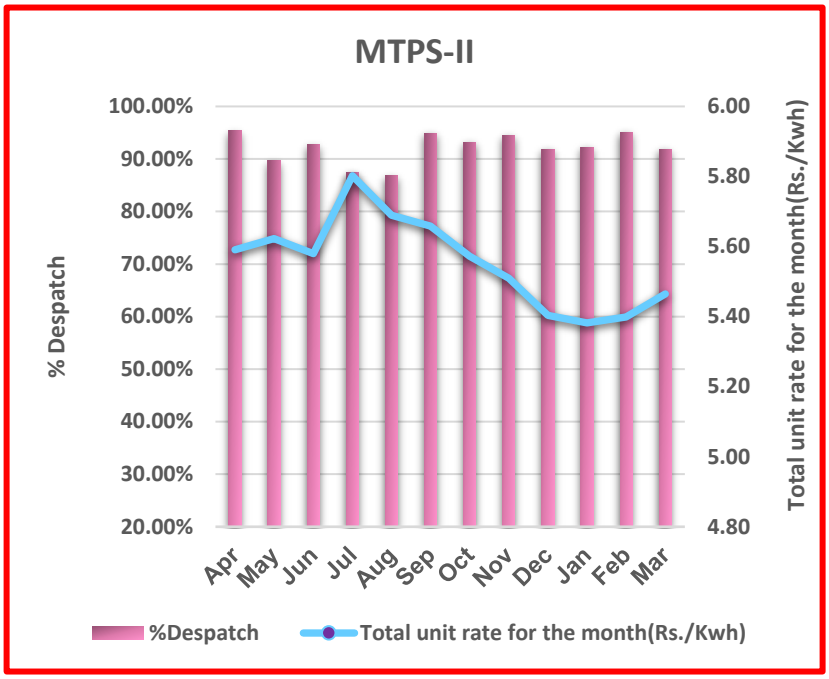


BRBCL

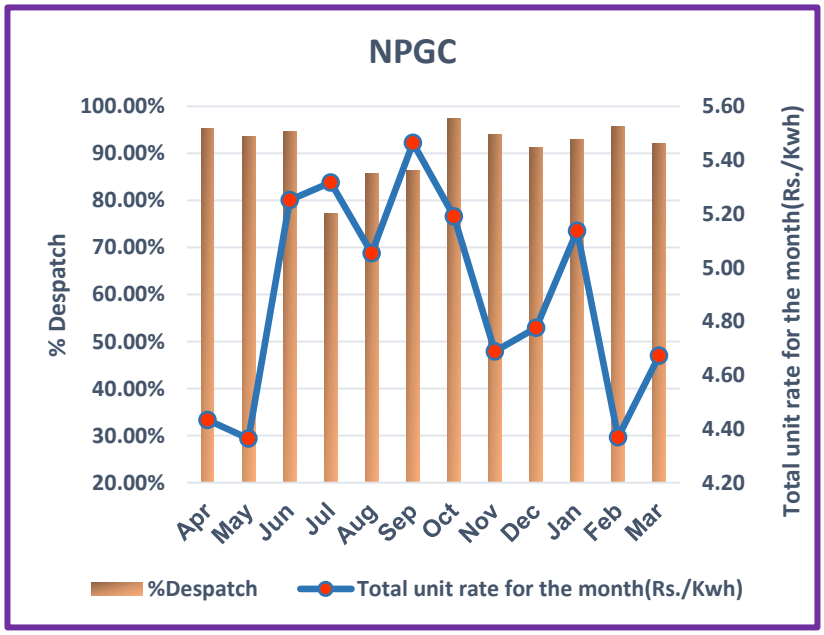
Month	%Despatch	Total unit rate for the month(Rs./Kwh)
Apr	96.08%	4.49
May	95.09%	4.59
Jun	87.17%	4.60
Jul	90.76%	5.26
Aug	89.21%	5.75
Sep	91.00%	6.00
Oct	78.60%	6.11
Nov	92.38%	5.07
Dec	89.82%	5.02
Jan	92.15%	5.27
Feb	95.17%	5.64
Mar	91.18%	5.85



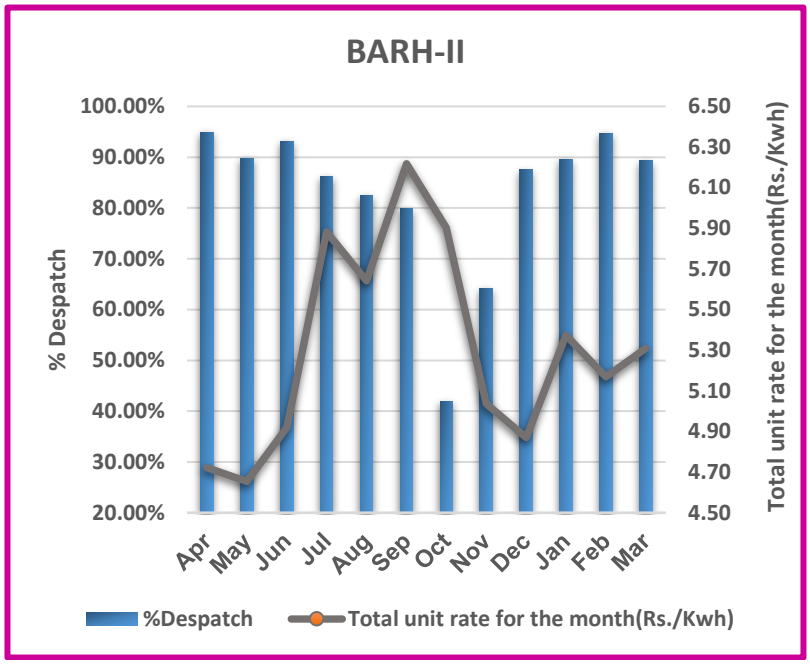
MTPS-II		
Month	**%Despatch**	**Total unit rate for the month(Rs./Kwh)**
Apr	95.37%	5.59
May	89.65%	5.62
Jun	92.67%	5.58
Jul	87.36%	5.80
Aug	86.78%	5.69
Sep	94.93%	5.66
Oct	93.21%	5.57
Nov	94.54%	5.51
Dec	91.87%	5.40
Jan	92.23%	5.38
Feb	95.13%	5.40
Mar	91.83%	5.47



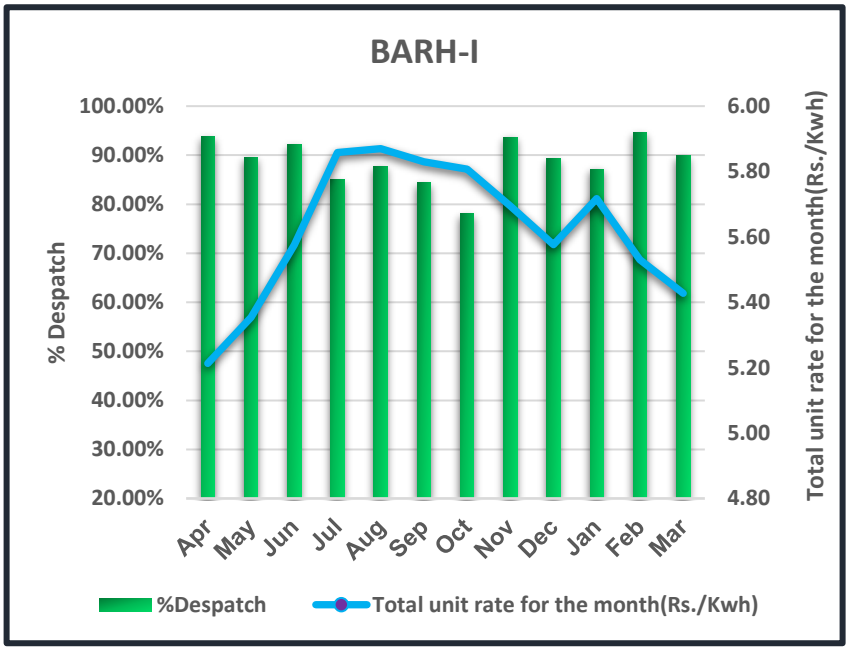
NPGC		
Month	**%Despatch**	**Total unit rate for the month(Rs./Kwh)**
Apr	95.38%	4.43
May	93.63%	4.36
Jun	94.74%	5.25
Jul	77.32%	5.32
Aug	85.70%	5.05
Sep	86.27%	5.46
Oct	97.47%	5.19
Nov	93.94%	4.69
Dec	91.32%	4.78
Jan	92.99%	5.14
Feb	95.62%	4.37
Mar	92.09%	4.67



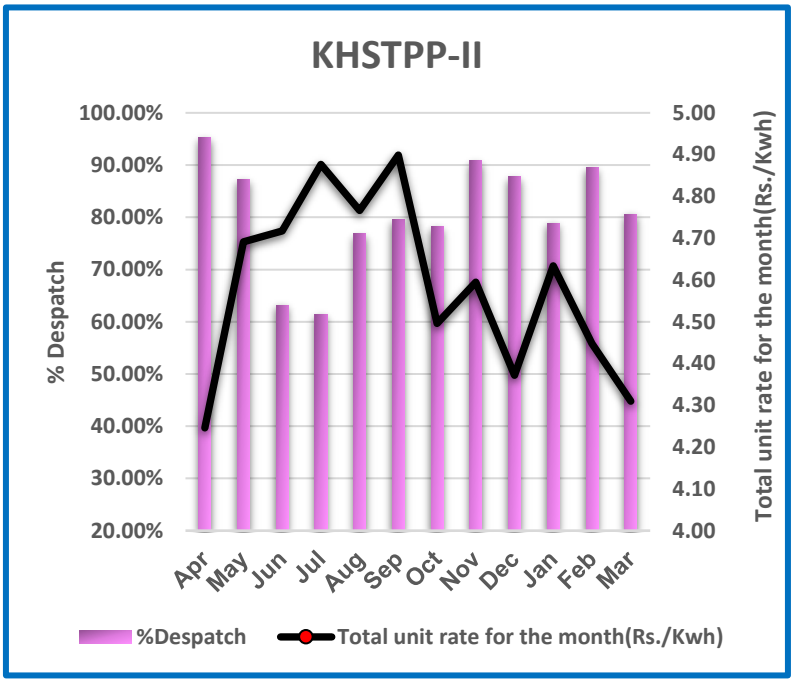
BARH-II		
Month	%Despatch	Total unit rate for the month(Rs./Kwh)
Apr	94.93%	4.72
May	89.83%	4.65
Jun	93.17%	4.92
Jul	86.23%	5.88
Aug	82.55%	5.64
Sep	79.97%	6.22
Oct	41.98%	5.90
Nov	64.15%	5.04
Dec	87.56%	4.87
Jan	89.59%	5.37
Feb	94.68%	5.17
Mar	89.34%	5.31



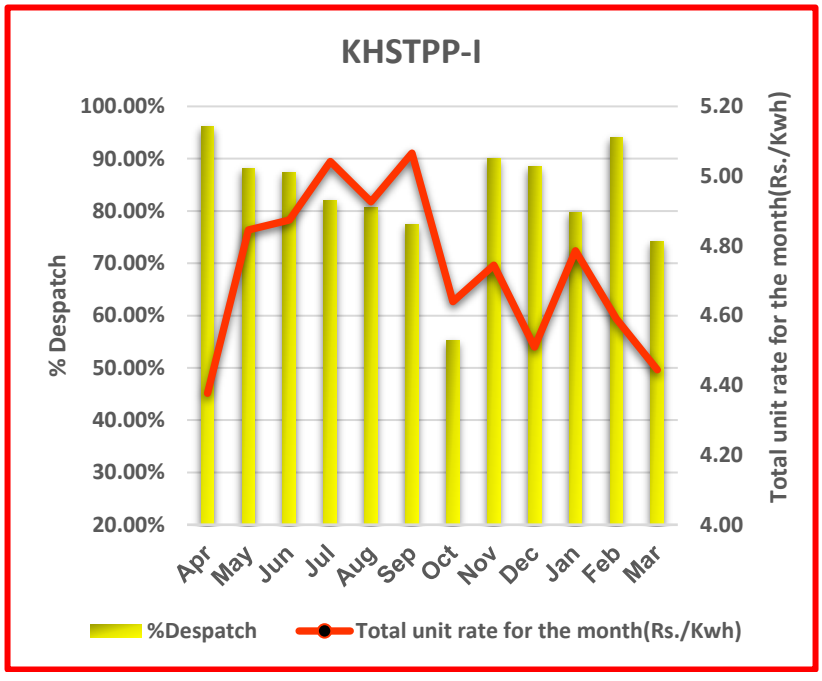
BARH-I		
Month	%Despatch	Total unit rate for the month(Rs./Kwh)
Apr	93.73%	5.21
May	89.59%	5.35
Jun	92.16%	5.58
Jul	84.94%	5.86
Aug	87.69%	5.87
Sep	84.36%	5.83
Oct	78.09%	5.81
Nov	93.71%	5.70
Dec	89.29%	5.58
Jan	87.13%	5.72
Feb	94.65%	5.53
Mar	89.84%	5.43



KHSTPP-II		
Month	**%Despatch**	**Total unit rate for the month(Rs./Kwh)**
Apr	95.19%	4.25
May	87.16%	4.69
Jun	63.21%	4.72
Jul	61.41%	4.88
Aug	76.84%	4.77
Sep	79.57%	4.90
Oct	78.22%	4.50
Nov	90.82%	4.60
Dec	87.75%	4.37
Jan	78.83%	4.63
Feb	89.49%	4.45
Mar	80.62%	4.31



KHSTPP-I		
Month	**%Despatch**	**Total unit rate for the month(Rs./Kwh)**
Apr	96.11%	4.38
May	88.11%	4.85
Jun	87.39%	4.87
Jul	82.01%	5.04
Aug	80.76%	4.93
Sep	77.48%	5.07
Oct	55.24%	4.64
Nov	90.04%	4.75
Dec	88.47%	4.51
Jan	79.80%	4.79
Feb	93.99%	4.59
Mar	74.10%	4.44



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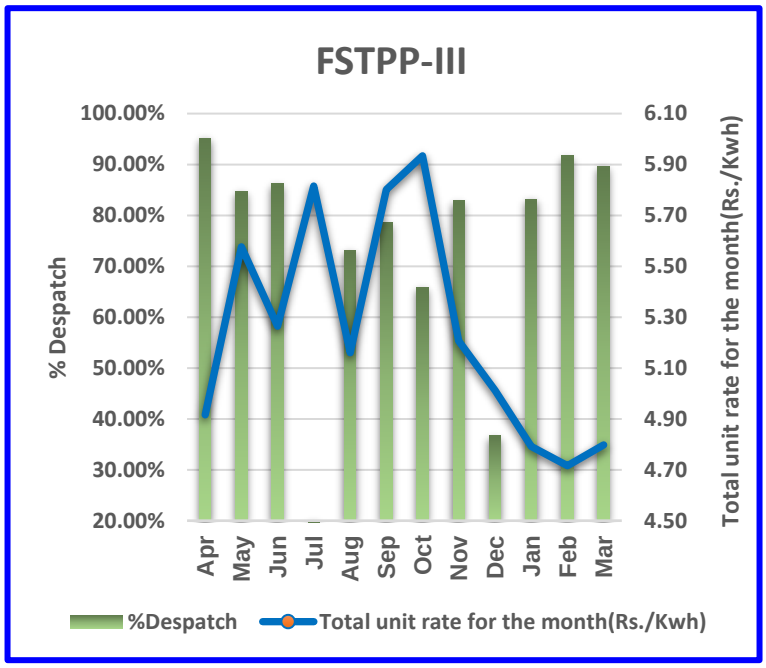
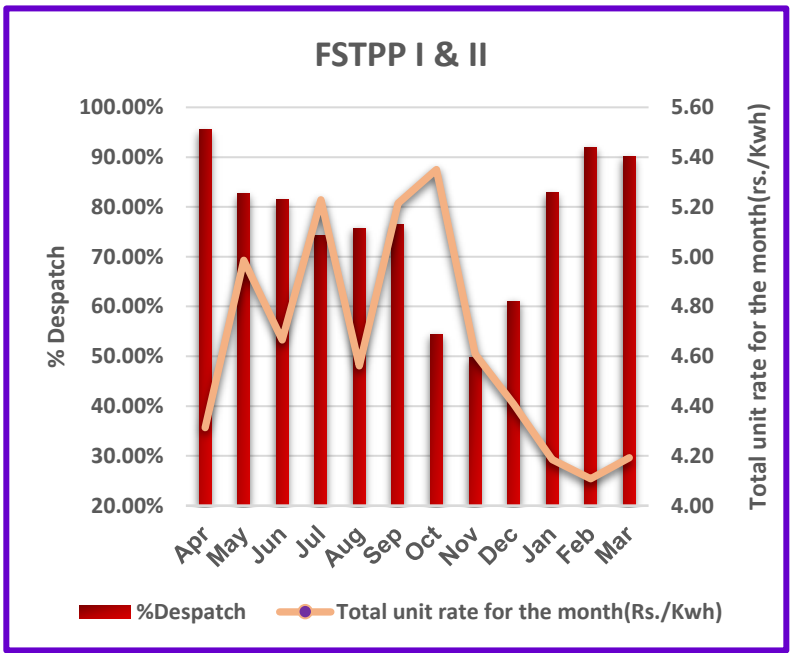
FSTPP-III		
Month	**%Despatch**	**Total unit rate for the month(Rs./Kwh)**
Apr	95.19%	4.92
May	84.71%	5.58
Jun	86.18%	5.26
Jul	0.00%	5.82
Aug	73.19%	5.16
Sep	78.56%	5.80
Oct	65.90%	5.93
Nov	82.89%	5.21
Dec	36.67%	5.01
Jan	83.17%	4.79
Feb	91.68%	4.72
Mar	89.60%	4.80



FSTPP I & II		
Month	**%Despatch**	**Total unit rate for the month(Rs./Kwh)**
Apr	95.45%	4.31
May	82.62%	4.99
Jun	81.45%	4.67
Jul	74.36%	5.23
Aug	75.74%	4.56
Sep	76.44%	5.22
Oct	54.44%	5.35
Nov	49.71%	4.61
Dec	61.04%	4.41
Jan	82.88%	4.19
Feb	91.91%	4.11
Mar	90.03%	4.19



Month-wise merit order of all Central sector Generating stations w.r.t variable cost (ECR in Rs./Kwh)is attached at **Annexure- XXV.**

CHAPTER-5

ISSUES ON OPERATION, PROTECTION, COMMUNICATION AND SYSTEM STUDIES

ERPC resolves various issues pertaining to Grid Operation, Protection, Communication, System Study etc. in the meetings of various sub-committees working under ERPC viz Technical Coordination Sub-committee (TCC), Operation Coordination Sub-Committee (OCC), Protection Coordination Sub-Committee (PCC) etc. Further for any emergent operational matters, it is resolved through mutual discussion between the ERPC Secretariat and concerned utilities. Sometimes Special committees/groups are formed comprising members from utilities to resolve/investigate/study such issues. Third Party Protection Audit, Under Frequency Relay (UFR) Audit etc. are such issues which were taken up by the various audit groups as formed by OCC/PCC. In view of smooth functioning of the regional grid and uninterrupted power supply to the core sectors i.e. Railways, Coal etc. healthy protection system has become an integral part of power system operation. Some major operational/protection issues which were taken up are placed below:

5.1 STATUS OF AVAILED LINE SHUTDOWN BY ER UTILITIES W.R.T OCC APPROVED SHUTDOWN

Monthly shutdown meetings are conducted by ERPC secretariat as part of OCC where respective utilities get their planned shutdown approved in advance. Based on real time grid conditions, emergency shutdown get approved by the utilities on consent from ERLDC.
The details of availed shutdown against those approved in OCC meetings are summarized below:

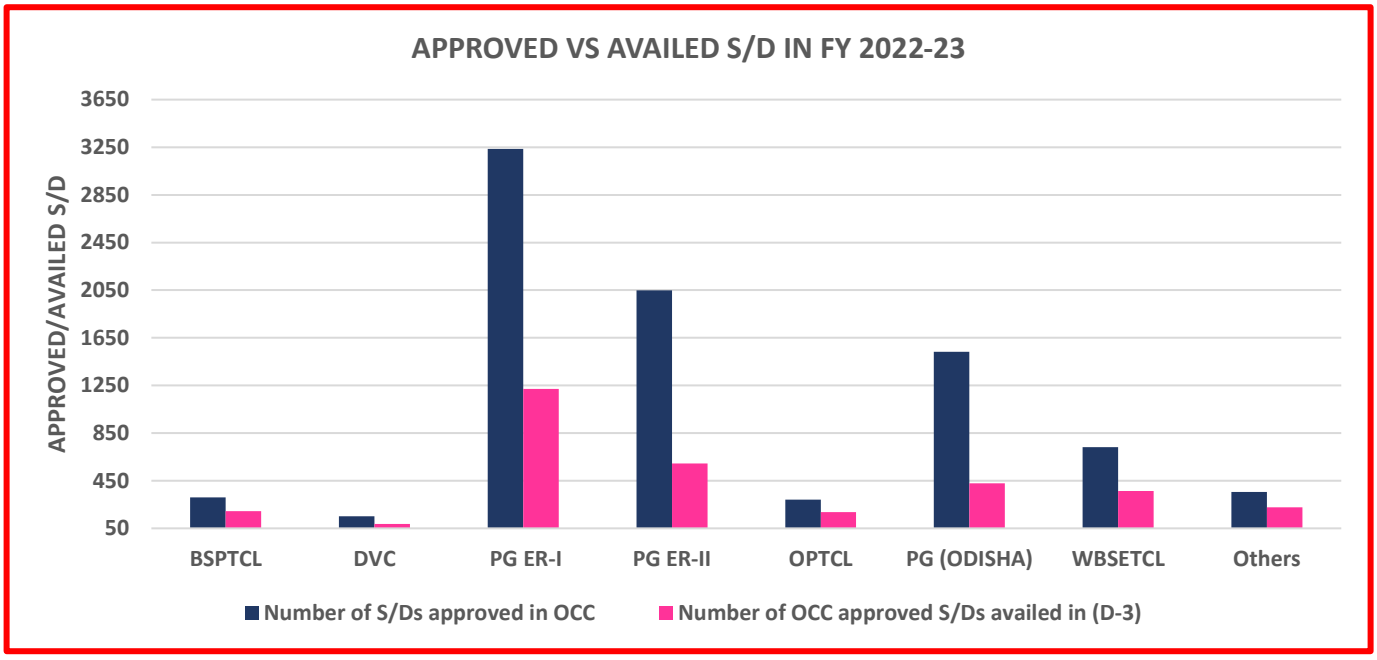
APPROVED VS AVAILED SHUTDOWN IN FY 2022-23

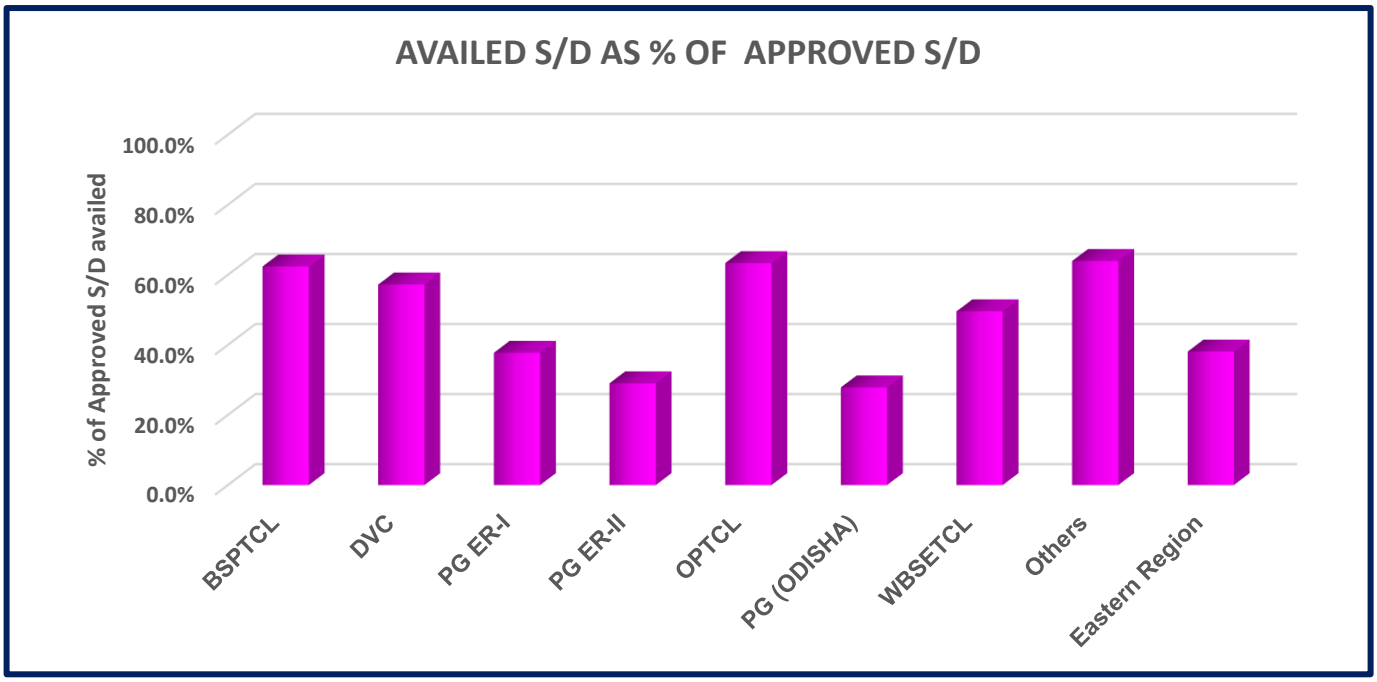
Name of Utility	Number of S/Ds approved in OCC	Number of OCC approved S/Ds availed in (D-3)	AVAILED S/D AS % OF APPROVED S/D
BSPTCL	311	194	62.4%
DVC	152	87	57.2%
PG ER-I	3236	1222	37.8%
PG ER-II	2048	595	29.1%
OPTCL	292	185	63.4%
PG (ODISHA)	1532	427	27.9%
WBSETCL	732	363	49.6%
Others	355	227	63.9%
Total	**8658**	**3300**	**38.1%**

 # Others includes Indigrid,MPL,GMR, MBPCL,NKTL ,Dikchu HEP,TUL,TPTL,JUSNL,NRTS,WRTS,NERTS,NTPC plants-Barh,KHSTPP,TSTPP,FSTPP,NPGCL,BRBCL

Out of all OCC approved shutdown for all individual ER utilities, only 38.1 % was availed in D-3 with lowest S/D availed by Powergrid(Odisha)(27.9 % of OCC approved shutdown) and highest availed by OPTCL(63.4 % of OCC approved shutdown).

Month wise details of approved and availed line shutdown i.r.o individual constituents is available at **Annexure XXVI**





5.2 MOCK BLACKSTART EXERCISES IN EASTERN REGION

After any major grid disturbance causing total black out, restoration procedure starts with the Black Start operation of power stations which supply the initial power to neighbouring load centres and the system gradually restored. Mainly the hydro units, due to their flexibility in many fronts, are used as the main source for black start operation. Hence, it is given top priority to keep ready the hydro power stations of the region for any eventuality so that they could be used for black start operation. In line with directives of IEGC, every year OCC plans to conduct mock black start of hydro generating stations. During the year 2022-23, following hydro plants conducted the mock black start exercises.

Sl. No.	Power Plant	Organisation	Date of Mock black start
1	Rengali HEP	OHPC	27.06.2022
3	Burla HEP	OHPC	23.06.2022
4	U.Indravati	OHPC	25.05.2022
5	Balimela	OHPC	09.09.2022
6	Teesta-III	TUL	08.04.2022
7	U.Kolab	OHPC	21.07.2022

As per the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010, under clause 5.8 (b) "Diesel Generator sets for black start would be tested on weekly basis and test report shall be sent to RLDC on quarterly basis". Test-run of Diesel Generator sets on weekly basis for black start in Eastern Region were generally conducted and test reports were submitted by the concerned utility to ERLDC. Status reports are being regularly reviewed in OCC meetings.

5.3 UNDER FREQUENCY RELAY (UFR) OPERATION

In 9th National Power Committee (NPC) meeting held on 22.11.2019, it was decided that total quantum of load relief based on UFR operation would be 3320 MW for ER. It was also decided that UFR would be operational in 4 (four) stages, where Stage –I would be operated at 49.4 Hz, Stage-II at 49.2 Hz, Stage-III at 49.0 Hz and Stage-IV at 48.8 Hz. Accordingly, OCC distributed and implemented the total quantum of load relief as per existing proportion for ER constituents as given below:

Control Area	Stage-I (49.4 Hz) (MW)	Stage-II (49.2 Hz) (MW)	Stage-III (49.0 Hz) (MW)	Stage-IV (48.8Hz) (MW)	Total Relief by Control Area
BSEB	98	99	99	101	397
JSEB	61	62	61	62	246
DVC	134	135.5	136	137	542.5
Odisha	181.5	183.5	184	186	735

WBSETCL & CESC	345.5	350	350	354	1399.5
Total	**820**	**830**	**830**	**840**	**3320**

The operation of UFRs, if any, in the constituent systems is reviewed regularly in the monthly OCC meetings of ERPC.

5.4 INSPECTION OF UNDER FREQUENCY RELAYS (UFR)

The enquiry committee constituted by MoP after the major grid disturbances during 30th & 31st July'2012 recommended in its report (9.3) for ensuring proper function of defence mechanism like UFR etc. Also, as per section 5.2(n) IEGC, RPC Secretariat shall have to carry out periodic testing of UFR relays. In the 22nd TCC & ERPC meeting it was decided that UFR Audit of the ER constituents would be taken up by the UFR Audit group, nominated by the respective constituents.

Accordingly, a sub-group is constituted and have been carrying out inspection of UFR relays installed in Eastern Region regularly in the following manner:

i. In case secondary injection kit is available, frequency setting and ability of the Under-Frequency Relay to actuate may be tested with the injection kit.
ii. In case secondary injection kit is not available, then frequency setting of UFR may be reset within the operating frequency available at the time of testing and the ability of UFR to actuate may be checked.
iii. The previous history of relay operation along with requisite load relief may also be checked from logbook register maintained in the sub-station.

5.5 THIRD PARTY PROTECTION AUDIT OF EASTERN REGION

As a follow-up of one of the recommendations of Enquiry Committee headed by Chairman, CEA on grid disturbances that took place in Indian grid on 30th and 31st July 2012, Ministry of Power constituted a 'Task Force on Power System Analysis under Contingencies' in December 2012. As per the recommendations of Task force the third-party audit of the protection system needs to be carried out periodically.

The checklist of ERPC used in its 1st third party protection audit was modified in line with the recommendation by the Task Force committee and a road map for 2nd Protection Audit of ER was finalized in OCC & PCC meetings.

Details about the Protection System Audits conducted in Eastern Region (2022- till 3rd Feb 2023):

Sr. No	Name of the Entity where Protection audit was performed	Date of Protection Audit	Name of organization which conducted the Protection Audit
1	765/400 kV Jharsuguda (PG)S/s	25.04.2022	Protection Audit Team of ERPC comprising of officers from ERPC, ERLDC Powergrid and state utilities.
2	400/220 kV Lapanga (OPTCL) S/s	26.04.2022	Protection Audit Team of ERPC comprising of officers from ERPC, ERLDC Powergrid and state utilities.
3	220 kV Budhipadar (OPTCL)S/s	26.04.2022	Protection Audit Team of ERPC comprising of officers from ERPC, ERLDC Powergrid and state utilities.
4	220 kV IBTPS(OPGC)S/s	27.04.2022	Protection Audit Team of ERPC comprising of officers from ERPC, ERLDC Powergrid and state utilities.
5	400 kV OPGC(OPGC) S/s	27.04.2022	Protection Audit Team of ERPC comprising of officers from ERPC, ERLDC Powergrid and state utilities.
6	765 kV Darlipalli (NTPC)S/s	28.04.2022	Protection Audit Team of ERPC comprising of officers from ERPC, ERLDC Powergrid and state utilities.
7	400/220 kV Jamshedpur (PG) S/s	20.07.2022	Protection Audit Team of ERPC comprising of officers from ERPC, ERLDC Powergrid and state utilities.
8	220 kV Chandil (JUSNL)S/s	20.07.2022	Protection Audit Team of ERPC comprising of officers from ERPC, ERLDC Powergrid and state utilities.
9	400/220 kV Chaibasa (PG) S/s	21.07.2022	Protection Audit Team of ERPC comprising of officers from ERPC, ERLDC Powergrid and state utilities.
10	220 kV Chaibasa New (JUSNL) S/s	21.07.2022	Protection Audit Team of ERPC comprising of officers from ERPC, ERLDC Powergrid and state utilities.
11	220 kV Ramchandrapur (JUSNL) S/s	21.07.2022	Protection Audit Team of ERPC comprising of officers from ERPC, ERLDC Powergrid and state utilities.
12	220 kV Jamshedpur (DVC) S/s	22.07.2022	Protection Audit Team of ERPC comprising of officers from ERPC, ERLDC Powergrid and state utilities.
13	400/220 kV Darbhanga (DMTCL) S/s	17.01.23	Protection Audit Team of ERPC comprising of officers from ERPC, ERLDC Powergrid and state utilities.

14	220 kV Samastipur (BSPTCL) S/s	17.01.23	Protection Audit Team of ERPC comprising of officers from ERPC, ERLDC Powergrid and state utilities.
15	220 kV Barauni TPS (NTPC) S/s	18.01.23	Protection Audit Team of ERPC comprising of officers from ERPC, ERLDC Powergrid and state utilities.
16	220 kV Begusarai (BSPTCL) S/s	18.01.23	Protection Audit Team of ERPC comprising of officers from ERPC, ERLDC Powergrid and state utilities.
17	220 kV Khagaria New (BSPTCL) S/s	19.01.23	Protection Audit Team of ERPC comprising of officers from ERPC, ERLDC Powergrid and state utilities.
18	220 kV Mokama (BGCL) S/s	19.01.23	Protection Audit Team of ERPC comprising of officers from ERPC, ERLDC Powergrid and state utilities.
19	400/220 kV Saharsa (PG) S/s	20.01.23	Protection Audit Team of ERPC comprising of officers from ERPC, ERLDC Powergrid and state utilities.
20	220 kV Madhepura (BSPTCL) S/s	21.01.23	Protection Audit Team of ERPC comprising of officers from ERPC, ERLDC Powergrid and state utilities.

5.6 PROTECTION PHILOSOPHY OF EASTERN REGION

Several Special PCC meetings were convened to review the zone settings based on CEA recommendations at ERPC, Kolkata. In the Special meetings of PCC held on 30.12.2014, 10.04.2015 & 20.07.2015 the Protection Philosophy for Eastern Region was agreed upon which is as given below:

Sl. No.	Zone	Direction	Protected Line Reach Settings	Time Settings (in Seconds)	Remarks
1	Zone-1	Forward	80%	Instantaneous (0)	As per CEA
2a	Zone-2	Forward	For single ckt- 120 % of the protected line	0.5 to 0.6 - if Z2 reach overreaches the 50% of the shortest line. 0.35- otherwise	As per CEA
			For double ckt- 150 % of the protected line		As per CEA
2b	Zone-2 (for 220 kV and below	Forward	120 % of the protected line, or 100% of the protected	0.35	As per CEA with minor changes

	voltage Transmission lines of utilities)		line + 50% of the adjacent shortest line		
3	Zone-3	Forward	120 % of the (Protected line + Next longest line)	0.8 - 1.0	As per CEA
4	Zone-4	Reverse	10%- for long lines (for line length of 100 km and above) 20%- for shot lines (for line length of less than 100 km)	0.5	As per CEA

Note:

1) **Zone-2: - Z2 Reach should not encroach the next lower voltage level.**
2) **Zone-3: - If Z3 reach encroaches in next voltage level (after considering "in-feed"), then Z3 time must be coordinated with the fault clearing time of remote end transformer.**
3) **Zone-4: - If utility uses carrier blocking scheme, then the Z4 reach may be increased as per the requirement. It should cover the LBB of local bus bar and should be coordinated with Z2 time of all other lines.**
4) **The above settings are recommended primarily (exclusively) for uncompensated lines.**

Subsequently, all the constituents were requested to adopt the above philosophy for their inter as well as intra state lines for better protection co-ordination of their systems and Eastern Regional system as a whole. This has been implemented in the constituent's systems of ER since 2015.

5.7 ISLANDING SCHEMES

After the last major grid disturbances occurred simultaneously in NR, ER & NER on 30th & 31st July 2012, the enquiry committee constituted by MoP has made a number of recommendations in its report published on 16.08.2012. One of the recommendations (no. 9.12 of the report) suggested planning for implementation of islanding schemes.

New Islanding schemes for ER were proposed, approved & monitored by the TCC/ ERPC in its meeting. The latest status of the same are placed below:

1. Bakreswar TPS of WBPDCL – Operational w.e.f. 31.03.2015
2. Tata Power, Haldia – Operational w.e.f. 24.04.2015.
3. Farakka STPS of NTPC – Operational w.e.f. 02.04.2017
4. Bandel TPS of WBPDCL- Operational w.e.f. 15.12.2018
5. CESC as a whole Islanding Scheme, CESC-Operational
6. Chandrapura TPS of DVC – Under Implementation with CTPS-B units

7. IB TPS Islanding Scheme of OPGC- Scheme finalized. To be implemented by April, 2022.
8. Patna Islanding Scheme- Under Implementation with two units of New Nabinagar STPS (NPGCL).

5.8 SYSTEM (SPECIAL) PROTECTION SCHEME (SPS)

Due to enhanced complexity of electrical grid with the formation of 'NEWS' grid through addition of interconnectivity & use of high capacity transmission lines etc., System (Special) Protection Scheme (SPS) has been envisaged for safety & security of integrated grid operation. SPS is designed to detect abnormal system conditions such as outage of large generating units, high capacity corridors or HVDC interconnections. SPS preserve the integrity of electric system by using predetermined corrective measures that are simple, reliable, and safe for the system as a whole and provide acceptable system performance against all possible extreme credible contingencies. SPS has an advantage of wide-area coverage and it is pre-emptively sensing the danger in the system and takes corrective actions. SPS has also been evolved to prevent system deterioration i.e. to reduce the impact of power failure and ensure early restoration.

Eastern Region has also adopted the SPS. Presently there are 4 nos. of approved SPS in Eastern Region.

a) Tripping of Talcher - Kolar HVDC Bipole (s) - SPS at Talcher stage-II, NTPC (SPS 450 & SPS 1000)

Talcher Super thermal power station having a capacity of 3000 MW (6x500 MW) is located in Orissa of Eastern Region. The station was commissioned with 2x500 MW capacity and subsequently its second stage was commissioned, and station capacity was augmented to 3000 MW with commissioning of its further 4x 500 MW machines.

The station is the largest capacity station in the region. However, the capacity of the entire stage II (4x500 MW) was allocated to the beneficiaries of southern region.

Subsequently, 10% of the capacity was allocated to the Orissa, in Eastern region. For evacuation of Talcher STPS –II generation to Southern Region, (+/-) 500kV HVDC bipole transmission system was commissioned right up to the load centre of Southern Region at Kolar. The HVDC substation at Talcher has two pole blocks 1000 MW capacity each (subsequently augmented to 1250 MW).

The very basic design of the evacuation system of Talcher stage II to SR poses a major threat to Eastern Region and subsequently to the New Grid as any sudden forced outage of one or both the poles would

mean that Eastern Grid has to initially absorb a jerk of load throw off to the tune of 1800-2000 MW. The surplus power would get wheeled through 400kV Talcher- Rourkella D/C and Rengali –Baripada-Kolaghat S/C. During monsoon as such these corridors remain heavily loaded and such contingency of pole block at Talcher would lead to a definite cascade tripping leading to isolation /possible collapse of Orissa system including TSTPP station.

In order to avoid such contingency two automatic special protection schemes were envisaged and have been implemented at Talcher Super Thermal power station. The 1st scheme as commonly known as SPS 450 was first implemented and subsequently a further improvised 2nd scheme was devised as known as SPS 1000 scheme. Both the schemes and their modalities of arming and disarming is described below:

SPS 450: This scheme was originally implemented with a view that Eastern and Western Region would absorb a jerk of 450 MW, therefore rest of the generation as available at Talcher stage II generation must be shed in order avoid a cascade tripping of the network. However, during monsoon, from Eastern Regional point of view at times absorbing even 450MW under N-1 contingency criteria of Talcher-Rourkela 400kV D/C Line becomes critical when major generation at Talcher stage II must be shed in order to avoid further criticality of the Grid. Further under any critical outage condition in the rest of the New Grid outage of HVDC bipole might pose a serious threat when it might necessitate arming of SPS 450 scheme with due coordination with NLDC. Under this mode of SPS the power injection to N-E-W grid is limited to 450 MW. The actual generation by the generators is considered for building the logic.

SPS 1000: Post formation of the NEW Grid this scheme was subsequently envisaged in order to minimize shedding of generation at Talcher STPP. The basic philosophy of this scheme is to absorb 1000MW in place of 450 MW as the Grid size increased. However, as one of the prerequisites for arming this scheme Eastern Regional operator has to ensure that sufficient evacuation margin (approx 1000 MW) is available at the AC evacuation system of TSTPP. Under this mode of SPS the power injection to N-E-W grid is limited to 1000 MW. The actual injection to the HVDC system (by measuring the flow on four a/c lines between TSTPS and Talcher HVDC station) is considered for building the logic. Under SPS 1000 scheme no generation shedding is required for a single pole tripping. For contingencies of both pole tripping and for single pole tripping with the HVDC system going to ground return mode, generation shedding will be done. Extent of generation shedding depends on the actual power flow through the HVDC link and to limit the actual injection to N-E-W grid to 1000 MW.

Further after Synchronisation of SR grid with NEW grid, it is proposed that in case of single pole or bipole outage or blocking of Talcher-Kolar HVDC sensed at Talcher HVDC terminal, a trip signal be extended to nearby generators such as Vedanta, GMR, JITPL ensuring minimum communication so that the objective of restricting injection to NEW grid to 450 MW is achieved. The reduction in

generation to be achieved through these stations is 600 MW so that the injection into NEW grid is restricted to 450 MW.

In 108th OCC held on 17.04.2015 it was decided that the generation relief during HVDC Talcher-Kolar pole tripping will be shared among GMR, Vedanta & JITPL as follows: Vedanta - 200 MW, GMR-200 MW and JITPL- 200 MW.

b) Modification in Talcher-Kolar SPS in ER Region.

Background:

The SPS associated with HVDC Talcher-Kolar Bipole was implemented long back in the year 2003 as per system requirements at that time. The addition of high- capacity AC lines in the corridor parallel to this HVDC link have strengthened the ER-SR &WR-SR corridors for exchange of power to/from southern region (SR). The newly commissioned HVDC Raigarh-Pugalur Pole-I has also been commissioned recently. Presently, in cases of HVDC Talcher-Kolar Pole blocking, SPS as per design operates with load disconnection in SR and generation backing down/outage in ER. In view of strengthening of transmission system as stated above, the scheme was reviewed by NLDC in consultation with RLDC's.

It was proposed that

• GMR and JITPL thermal power plants are radially connected to 765/400 kV Angul pooling station and 765/400 kV Angul station is strongly connected to western region and southern region through765 kV lines. The tripping of HVDC Talcher-Kolar does not cause any constraint in evacuation of GMR and JITPL. Therefore, the SPS for 600 MW generation backing down at thesestations would not be required and the same may be disabled.

• It was observed that 400 kV Talcher-Meramundali D/C Lines are getting heavily loaded (beyond 874 MW) after the tripping of HVDC Talcher-Kolar in some cases. Therefore, the loading of 400 kV Talcher-Meramundali lines may also be included in the SPS logic (SPS 1000 and SPS 450) installed at Talcher STPS, NTPC.

In 175th OCC meeting held on 20.02.2021, the followings were agreed:

- To disable SPS logic for additional 600 MW generation backing down at JITPL and GMR.
- To implement revised SPS for Talcher-Kolar HVDC considering the loading of 400 kV TSTPP-Meramundali D/C line into the SPS logic.

The logic in brief is given below:

- 400 kV Talcher-Meramundali Line current logic would have three Imax settings out of which one will be active depending on the season.
- The Imax current settings have been calculated based on thermal ratings of the lines.
- This Talcher-Meramundali Current logic would be ANDed with existing TalcherKolar HVDC SPS logic.

c) SPS for Power Export to Bangladesh

As per decision of the MoP, GoI power export to Bangladesh has been explored and regular supply has been commenced from October'2013 through 400 kV Berhampur – Bheramara line with HVDC (2x500 MW) station at Bheramara (Bangladesh). 400 kV Berhampur is connected with 400 kV Farakka and Sagardighi station through 400 kV Berhampur-Farakka D/C and 400 kV Berhampur-Sagardighi D/C.

The details of SPS implemented to facilitate power transfer to Bangladesh are provided below for ready reference:

Sl. no.	Condition	Action
1	400 kV Bus Voltage at Behrampur < 390 kV	Tripping of 125 MVAR Bus Reactor at Behrampur
2	400 kV Bus Voltage at Behrampur < 380 Kv	Automatic Reduction of Behrampur HVDC setpoint to 350 MW with appropriate capacitor switching to maintain voltage at 400 kV Behermara s/s.
3	If Indian Grid Frequency is < 49.5 Hz	Automatic Reduction of Behrampur HVDC setpoint to 350 MW with appropriate capacitor switching to maintain voltage at 400 kV Behermara s/s.
4	If any circuit of 400 kV Beherampur-Behermara trips	Automatic Reduction of Behrampur HVDC setpoint to 350 MW with appropriate capacitor switching to maintain voltage at 400 kV Behermara s/s.
5	If 400 kV Sagardighi-Behrampur D/C and 400 kV Farakka-Bherampur S/C trips (Sending of CB status at Behrampur)	Total HVDC power to be ramped down to 750 MW with appropriate capacitor switching to maintain voltage at 400 kV Behermara s/s.

In order to address low Frequency, low voltage and high line loading issue in Indian Side, SPS has been envisaged to reduce the export quantum to Bangladesh.

d) SPS for 400/220 kV ICTs at Ranchi

In 106th PCC Meeting held on 16.09.2021, It was informed that special meetings were held on 01st Sep 2021 and 06th Sep 2021 among DVC, JUSNL, Powergrid, ERLDC & ERPC secretariat and an SPS was finalized for ensuring N-1 reliability criteria of 400/200 kV ICTS at Ranchi.

The SPS in brief is as follows:

Stage1- For 100% load in ICT-1 or ICT 2, SPS issues trip command to 220 kV Ranchi-Ramgarh line after 300 Seconds delay
Stage2- For 130% load in ICT-1 or ICT 2, SPS issues trip command to 220 kV Ranchi-Ramgarh line after 5 Sec delay

Powergrid vide email dated 24.09.2021 communicated that SPS scheme for Ranchi ICT has been implemented and tested successfully and is in operation since 24.09.2021.

a) SPS for one 400/220 kV ICT at Subhasgram (PG) S/S

In a special bilateral meeting convened between M/S CESC and M/S Powergrid(ER-II) on 18.05.2022 detailed operational modalities of SPS got finalized and subsequently ratified in the very next(**191st**) OCC meeting dated 20.05.2022.

The SPS in brief is as follows:

- Numerical relays installed in ICT-3 and ICT-4 for back-up over-current & earth-fault protection relays (CDD31), especially at the 220kV side, to provide the overload contact for the load trimming scheme.
- For the purpose of "overload" input in the proposed SPS, non-directional over-current contacts will be taken from 220kV side back-up protection relays of ICT-3, ICT-4 & ICT-5

- The 220kV side over-current settings for the SPS will be kept such that the remaining ICTs do not trip by operation of WTI protection. The following settings have been decided, after discussions:
  120% (992 Amps),2 Sec (DMT) for ICT-3 & ICT-4 and
  1200/o (1575 Amps), 2 Sec (DMT) for ICT-5.

- SPS must operate when one of the transformers trips leading to simultaneous overloading of other transformers.

- Keeping the worst case scenario in mind, i.e. tripping of 500MVA ICT when the total load of ICTs is around 1500MW, then,requisite load of around 150 MW will

be shed instantaneously through this SPS at CESC end to reduce the loading of other available ICTs immediately within 115%

- ERLDC will give necessary instruction to CESCC control Room to enable or disable the SPS regarding required quantum of load shedding depending upon the loading of the ICTs at SGSS on real- time basis.

5.11 SCADA DATA

For effective management and monitoring of the grid parameters availability of various live data viz generation of power stations, line flows and voltages at important sub-stations are the vital inputs to the grid operators. All the required data should be made available on real time basis in the control room through SCADA system. OCC/TCC advised all constituents to do the needful for restoration of SCADA data at the earliest and the status of availability of SCADA data are monitored regularly by the OCC/SCADA O&M meetings. Apart from the concerned utility, CTU/Powergrid plays a major role in availability of the SCADA data as installation of RTU are done by them.

The status of spare elements is monitored in monthly OCC meetings, same is attached at **Annexure XXVII.

CHAPTER-6

MEETINGS, REPORTS, CERTIFICATION AND WORKSHOP

6.1 MEETINGS HELD DURING 2022-23

In order to discharge various duties entrusted to ERPC as per Indian Electricity Act, 2003 and IEGC, various meetings were organised during 2022-23 and details of meetings are given at **Annexure- XXVIII**

6.2 REPORTS ISSUED

ERPC has been issuing various reports regarding system operational data, load generation balance data, system studies data, etc. The details of various reports issued during FY 2022-23 by ERPC are given below:

- Monthly Progress Reports
- Monthly Power Supply Position Reports
- Load Generation Balance Report for the year 2022-23
- Annual Report for the year 2021-22

6.3 CERTIFICATION OF TRANSMISSION AVAILABILITY

In line with CERC order, ERPC Secretariat has certified availability of transmission system for the year 2022-23.

6.4 TRAINING / WORKSHOP HELD

As a follow-up of one of the recommendations of Enquiry Committee headed by Chairperson, CEA on grid disturbances that took place in India on 30th & 31st July'2012, Ministry of Power constituted a "Task Force on Power System Analysis and Contingencies". The Task Force strongly recommended for training in protection related issues.

CHAPTER-7

IMPORTANT DECISSIONS TAKEN IN VARIOUS MEETINGS OF ERPC DURING FY 2022-23

49th ERPC Meeting held on 24.03.2023

- Installation of OPGW on 400kV Teesta III – Dikchu HEP for 26km length with recovery under Tariff mechanism.
- Renovation of 220kV switchyard equipment of 220/132kV Purnea SS commissioned in the year of 1985 under Chukha Transmission Projects – ERPC approved the proposal for renovation of 220kV switchyard equipment of 220/132kV Purnea SS with a cost estimate of Rs 969.55 lakhs to be recovered under Tariff Mechanism.
- Installation of Transmission Line Arrestor in 220kV lines in North Bengal – ERPC approved the cost of Rs 6.5 crores for installation of 830 Nos of Transmission Line Arrestors in 246 Nos of Towers location on 220kV Siliguri – Kishanganj D/C, 220kV Birpara- Chukha D/C, 220kV Birpara – Alipurduar D/C, 220kV Birpara – Malbase S/C. The cost for the same to be recovered under tariff mechanism.

48th ERPC Meeting held on 20th Feb'2023

- Establishment of Paradeep 765/400/220kV 3x1500MVA + 2x500MVA S/s: The proposal for establishment of 765 kV Paradip S/s to cater the demand of Green Hydrogen/Green Amonia Industries was recommended for implementation under ISTS.

47th ERPC Meeting held on 25th Nov'2022

- Implementation of ULDC SCADA Phase-III by POWERGRID – ERPC approved with cost recovery under Tariff Mechanism.
- Upgradation of OPGW network in DVC for strengthening and redundancy of communication network in DVC sector –
  ERPC approved for installation of OPGW (by POWERGRID) on the above lines with recovery of link at Sl.No.1 i.e. Bokaro A – Koderma under tariff mechanism and remaining under bilateral agreement between DVC and POWERGRID.
- Support Service for the project "Creation & Maintaining a web based Protection database and desktop based Protection setting calculation tool for Eastern Regional Grid" - ERPC approved the proposal with the estimated cost of Rs 50 lakh (including GST) per annum (with cost to be booked from ERPC Fund)
- Renewal of AMR Phase-3 AMC of 249 Nos SEM in ER – ERPC approved the cost of Rs 1,19,46,647/- excluding GST for AMC of Phase-3 AMR to be recovered under tariff mechanism.
- Procurement of New Energy Meter – ERPC approved the proposal for procurement of 325 Nos of SEMs & advised POWERGRID to expedite the replacement of heavily time-drifted L&T make SEMs on priority basis.

S.No.	Name of link	Voltage Level	Approx. Length (Km)
1	BokaroA-Koderma	400kV	105
2	Dhanbad-Patherdih	132kV	22
3	CTPS-Kalyaneswari LILO at RTPS	220kV	125
4	Parulia-Bardhaman	220kV	90
5	DTPS-Parulia {LILO at DSPTS) LILO part (48F)	220kV	8
6	BokaroA-Jamshedpur (DVC)	220kV	155
7	Joda-Jamshedpur (DVC)	220kV	140
8	MejiaA-Ramgarh220	220kV	155
9	BTPSA-BTPS B (UGFO)	UG	5
Total			**805**

46th ERPC Meeting held on 06th Aug'2022

- LAN integration of DCU's installed at various S/S at ER for SEM data transmission to ERLDC – ERPC accorded approval for cost of Rs 31,03,452/- (without GST) towards Lan integration DCU installed at various locations of ER.
- Augmentation of Transformation Capacity at Subhasgram (POWERGRID) – ERPC approved for installation of 6th ICT 400/220kV, 500 MVA at Subhasgram by CESC (who shall execute the same via POWERGRID on deposit work basis)

अध्याय–8

पूर्वी क्षेत्रीय विद्युत समिति में राजभाषा नीति का कार्यान्वयन

वर्ष 2022-23 के दौरान पूर्वी क्षेत्रीय विद्युत समिति में राजभाषा नीति के अनुपालन में निम्नलिखित कार्य किये गए है :

8.1 हिन्दी पत्राचार

- राजभाषा अधिनियम के नियम-5 के अनुपालन में, हिन्दी में प्राप्त पत्रों के उत्तर हिन्दी में ही दिए जाते हैं |

- ओ.सी.सी., प्रोटेक्शन उप समिति, वाणिज्यिक उप-समिति, तकनीकी समन्वय उप-समिति और ई.आर.पी.सी. की बैठकों के कार्यवृत्त एवं कार्यवाही के अग्रेषण पत्र को द्विभाषी रूप में जारी किये गए |

8.2 राजभाषा कार्यान्वयन समिति की बैठकें

राजभाषा नीति के अनुसार वर्ष **2022-23** में राजभाषा कार्यान्वयन समिति की बैठकें प्रत्येक तिमाही में दिनांक:**22/04/2022, 28/07/2022, 28/10/2022 तथा 20/01/2023** क्रमशः कुल चार बैठकें का आयोजन किया गया था | इन बैठकों में गृह मंत्रालय, राजभाषा विभाग से प्राप्त हिन्दी के प्रगामी प्रयोग से संबंधित तिमाही प्रगति रिपोर्ट की समीक्षा पर चर्चा की गई, कार्यालय में हिंदी के प्रयोग को बढ़ने से संबंधित निर्णय लिए गए,वार्षिक कार्यक्रम को लेकर चर्चा एवं तदनुसार निर्णय लिए गए |

8.3 कार्यशाला का आयोजन

वर्ष **2022-23** में **28/06/2022, 19/09/2022, 27/12/2022 एवं 17/03/2023** को हिन्दी कार्यशाला आयोजित किये गए | कार्यालय में राजभाषा कार्यान्वयन के अनुपालन पर कार्मिकों को हिन्दी में दिन-प्रतिदिन के कार्यालय कार्य करने की झिझक दूर करना और हिन्दी में काम करना आसान बनाने हेतु विभिन्न विषयों पर चर्चा करने के लिए कार्यशाला आयोजित किया जाता है |

8.4 प्रोत्साहन योजना

हिन्दी के प्रयोग को बढ़ावा देने एवं हिन्दी में काम करने के लिए प्रोत्साहित करने हेतु, इस कार्यालय में सरकारी नियमानुसार विभिन्न प्रकार के प्रोत्साहित योजना लागू है | हिन्दी में टिप्पण-आलेखन करना एवं कंप्यूटर पर हिन्दी में टंकन का काम करने के लिए प्रोत्साहित योजना लागू है |

8.5 हिन्दी दिवस / हिन्दी सप्ताह / हिन्दी पखवाड़ा का आयोजन

दिनांक:-14-09-2022 से 20-09-2022 के दौरान इस कार्यालय में हिन्दी सप्ताह मनाया गया | इस दौरान विभिन्न प्रकार की कुल 03 प्रतियोगिताएँ आयोजित किया गया था जिसमें कार्यालय के सभी अधिकारियों और कर्मचारियों ने बड़े उत्साह के साथ भाग लिया | सफल प्रतिभागियों को प्रथम, द्वितीय एवं तृतीय पुरस्कार प्रदान किया गया एवं भाग लेने वाले सभी प्रतिभागियों को प्रतिभागिता पुरस्कार प्रदान किया गया|

8.6 राजभाषा कार्यान्वयन से संबंधित अन्य कार्य

1. हिन्दी के प्रगामी प्रयोग से संबंधित तिमाही एवं अर्ध-वार्षिक प्रगति रिपोर्ट नियमित रूप से मुख्यालय, के.वि.प्राधिकरण, नई दिल्ली एवं राजभाषा विभाग के क्षेत्रीय कार्यालय, कोलकाता को प्रेषित किया गया |

2. सेवा पुस्तिकाओं में प्रविष्टियाँ ज्यादा से ज्यादा हिन्दी में किये गए |

3. कार्यालय में नियमित रूप से उपयोग होने वाले मानकीकृत प्रपत्र को द्विभाषी रूप में इस्तेमाल किया जाता है |

4. इन्टरनेट पर उपलब्ध विभिन्न प्रकार के हिन्दी साफ्टवेयरों का इस्तेमाल करके कार्यालय में कंप्यूटर पर सभी अधिकारी एवं कर्मचारी आवश्यकता के अनुसार काम करते हैं |

5. वर्ष के दौरान कार्यालय में प्रत्येक तिमाही में सदस्य सचिव की अध्यक्षता में एक कार्यशाला आयोजित किया जाता है | जिसमें कार्यालयों के दैनिक कामकाज में हिंदी के प्रयोग को बढ़ने के बारें में समीक्षा किया गया और कार्यालयों के दैनिक कामकाज में अधिक से अधिक सरल और सहज हिन्दी का प्रयोग के लिए निर्णय लिया गया |

6. दिनांक- 28/06/2022 को आयोजित हिंदी कार्यशाला में अतिथि वक्ता श्रीमती पपिया पाण्डेय, लेखिका एवं मोटिवेशनल स्पीकर को -**"अवचेतन मन की शक्तियों से करें जीवन को बेहतर"** विषय पर व्याख्यान हेतु आमंत्रित किया गया था।

श्रीमती पपिया पाण्डेय द्वारा उक्त विषय पर बहुमूल्य ज्ञान प्रदान किया गया, उन्होंने power point presentation के माध्यम से हमें यह अवगत करवाया कि हमारे अन्दर दो मस्तिष्क है एक चेतन दूसरा अवचेतन। हम साधारण तौर पर अपने चेतन मस्तिष्क का प्रयोग करते है, किन्तु उन्होंने हमें अवगत करवाया कि हमारा अवचेतन मन हमारे चेतन मन से ज्यादा शक्तिशाली होता है । हम किस तरह अपने अवचेतन मन का उपयोग कर सकते है इस पर विस्तार से प्रकाश डाला। उन्होंने आगे बताया कि हम अपने अवचेतन मन की शक्तियों का प्रयोग करके अपने जीवन को बेहतर बना सकते है। कार्यशाला के दौरान बीच–बीच में उपस्थित कार्मिकों से मौखिक रूप से प्रश्न-उत्तर किया तथा उनकी समस्याओं का समाधान दिया, जो उपस्थित सभी कार्मिकों के लिए ज्ञानवर्धक रहा।

7. दिनांक- 19/09/2022 को आयोजित हिंदी कार्यशाला में अतिथि वक्ता श्री सुशील कुमार लोका, उप-निदेशक, हिंदी शिक्षण योजना, राजभाषा विभाग, गृह मंत्रालय को **"राजभाषा हिंदी का प्रचार –प्रसार, महत्त्व एवं हमारा दायित्व"** विषय पर व्याख्यान हेतु आमंत्रित किया गया था।

श्री सुशील कुमार लोका, उप-निदेशक, द्वारा उक्त विषय पर बहुमूल्य ज्ञान प्रदान किया गया। उन्होंने power point presentation के माध्यम से राजभाषा नियम-अधिनियम पर प्रकाश डाला। भारत के संविधान में अनुच्छेद 343 से 351 तक राजभाषा हिंदी के संबंध में जो-जो कहा गया है, उन सभी पर विस्तार से प्रकाश डाला गया। राजभाषा के प्रति हमारे दायित्त्व को विस्तार से प्रस्तुत किया। कार्यशाला के दौरान बीच–बीच में उपस्थित कार्मिकों से मौखिक रूप से प्रश्न-उत्तर किया तथा उनकी समस्याओं का समाधान दिया, जो उपस्थित सभी कार्मिकों के लिए ज्ञानवर्धक रहा।

8. दिनांक- 27/12/2022 को आयोजित हिंदी कार्यशाला में अतिथि वक्ता श्रीमती पपिया पाण्डेय, लेखिका एवं मोटिवेशनल स्पीकर को "**अहम् ब्रह्मास्मि- जाने ऊर्जा की शक्ति के राज़"** विषय पर व्याख्यान हेतु आमंत्रित किया गया था।

श्रीमती पपिया पाण्डेय द्वारा उक्त विषय पर बहुमूल्य ज्ञान प्रदान किया गया, उन्होंने power point presentation के माध्यम से हमें यह अवगत करवाया कि हम अपने दिनचर्या में छोटे-छोटे बदलाव करके अपने जीवन को बेहतर बना सकते है। हम खुद अपने शरीर एवं अपने भाग्य को कैसे बदल सकते है। हमें इस बात का एहसास ही नहीं होता कि हमारे सोच का हमारे शरीर पर कितना गहरा असर होता है। अपने जीवन को खुशहाल एवं सरल बनाने के उपाय बताए। कार्यशाला के दौरान बीच–बीच में उपस्थित कार्मिकों से मौखिक रूप से प्रश्न-उत्तर किया तथा उनकी समस्याओं का समाधान दिया, जो उपस्थित सभी कार्मिकों के लिए ज्ञानवर्धक रहा।

9. दिनांक-17/03/2023 को आयोजित हिंदी कार्यशाला में अतिथि वक्ता डॉ. सत्य प्रकाश तिवारी, सह-प्राध्यापक एवं विभागाध्यक्ष(हिंदी), शिवपुर दीनबंधु संस्थान (महाविद्यालय), हावड़ा को **"सरकारी कार्यालयों में हिंदी की उपयोगिता"** विषय पर व्याख्यान हेतु आमंत्रित किया गया था।

डॉ. सत्य प्रकाश तिवारी, सह-प्राध्यापक एवं विभागाध्यक्ष(हिंदी), शिवपुर दीनबंधु संस्थान (महाविद्यालय), हावड़ा द्वारा उक्त विषय पर बहुमूल्य ज्ञान प्रदान किया गया, उन्होंने इस बात पर प्रकाश डाला की हमें कार्यालय में टिप्पण एवं आलेखन कैसे लिखना चाहिए, टिप्पण लिखते समय किन-किन बात का ध्यान रखना चाहिए। टिप्पण की भाषा सरल एवं विषय से संबधित होना चाहिए, हमें किन-किन शब्दों का प्रयोग करना चाहिए, हमारा आलेखन शुद्ध, सुगठित होना चाहिए इत्यादि। उन्होंने इस बात पर जोर दिया कि अपनी मातृ भाषा एवं क्षेत्रीय भाषा के साथ-साथ अपने देश की राजभाषा का भी ज्ञान रखना अनिवार्य है। यह हमारे देश के सम्मान से जुड़ा विषय है। अगर आप कोई भाषा मन से सीखना चाहते है तो उसे सीखने में ज्यादा समय नहीं लगता। इसके अलावा उन्होंने अपने निजी जीवन के अनुभव हम सभी से साझा किये। जिससे हम सभी को काफी कुछ सीखने को मिला। कार्यशाला के दौरान बीच–बीच में उपस्थित कार्मिकों से मौखिक रूप से प्रश्न-उत्तर किया तथा उनकी समस्याओं का समाधान दिया, जो उपस्थित सभी कार्मिकों के लिए ज्ञानवर्धक रहा।

इस कार्यालय में राजभाषा नीति और नियमों के उपबंधो के अधीन जारी किए गए निदेशों का समुचित रूप से अनुपालन तथा गृह मंत्रालय, राजभाषा विभाग द्वारा जारी वार्षिक कार्यक्रम में निर्धारित लक्ष्यों की प्राप्ति के लिए हर संभव प्रयास जारी है।

ANNEXURE-I

MANPOWER STRENGTH OF ERPC SECRETARIAT

The status of posts of various grades at ERPC Secretariat (**as on 31st March, 2023)** is given below:

POST	SANCTIONED	FILLED	VACANT
GAZETTED			
Member Secretary	1	1	0
Superintending Engineer/Director	3	2	1
Assistant Secretary/Executive Engineer	4	5*	0
Assistant Executive Engineer/AD-I	4	0	4
Assistant Engineer/ AD-II	2	2	0
Private Secretary	1	0	1
NON-GAZETTED			
Head Clerk	1	1	0
Hindi Translator	1	1	0
Electrician	2	0	2
Upper Division Clerk	1	1	0
Draftsman Gr. II	1	0	1
Stenographer Gr. I	0	0	0
Stenographer Gr. II	0	0	0
Lower Division Clerk	3	1	2
Driver	1	1	0
MTS	5	3	2
TOTAL	**30**	**18***	**13**

* One additional post of EE has been adjusted in vacant post of SE.

ANNEXURE – II (Page-1/3)

CHAIRPERSONS / CHAIRMEN OF EASTERN REGIONAL POWER COMMITTEE (ERPC) & ERSTWHILE EASTERN REGIONAL ELECTRICITY BOARD (EREB) SINCE ITS INCEPTION

Period	Constituent	Name of the Chairmen/Chairpersons
01.06.65 to 31.05.66	BSEB	Sh. R.S. Mishra, IAS Sh. R. Prasad, IAS
01.06.66 to 31.05.67	DVC	Sh. T. Sivasankara, ICS
01.06.67 to 31.05.68	OSEB	Sh. V.V. Ananthakrishnan, IAS
01.06.68 to 31.05.69	WBSEB	Sh. Dutta Mazumdar, IAS
01.06.69 to 31.05.70	BSEB	Sh. H.N. Thakur, IAS
01.06.70 to 31.05.71	DVC	Sh. N.E.S. Raghavachari, ICS
01.06.71 to 31.05.72	OSEB	Sh. A.K. Mazumdar, IAS Sh. A.C. Bandyopadhyay, IAS
01.06.72 to 31.05.73	WBSEB	Sh. S.K. Mukherjee, IAS Sh. J.C. Talukdar, IAS
01.06.73 to 31.05.74	BSEB	Sh. B.N. Ojha
01.06.74 to 31.05.75	DVC	Sh. S.J. Majumdar, ICS Lt. Gen. P.S. Bhagat, VC, PVSM
01.06.75 to 31.05.76	OSEB	Sh. K.C. Gantayet
01.06.76 to 31.05.77	WBSEB	Brig. D.N. Mallick
01.06.77 to 31.05.78	BSEB	Sh. K.P. Sinha, IAS Sh. J.D. Sahay Brig. S.P. Kochar
01.06.78 to 31.05.79	DVC	Sh. A.C. Bandyopadhyay, IAS
01.06.79 to 31.05.80	OSEB	Sh. J.M. Patnaik Sh. B.N. Dash
01.06.80 to 31.05.81	WBSEB	Sh. N.C. Basu
01.06.81 to 31.05.82	BSEB	Sh. Z.S. Haque Sh. S.K. Chaturvedi, IAS Sh. R.P. Khanna, IAS
01.06.82 to 31.05.83	DVC	Sh. P.C. Luthar
01.06.83 to 31.05.84	OSEB	Sh. A. Panda Sh. S.K.Nanda
01.06.84 to 31.05.85	WBSEB	Sh. A. Ghatak
01.06.85 to 31.05.86	BSEB	Sh. S. Kumar Sh. I.C. Kumar, IAS
01.06.86 to 31.05.87	DVC	Lt. Gen. M.M.L. Ghai, PVSM Sh. A. Ghatak
01.06.87 to 31.05.88	OSEB	Sh. P.K. Kar
01.06.88 to 31.05.89	WBSEB	Dr. B.P. Banerjee Dr. D.K. Bose, (from 1.5.89)
01.06.89 to 31.05.90	BSEB	Sh. J.C. Jetli, IAS Sh. J.C. Kundra (from 26.12.89) Sh. P.K. Misra (from 3.4.90)

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01.06.90 to 31.05.91	DVC	Sh. P.K. Sarkar, IAS
01.06.91 to 31.05.92	OSEB	Sh. K.C. Mahapatra Sh. S.K. Mahapatra (from 22.12.91)
01.06.92 to 31.05.93	WBSEB	Sh. D.K. Bose Sh. S.K. Dasgupta
01.06.93 to 31.05.94	BSEB	Sh. B. Prasad
01.06.94 to 31.05.95	DVC	Sh.Maj.Gen. Sharad Gupta,V.S.M Sh. A.K. Misra, IAS (from 1.5.95)
01.06.95 to 31.05.96	OSEB	Sh. M.Y. Rao, IAS
01.06.96 to 31.05.97	WBSEB	Sh. S.R. Sikdar
01.06.97 to 31.05.98	BSEB	Sh. R.P. Yadav Sh. A.K. Upadhyay (from 18.5.98)
01.06.98 to 31.05.99	DVC	Sh. A.K. Misra, IAS
01.06.99 to 31.05.00	GRIDCO	Sh. B.C. Jena
01.06.00 to 31.05.01	WBSEB	Dr. G.D. Gautama, IAS
01.06.01 to 31.05.02	BSEB	Sh. C.M. Jha, IAS Sh. N.K. Agrawal (from 22.10.01)
01.06.02 to 31.05.03	DVC	Sh. J.C. Jetli, IAS
01.06.03 to 31.05.04	GRIDCO	Sh. S.C. Mahapatra, IAS
01.06.04 to 31.05.05	JSEB	Sh. B.K. Chauhan Dr. H.B. Lal (from 18.10.2004)
01.06.05 to 31.03.06	WBSEB	Sh. M. K. De, IAS
01.04.06 to 31.03.07	BSEB	Sh. M. M. Singh, IAS Sh. Swapan Mukherjee (from 01.03.07)
01.04.07 to 31.03.08	JSEB	Sh. V. N. Pandey Sh. B. M. Verma (from 29.12.07)
01.04.08 to 31.03.09	OPTCL & GRIDCO	Sh. C.J.Venugopal, IAS
01.04.09 to 31.03.10	Energy and Power Deptt., Govt. of Sikkim	Sh. Pema Wangchen
01.04.10 to 31.03.11	WBSEDCL & WBSETCL	Sh. M. K. De, IAS
01.04.11 to 31.03.12	BSEB	Sh. P. K. Rai
01.04.12 to 31.03.13	JSEB	Sh. S. N. Verma
01.04.13 to 15.07.13 16.07.13 to 31.03.14	OPTCL & GRIDCO	Sh. P. K. Jena, IAS Sh. Hemant Sharma, IAS (from 16.07.13)
01.04.14 to 31.03.15 01.04.15 to 05.07.15)	Energy and Power Deptt., Govt.of Sikkim	Sh. P. B. Subba, Principal Chief Engr.-cum-Secretary Shri N. T. Bhutia, Principal Chief Engr.-cum-Secretary (w.e.f. 1.4.15 to 5.7.15)
06.07.15 to 03.01.16 04.01.16 to 31.03.16	WBSEDCL	Shri Narayan Swaroop Nigam, IAS Shri Rajesh Pandey, IAS (from 04.01.16)
01.04.16 to 31.03.17	BSPHCL	Shri Prataya Amrit, IAS
01.04.17 to 31.03.18	JUVNL	Shri N.M.Kulkarni, IAS
01.04.18 to 31.03.19	OPTCL & GRIDCO	Shri Hemant Sharma, IAS
01.04.19 to 31.10.19	Energy and Power Deptt., Govt.of Sikkim	Shri K. B. Kunwar, Principal Chief Engineer-cum-Secretary
01.11.19 to 31.03.20	Energy and Power Deptt., Govt.of Sikkim	Shri A B. Rai, Principal Chief Engineer-cum-Secretary

ANNEXURE – II (Page-3/3)

01.04.20 to 31.03.21	WBSEDCL	Shri Santanu Basu, IAS
01.04.21 to 31.03.22	BSPHCL	Shri Sanjeev Hans, IAS, CMD, Bihar State Power Holding Company Limited
01.04.22 to 31.03.23	JUVNL	Shri A. Kumar, IAS, CMD, JUVNL

ANNEXURE-III

MEMBER SECRETARIES OF EASTERN REGIONAL POWER COMMITTEE (ERPC) & ERSTWHILE EASTERN REGIONAL ELECTRICITY BOARD (EREB) SINCE ITS INCEPTION

S.No.	Name	From	To
1	Sh. Z. S. Haque	1964	1965
2	Sh. G. Mukherjee	1965	1967
3	Sh. B. Choudhury	1971	1977
4	Sh. M. M. Turabi(I/C)	1977	1978
5	Sh. B. C. Ghosh(I/C)	06.03.1978	06.04.1982
6	Sh. U. V. Senoy	08.04.1982	31.08.1982
7	Sh. B. C. Ghosh(I/C)	06.09.1982	12.12.1982
8	Sh. P. K. Kar	13.12.1982	15.10.1985
9	Sh. B. C. Ghosh(I/C)	16.10.1985	01.12.1987
10	Sh. B. C. Ghosh	31.12.1987	09.03.1988
11	Sh. B. Sengupta(I/C)	28.03.1988	26.03.1989
12	Sh. B. Sengupta	27.03.1989	31.05.1993
13	Sh. A. Roy(I/C)	01.06.1993	17.07.1993
14	Dr. S. Mukhopadhyay	18.07.1993	03.08.1995
15	Sh. P. Ray(I/C)	04.08.1995	04.02.1196
16	Sh. S. Santhanam	05.02.1996	16.08.1996
17	Sh. P. Ray(I/C)	17.08.1996	26.11.1997
18	Sh. V. S. Verma	27.11.1997	30.07.1998
19	Sh. P. Ray(I/C)	30.07.1998	06.07.1999
20	Sh. B. K. Mishra	07.07.1999	28.11.2003
21	Sh. R. B. Sharma	27.11.2003	31.01.2005
22	Sh. M. K. Mitra(I/C)	01.02.2005	05.12.2005
23	Sh. M. K. Mitra	06.12.2005	31.03.2006
24	Sh. K. N. Garg(I/C)	01.04.2006	30.04.2006
25	Sh. Raffi-ud-din	01.05.2006	10.09.2006
26	Sh. R. K. Grover	11.09.2006	17.09.2009
27	Sh. A. K. Rampal	18.09.2009	06.09.2011
28	Sh. A. K. Bandyopadhyaya(I/C)	07.09.2011	30.09.2014
29	Sh. A. K. Bandyopadhyaya	01.10.2014	31.10.2017
30	Sh. J. Bandyopadhyay	01.11.2017	22.05.2020
31	Sh. N. S. Mondal	09.09.2020	Contd.

INSTALLED AND EFFECTIVE CAPACITY OF POWER STATIONS IN THE EASTERN REGION AS ON 31.03.2023

SL. N0.	NAME OF THE POWER SYSTEM/ STATION	INSTALLED CAPACITY (MW)			PRESENT CAPACITY (AFTER DERATION)	EFFECTIVE CAPACITY
		NO. & CAPACITY OF UNITS 31.03.2022	Commissioned(+)/ De-commissioned(-) 2022-23	TOTAL	(MW) AS ON 31.03.2023	(MW) AS ON 31.03.2023
I	**BSPGCL+BSPHCL**					
	THERMAL:					
2	NTPC MUZAFFARPUR TPS Stg.I	0		0	0	0
	SUB TOTAL (THERMAL)	**0**		**0**	**0**	**0**
3	**RES**	**387.35**	**0**	**387.35**	**387.35**	**387.35**
	TOTAL (TH+HY) (BSPHCL)	**387.35**	**0.00**	**387.35**	**387.35**	**387.35**
II	**JUSNL**					
4	TENUGHAT TPS (THERMAL)	2x210		420	2x210	420
	SUB TOTAL (THERMAL)	**420**		**420**	**420**	**420**
5	SUBERNREKHA (HYDRO)	2x65		130	2x65	130
	SUB TOTAL(HYDRO)	**130**		**130**	**130**	**130**
6	**RES**	**97.14**	**0**	**97.14**	**97.14**	**97.14**
	TOTAL (HY+RES) (JUVNL)	**647.14**	**0**	**647.14**	**647.14**	**647.14**
III	**D V C**					
	THERMAL :					
8	CHANDRAPURA TPS (U#7&8)	2x250		500	2x250	500
9	DURGAPUR TPS/ WARIA(U#4)	1x210		210	1x210	210
10	MEJIA TPS(U#1-4, 5-6, 7-8)	4x210+2x250+2x500		2340	4x210+2x250+2x500	2340
11	DURGAPUR STEEL TPS (U#1 & 2))	2x500		1000	2x500	1000
12	KODERMA STPS (U# 1& 2)	2x500		1000	2x500	1000
13	RAGHUNATHPUR TPS (U# 1&2)	2x600		1200	2x600	1200
14	BOKARO "A" TPS (U#1)	500		500	1x500	500
	SUB TOTAL (THERMAL)	**6750**		**6750**	**6750**	**6750**
	HYDRO					
15	MAITHON	2x20+1x23.2		63.2	2x20+1x23.2	63.2
16	PANCHET	2x40		80	2x40	80
17	TILAIYA	2x2		4	2x2	4
	SUB TOTAL(HYDRO)	**147.2**		**147.2**	**147.2**	**147.2**
	TOTAL (TH+HY) (DVC)	**6897.2**	**0**	**6897.2**	**6897.2**	**6897.2**

Patratu #1,2,3,5 &8 retired on 21.12.2016 . Patratu #4,6,7,9 &10 Phase out during 2017-18.

DVC, DTPS U#3(140 MW) decommissioned on 10.03.2016

DVC, CTPS U#1 (140 MW) decommissioned on 13.01.2017 , CTPS U#2(140 MW) on 30.07.2017& CTPS U#3(140 MW) on 19.03.2020 respectively.

DVC, BTPS-B U#1&2(2X210 MW) each decommissioned on 30.07.2017

DVC, BTPS-B U-3 (210 MW) decommissioned on 01.04.2021.

KBUNL, Muzaffarpur TPS U-1 & 2, each 110 MW decomissioned on 08.09.2021.

SL. N0.	NAME OF THE POWER SYSTEM/ STATION	INSTALLED CAPACITY (MW)			PRESENT CAPACITY (AFTER DERATION)	EFFECTIVE CAPACITY
		NO. & CAPACITY OF UNITS 31.03.2022	Commissioned(+)/ De-commissioned(-) 2022-23	TOTAL	(MW) AS ON 31.03.2023	(MW) AS ON 31.03.2023
IV	**ODISHA**					
	THERMAL					
18	NTPC TALCHER TPS	0		0	0	0
19	IB TPS STG-I	2x210		420	2x210	420
20	IB TPS STG-II	2x660		1320	2x660	1320
	SUB TOTAL (THERMAL)	**1740**		**1740**	**1740**	**1740**
	HYDRO (OHPC)					
21	BURLA (Hirakud-I)	2x49.5+2x32+3x43.65		287.8	2x49.5+2x32+3x43.65	287.8
22	CHIPLIMA (Hirakud-II)	3x24		72	3x24	72
23	BALIMELA	6x60+2x75		510	6x60+2x75	510
24	RENGALI	5x50		250	5x50	250
25	UPPER KOLAB	4x80		320	4x80	320
26	INDRAVATI	4x150		600	4x150	600
27	MACHKUND (Odisha Share)	57.38		57.38	57.38	57.38
	SUB TOTAL (HYDRO)	**2097.18**		**2097.18**	**2097.18**	**2097.18**
	RES	**607.09**		**607.09**	**607.09**	**607.09**
	TOTAL (TH+HY+RES) (ODISHA)	**4444.27**	**0.00**	**4444.3**	**4444.3**	**4444.3**
V	**WBPDCL**					
	THERMAL					
28	BANDEL @	1x60+1x215		297.5	1x60+1x215	275
29	SANTALDIH (U#5&6)	2x250		500	2x250	500
30	KOLAGHAT	4x210		840	4x210	840
31	BAKRESHWAR	5x210		1050	5x210	1050
32	SAGARDIGHI (U# 1,2,3&4)	2x300+2x500		1600	2x300+2x500	1600
33	DPPS (U#7,8)	1x300+1x250		550	1x300+1x250	550
	SUB-TOTAL THERMAL(WBPDCL)	**4815**	**0.0**	**4815**	**4815**	**4815**
VI	**WBSEDCL**					
34	JALDHAKA-I	3x9		27	3x9	27
35	JALDHAKA-II	2x4		8	2x4	8
36	RAMAM HYDEL	4x12.73		50.92	4x12.73	50.92
37	TEESTA CANAL FALLS	9x7.5		67.5	9x7.5	67.5
38	PURULIA PUMP STORAGE	4x225		900	4x225	900
	SUB-TOTAL HYDRO (WBSEDCL)	**1053.42**		**1053.42**	**1053.42**	**1053.42**
39	**RES**	**586.95**	**0.00**	**586.95**	**586.95**	**586.95**
	TOTAL (TH+HY+RES) (WB)	**6455.37**	**0.00**	**6455.37**	**6455.37**	**6455.37**

WBPDCL, Bandel TPS U#3&4 (2X82.5 MW) each decommissioned in the month of April-2018
NTPC, TTPS U-1 to U-6 (4x62.5+2x110) have been decommissioned on 01.04.2021.
WBPDCL, Bandel TPS U-1 (82.5 MW) has been decommissioned on 21.02.2022.
WBPDCL, Kolaghat TPS U-1 & U-2, each of capacity 210 MW, have been decommissioned on 21.02.2022.

SL. NO.	NAME OF THE POWER SYSTEM/ STATION	INSTALLED CAPACITY (MW)			PRESENT CAPACITY (AFTER DERATION)	EFFECTIVE CAPACITY
		NO & CAPACITY OF UNITS 31.03.2022	Commissioned(+)/ De-commissioned(-) 2022-23	TOTAL	(MW) AS ON 31.03.2023	(MW) AS ON 31.03.2023
VII	**CESC THERMAL**					
40	SOUTHERN	2x67.5		135	135	135
41	TITAGARH	4x60		240	240	240
42	BUDGE BUDGE	3x250		750	750	750
	TOTAL (CESC)	**1125**		**1125**	**1125**	**1125**
43	**HALDIA ENERGY LTD. (HEL)(2X300 MW)**	**600**		**600**	**600**	**600**
IX	**SIKKIM**					
44	**RES**	**56.79**		**56.79**	**56.79**	**56.79**
	TOTAL (SIKKIM)	**56.79**		**56.79**	**56.79**	**56.79**
X	**NTPC**					
45	FARAKKA STPS - I&II	3x200+2x500		1600	3x200+2x500	1600
46	FARAKKA STPS - III (U# 6)	1x500		500	1x500	500
47	KAHALGAON STPS - I&II	4x210+3x500		2340	4x210+3x500	2340
48	TALCHER STPS - I	2x500		1000	2x500	1000
49	BARH Stg-II (U# 4&5)	2x660		1320	2x660	1320
50	BARH Stg-I (U#1)	1x660		660	1x660	660
51	MTPS Stg-II	2X195		390	2X195	390
52	BRBCL,Nabi Nagar TPS	4X250		1000	4X250	1000
53	NPGCL,NSTPP	2X660		1320	2X660	1320
54	NTPC, Darlipali STPP	2X800		1600	2X800	1600
	NTPC, Barauni TPS	2x105+2x250		710	2x105+2x250	710
	NORTH KARANPURA STPP(U#1)	0	(+)660	660	1X660	660
	TOTAL (NTPC) THERMAL	**12440**	**660**	**13100**	**13100**	**13100**
	NTPC TALCHER SOLAR	**10**		**10**	**10**	**10**
	TOTAL (NTPC)	**12450**	**660**	**13110**	**13110**	**13110**
XI	**NHPC**					
55	RANGIT HPS	3x20		60	3x20	60
56	TEESTA HPS	3x170		510	3x170	510
57	TLDP-III*	4x33		132	4x33	132
58	TLDP-IV*	4x40		160	4x40	160
	TOTAL	**862**		**862**	**862**	**862**
XII	**IPP**					
59	MPL (Thermal U#1,2)	2x525		1050	2x525	1050
60	APNRL (Thermal U# 1,2)	2x270		540	2x270	540
61	GMR (Thermal U# 1,2&3)	3x350		1050	3x350	1050
62	JITPL(Thermal U# 1,2)	2x600		1200	2x600	1200
	Sterlite Power Station (U#2)	1x600		600	1x600	600
	Jojobera Thermal Power Plant	2x120		240	240	240
	TOTAL IPP (THERMAL)	**4680**		**4680**	**4680**	**4680**
63	CHUZACHEN (Hydro U#1,2)	2x55		110	2x55	110
64	JORETHANG(Hydro U#1,2)	2x48		96	2x48	96
65	TEESTA URJA St III (6x200)	6x200		1200	6x200	1200
66	DICKCHU HEP(2x 48)	2x48		96	2x48	96
67	TASHIDING(2x 48.5)	2x48.5		97	2x48.5	97
68	RONGNICHU HEP (2x56.5)	2x56.5	113	113	2x56.5	113
	TOTAL IPP (HYDRO)	**1712**	**113**	**1712**	**1712**	**1712**
XIV	**BHUTAN IMPORT ****					
69	CHPS	4x90		360	4x90	360
70	KURICHHU HPS	4x15		60	4x15	60
71	TALA HPS	6x170		1020	6x170	1020
72	DAGHACHU	2x63		126	2x63	126
73	MANGDECHHU HEP	4x180		720	4x180	720
	TOTAL BHUTAN IMPORT	**2286**		**2286**	**2286**	**2286**
XV	**EASTERN REGION(Excluding Bhutan import)**					
	THERMAL	**32125**	**660.0**	**32785**	**32785**	**32785**
	HYDRO	**5990**		**5990**	**5990**	**5990**
	SOLAR (RES)	**1745**		**1745**	**1745**	**1745**
	ER GRAND TOTAL (Excl. Bhutan)	**39860**	**660**	**40520**	**40520**	**40520**

*100% power of TLDP-III & IV under NHPC is allocated for West Bengal.

** Allocated import by ER from Bhutan (90 MW of Chukha power is for own consumption of Bhutan & 15% of Tala power allocated to NR)

TSTPS Stage-II (4x500 MW) of NTPC though geographically situated in Orissa but it is meant for SR, hence not considered for I.C. of ER.

NTPC, Darlipali STPS U-2 (800 MW) has been commissioned on 01.09.2021.

NPGCL, New Nabinagar STPS U-2 (660 MW) has been commissioned on 23.07.2021.

NTPC, Barh Stg-I, U-1 (660 MW) has been commissioned on 12.11.2021.

BRBCL, Nabinagar TPS U-4 (250 MW) has been commissioned on 01.12.2021.

NTPC, Barauni TPS U-9 (250 MW) has been commissioned on 01.11.2021.

NORTH KARANPURA STPP(U#1) has been commissioned on 01.03.2023

Annexure-IV(B)

NEW THERMAL GENERATING UNITS DECLARED COMMERCIAL OPERATION IN EASTERN REGION DURING 2022-23

SN.	STATE	AGENCY		Type	Unit No.	Capacity(MW)	Date of COD	In firm gross Generation (MU)
2	JHARKHAND	NTPC		ThermalU#1	1	660	01.03.2023	298.16

NEW HYDRO GENERATING UNITS DECLARED COMMERCIAL OPERATION IN EASTERN REGION DURING 2022-23

NIL

UNITS DE- COMMISSIONED IN EASTERN REGION DURING 2022-23

SN.	STATE	AGENCY		Type	Unit No.	Capacity(MW)	Date of De-commnsloning	Generation (MU)
1	WEST BENGAL	WBPDCL		GAS	U#1	20	26.05.2022	NIL
2	WEST BENGAL	DPL		Thermal	U#4	210	19.12.2022	NIL

ANNEXURE-IVC

New Transmission Elements Commissioned During 2022-23

A. TRANSMISSION LINES ADDITION DURING THE YEAR 2022-23

SI. No.	Name of the Lines	VOLTAGE (kV)	OWNER	Month of Commissioning
1	Karmnasa (New) - Pusauli (BSPTCL) (TM)	220	BSPTCL	22.07.2022
2	Saharsa (New) - Begusarai	220	BSPTCL	21.07.2022
3	LILO of Budhipadar - Tarkera at Bamra	220	OPTCL	25.07.2022
4	LILO of Balimela-Malkangir line at Kalimela	220	OPTCL	9-11-2022 (220kV Balimela-Kalimela Line) 10-11-2022 (220kV Malkangiri-Kalimela Line)
5	LILO of Budhipadar - Tarkera at Kuanramunda(Ckt 1)	220	OPTCL	25.01.2023
6	LILO of Kishanganj (POWERGRID) - Darbhanga (DMTCL) (QUAD) line at Saharsa (New)	400	PGCIL	22.04.2022
7	LILO of Nabinagar -II - Patna (PG) at Jakkanpur (New)	400	BSPTCL	20.04.2022
8	Gokarna - New Chanditala	400	WBSETCL	27.05.2022
9	North Karanpura - Chandwa (Jharkhand) NKSTPP line (NKTL -TBCB)	400	NKTL	15.10.2022
10	North Karanpura - Chandwa (Jharkhand) PS line (NKTL -TBCB)	400	NKTL	15.10.2022
11	MTPS- Ranchi (PG) (Bypassing Gola SS)	220	DVC	22.06.2022
12	Saharsa (New) - Khagaria (New)	220	BSPTCL	11.04.2022
13	Muzaffarpur (PG) - Gouraul line	220	BSPTCL	11.05.2022 (Ckt-1), 13.05.2022 (Ckt-2)
14	Rajarhat (PGCIL) - Barasat 220kV s/s	220	WBSETCL	01.05.2022
15	Rajarhat (PG) - Newtown- II C 220kV DC/CKt. UG Cable line	220	WBSETCL	26.09.2022
16	Pusauli (PG) - Durgauti (IR) D/C Line	220	DFCCIL-IR	21.01.2023
17	RANGPO-NEW MELLI-2	220	PGCIL	07.04.2022
18	Arrah-Naubatpur(BH)	220	PGCIL	28.04.2022
19	LILO AT RAHARHAT(PGCIL)-BARASAT(WBSETCL)	220	WBSETCL	01.05.2022
20	BARUIPUR(WBSETCL)-SUBHASGRAM(PGCIL)	220	WBSETCL	18.05.2022
21	Pandiabili PGCIL - Pratapsasan line	220	OPTCL	19.05.2022
22	LILO AT MUZAFFARPUR(PGCIL)-GORAUL(BH)	220	BSPTCL	11.05.2022
23	Subhasgram-New Jeerat	400	PMJTL	22.08.2022
24	LILO ON DALTONGANJ-LATEHAR	220	JUSNL	30.09.2022
25	Chandwa(PGCIL)-Latehar(JUSNL)	400	JUSNL	08.12.2022
26	Patna(PGCIL)-Sipara(BSPTCL)	220	BSPTCL	08.12.2022

ANNEXURE-IVC

New Transmission Elements Commissioned During 2022-23

B. Substations /ATRs/Reactors addition During the Year 2022-23

SI. No.	NAME OF SUBSTATION (ICT/ST/GT ADDITION)	VOLTAGE (kV)	OWNER	Date of Commissioning
1	315 MVA ICT-02 at Farakka	400/220	PGCIL	21.04.2022
2	500 MVA ICT-04 at Muzaffarpur	400/220	PGCIL	05.04.2022
4	315 MVA ICT- 02 at MEJIA THERMAL POWER STATION-B	400/220	DVC	27.05.2022
5	315 MVA ICT-03 at Motihari(DMTCL)	400/132	PMTL	07.06.2022
6	500 MVA ICT-02 at Jakkanpur GIS	400/220/132/33	BGCL	03.11.2022
7	315 MVA ICT -01 at Durgapur SS	400220/33	PGCIL	17.11.2022

SI. No.	NAME OF SUBSTATION (BAY ADDITION)	VOLTAGE (kV)	OWNER	Date of Commissioning
1	400KV MAIN BAY OF MERAMUNDALI-A AT MERAMUNDALI B	400	OPTCL	10.06.2022
2	400KV MAIN BAY OF GMR1 AT MERAMUNDALI B	400	OPTCL	10.06.2022
3	400KV MAIN BAY OF NEW DUBURI- 2 AT MERAMUNDALI B	400	OPTCL	10.06.2022
4	400KV MAIN BAY OF NEW DUBURI- 2 AT MERAMUNDALI B	400	OPTCL	10.06.2022
5	400KV MAIN BAY OF 400KV FUTURE LINE-7 AT MERAMUNDALI B	400	OPTCL	10.06.2022
6	400KV MAIN BAY OF LATEHAR(JUSNL)-1 AT CHANDWA(PG)	400	JUSNL	01.10.2022
7	400KV MAIN BAY OF LATEHAR(JUSNL)-1 AT CHANDWA(PG)	400	JUSNL	01.10.2022

SI. No.	NAME OF SUBSTATION (BUS/LINE reactors)	Volatge Level (kV)	Utility	Date of Commissioning
1	125 MVAR Bus Reactor 1 at New Duburi SS	400	OPTCL	23.08.2022

ANNEXURE-V

Constituent-wise Performance ER during the year 2022-23

SYSTEM	Gross Generation(MU)				Auxiliary power Consumption(MU)				Net Generation (MU)				Import from	Exchange	Energy	Per Day	Net Peak
	Hydro	Thermal	S (Hy+Sol	Total	Hydro	Thermal	Solar	Total	Hydro	Thermal	Solar	Total	Captive (MU)	Net Import(+)	Consumption(MU)	Cons.(MU)	Demand
														Net Export(-)			Met (MW)
BSPHCL	0.00	3622.79	373.84	3996.64	0.00	345.24	0.00	345.24	0.00	3277.55	373.84	3651.39	0.00		38600.69	99.5	7851.52
JUVNL	168.96	3906.75	120.82	4196.53	0.07	381.12	0.00	381.19	168.89	3525.63	120.82	3815.34	442.93	-3372.41	12433.18	29.4	1917.81
DVC	239.55	43084.91	0.00	43324.46	1.50	3010.19	0.00	3011.69	238.05	40074.72	0.00	40312.77	98.30	-40214.47	26289.54	65.0	3402.39
Odisha (OPGC+OHPC+TTPS)	5153.91	11710.43	729.18	17593.52	29.31	826.38	0.00	855.69	5124.60	10884.05	729.18	16737.83	9353.85	-7383.98	42530.24	105.7	6437.53
WBPDCL+WBSEDCL+DPL	2131.66	34560.29	225.97	36917.92	0.00	2964.09	0.00	2964.09	2131.66	31596.20	225.97	33953.83	4632.41	-29321.41	49317.15	119.97	7958.21
CESC	0.00	5966.37	0.00	5966.37	0.00	475.71	0.00	475.71	0.00	5490.66	0.00	5490.66	0.00	-5490.66	11174.24	28.25	2327.00
HEL	0.00	5419.34	0.00	5419.34	0.00	329.43	0.00	329.43	0.00	5089.91	0.00	5089.91	0.00	-5089.91			
Sikkim	17.00	0.00	0.00	17.00	0.00	0.00	0.00	0.00	0.00	0.00	17.00	17.00	0.00	-17.00	589.24	1.7	124.17
NTPC	0.00	83485.67	13.04	83498.72	0.00	5700.54	0.00	5700.54	0.00	77785.13	13.04	77798.18	0.00	-77798.18	0.00		
MPL	0.00	7555.12	0.00	7555.12	0.00	425.17	0.00	425.17	0.00	7129.95	0.00	7129.95	0.00	-7129.95	0.00		
APNRL	0.00	3506.78	0.00	3506.78	0.00	300.92	0.00	300.92	0.00	3205.86	0.00	3205.86	0.00	-3205.86	0.00		
GMR	0.00	4700.06	0.00	4700.06	0.00	316.44	0.00	316.44	0.00	4383.61	0.00	4383.61	0.00	-4383.61	0.00		
JITPL	0.00	7842.77	0.00	7842.77	0.00	467.67	0.00	467.67	0.00	7375.10	0.00	7375.10	0.00	-7375.10	0.00		
NHPC (Inc TLDP= 1314.7 MU)	4474.15	0.00	0.00	4474.15	0.00	0.00	0.00	0.00	4474.15	0.00	0.00	4474.15	0.00	-4474.15	0.00	8948.3	
Chuzachen HPS	492.59	0.00	0.00	492.59	0.00	0.00	0.00	0.00	492.59	0.00	0.00	492.59	0.00	-492.59	0.00	985.2	
Dikchu HPS	537.44	0.00	0.00	537.44	0.00	0.00	0.00	0.00	537.44	0.00	0.00	537.44	0.00	-537.44	0.00		
Jorethang HPS	431.53	0.00	0.00	431.53	0.00	0.00	0.00	0.00	431.53	0.00	0.00	431.53	0.00	-431.53	0.00		
Tashiding HPS	443.24	0.00	0.00	443.24	0.00	0.00	0.00	0.00	443.24	0.00	0.00	443.24	0.00	-443.24	0.00		
Teesta-III HPS	6103.42	0.00	0.00	6103.42	0.00	0.00	0.00	0.00	6103.42	0.00	0.00	6103.42	0.00	-6103.42	0.00		
Rongnichu HEP	429.12	0.00	0.00	429.12	0.00	0.00	0.00	0.00	429.12	0.00	0.00	429.12	0.00	-429.12	0.00		
CHPC(Birpara Receipt)	1569.95	0.00	0.00	1569.95	0.00	0.00	0.00	0.00	1569.95	0.00	0.00	1569.95	0.00	-1569.95	0.00		
KHPS	28.65	0.00	0.00	28.65	0.00	0.00	0.00	0.00	28.65	0.00	0.00	28.65	0.00	-28.65	0.00		
THPS	2417.33	0.00	0.00	2417.33	0.00	0.00	0.00	0.00	2417.33	0.00	0.00	2417.33	0.00	-2417.33	0.00		
Dagachu HPS	422.43	0.00	0.00	422.43	0.00	0.00	0.00	0.00	422.43	0.00	0.00	422.43	0.00	-422.43	0.00		
Mangdechhu HEP	2648.51	0.00	0.00	2648.51	0.00	0.00	0.00	0.00	2648.51	0.00	0.00	2648.51	0.00	-2648.51	0.00		
Total Drawal by HVDC Sahsaram,Alipurduar & Others														0.00	54.20		
Total	27709.43	215361.28	1462.86	244533.57	30.88	15542.89	0.00	15573.78	27661.54	199818.39	1479.86	228959.79	14527.49	-214432.29	180887.78	449.72	24063.68
										207763.04							

		BSPHCL	JUSNL	DVC	Odisha	WBSEDCL	CESC	Sikkim	Region
Annual Load Factor		67.6	74.0	88.6	76.0	70.7	54.8	54.9	76.4

Note: 1. BSPHCL exchange inclusive of the drawal of Nepal from BSPHCL network .
2. Sikkim's generarion figure is estimated
3. Net Exchange of Energy is inclusive of Transmission loss at the periphery of respectives system.
4. All the figures considered above for operational data,need not to be used for any commercial purposes

ANNEXURE-VI (A)

CONSTITUENT WISE MONTHLY PEAK DEMAND MET DURING 2022-23

All figures in Net MW

MONTH	BSPHCL	JUSNL	DVC	ODISHA	WBSEDCL	CESC	SIKKIM	ER	% Growth w.r.t 2021-22
	Peak Demand Met	Peak Demand Met	Peak Demand Met	Peak Demand Met	Peak Demand Met	Peak Demand Met	Peak Demand Met	Peak Demand Met	
Apr-22	6091	1807	3396	5674	7823	2327	115	25690	5.3
May-22	6034	1528	3330	6313	6992	2083	106	25070	3.6
Jun-22	6308	1615	3350	6378	7630	2230	98	26196	11.5
Jul-22	6631	1918	3309	6259	7915	1879	91	26609	5.8
Aug-22	6654	1757	3257	6391	7958	2019	98	27218	12.7
Sep-22	6546	1797	3298	6438	7776	2073	102	26650	6.6
Oct-22	6484	1854	3157	6063	7616	1819	102	26220	10.7
Nov-22	4704	1635	3093	5527	6071	1584	115	21741	3.7
Dec-22	5115	1708	3228	4788	5374	1379	124	20720	0.4
Jan-23	5586	1775	3339	5221	5913	1301	123	22095	4.2
Feb-23	5004	1703	3338	5563	6274	1515	121	22689	7.0
Mar-23	5267	1719	3268	5539	7147	1736	113	23779	-3.3
MAXIMUM	**6654**	**1918**	**3396**	**6438**	**7958**	**2327**	**124**	**27218**	**8.2**
MINIMUM	**4704**	**1528**	**3093**	**4788**	**5374**	**1301**	**91**	**20720**	**0.4**
AVERAGE	**5869**	**1735**	**3280**	**5846**	**7041**	**1829**	**109**	**24556**	**5.8**
% Avg.Peak Growth wrt 2021-22	**3.98**	**11.27**	**8.44**	**8.20**	**7.75**	**8.60**	**-1.94**	**5.75**	

CONSTITUENT WISE MONTHLY PEAK DEMAND MET DURING 2021-22

All figures in Net MW

MONTH	BSPHCL	JUSNL	DVC	ODISHA	WBSEDCL	CESC	SIKKIM	ER	% Growth w.r.t 2020-21
	Peak Demand Met	Peak Demand Met	Peak Demand Met	Peak Demand Met	Peak Demand Met	Peak Demand Met	Peak Demand Met	Peak Demand Met	
Apr-21	5795	1582	3085	5353	7417	2006	105	24405	34.89
May-21	5919	1557	2965	5643	6928	1814	98	24191	19.96
Jun-21	6084	1520	2916	4984	7003	1934	90	23494	7.61
Jul-21	6490	1590	2909	5561	7243	1805	96	25145	11.05
Aug-21	6241	1611	2914	5552	7168	1893	98	24157	8.85
Sep-21	6340	1543	3037	5605	7234	1783	102	25010	6.15
Oct-21	5774	1520	2976	5458	7066	1818	104	23675	1.29
Nov-21	4345	1513	2998	5342	5243	1530	118	20961	2.72
Dec-21	4781	1552	2932	5427	5025	1321	133	20631	5.55
Jan-22	5243	1610	3124	5110	5471	1247	133	21204	3.45
Feb-22	5059	1505	3102	5434	5286	1292	132	21198	2.69
Mar-22	5651	1605	3338	5370	7326	1766	122	24582	2.36
MAXIMUM	**6490**	**1611**	**3338**	**5643**	**7417**	**2006**	**133**	**25145**	**4.70**
MINIMUM	**4345**	**1505**	**2909**	**4984**	**5025**	**1247**	**90**	**20631**	**14.03**
AVERAGE	**5644**	**1559**	**3025**	**5403**	**6534**	**1684**	**111**	**23221**	**8.44**
% Avg.Peak Growth wrt 20 20-21	**5.42**	**7.81**	**8.08**	**21.47**	**3.25**	**4.72**	**11.19**	**8.44**	

CONSTITUENT WISE MONTHLY PEAK DEMAND MET DURING 2020-21

All figures in Net MW

MONTH	BSPHCL	JUSNL	DVC	ODISHA	WBSEDCL	CESC	SIKKIM	ER	% Growth w.r.t 2019-20
	Peak Demand Met	Peak Demand Met	Peak Demand Met	Peak Demand Met	Peak Demand Met	Peak Demand Met	Peak Demand Met	Peak Demand Met	
Apr-20	4725	1291	1417	3636	5937	1325	94	18093	-19.15
May-20	5330	1396	2462	4024	6014	1539	88	20166	-11.48
Jun-20	5718	1368	2715	4293	6626	1728	84	21832	-4.28
Jul-20	5774	1426	2918	4474	6754	1804	86	22643	-2.21
Aug-20	5915	1470	2801	4476	6950	1744	77	22192	-5.15
Sep-20	5936	1522	2933	4575	7015	1744	91	23561	1.88
Oct-20	5783	1513	3173	4973	7044	1806	96	23374	7.68
Nov-20	4590	1422	2884	4609	5788	1628	110	20406	6.21
Dec-20	4856	1500	2925	4224	5140	1481	115	19546	5.04
Jan-21	5153	1501	3141	4306	5600	1269	119	20496	9.52
Feb-21	5009	1416	3084	4803	5781	1377	117	20643	8.87
Mar-21	5452	1527	3129	4984	7291	1853	120	24016	28.65
MAXIMUM	**5936**	**1527**	**3173**	**4984**	**7291**	**1853**	**120**	**24016**	**2.64**
MINIMUM	**4590**	**1291**	**1417**	**3636**	**5140**	**1269**	**77**	**18093**	**-2.77**
AVERAGE	**5353**	**1446**	**2799**	**4448**	**6328**	**1608**	**100**	**21414**	**1.36**
% Avg.Peak Growth wrt 2019-20	**7.27**	**8.90**	**-2.55**	**-1.21**	**1.04**	**-10.83**	**0.25**	**1.36**	

Annexure VI(B)

Statewise Monthly Actual Peak Demand in MW during 2022-23

Ex-Bus figs in MW

States →	BIHAR		JHARKHAND		DVC		ODISHA		WEST BENGAL		SIKKIM		Eastern Region	
MONTH ▲	Actual	Unrestricted	Actual	Unrestricted	Actual	Unrestricted	Actual	Unrestricted	Actual	Unrestricted	Actual	Unrestricted	Actual	Unrestricted
Apr_22	6802	6091	2118	1807	3402	3396	5714	5674	10125	9900	116	115	27522	25690
May_22	6740	6034	1837	1528	3330	3330	6313	6313	8837	8822	106	106	26167	25070
Jun_22	6831	6308	1895	1615	3355	3350	6427	6378	9592	9564	98	98	27206	26196
Jul_22	7852	6631	3309	3309	2253	1918	6259	6259	9559	9558	91	91	27739	26609
Aug_22	7608	6654	2138	1757	3261	3257	6566	6391	9694	9690	98	98	28275	27218
Sep_22	6821	6546	2081	1797	3298	3298	6438	6438	9619	9614	103	102	27754	26650
Oct_22	6491	6484	2068	1854	3157	3157	6063	6063	9106	9101	102	102	26225	26220
Nov_22	5002	4704	2128	1635	3093	3093	5527	5527	7595	7595	116	115	22225	21741
Dec_22	5118	5115	2138	1708	3228	3228	4788	4788	6616	6533	124	124	21153	20720
Jan_23	5794	5586	2061	1775	3339	3339	5221	5221	7112	7108	123	123	22461	22095
Feb_23	5027	5004	2019	1703	3338	3338	5567	5563	7789	7789	121	121	22940	22689
Mar_23	5289	5267	1970	1719	3268	3268	5542	5539	8803	8803	113	113	24064	23846

ANNEXURE - VII A

Constituent wise net monthly energy consumption during 2022-23									(All figures in Net MU)		
MONTH	**BSPHCL**	**JUSNL**	**DVC (Own)**	**Odisha**	**WBSEDCL (Own)**	**CESC**	**West Bengal (Total)**	**Sikkim**	**Eastern Region (Total)**	**Avg. Consumpfion (in MU) per Day**	**% Growth w.r.I 2021-22**
Apr-22	3541	1026	2280	3526	4745	1107	5852	49	16275	542	9.4
May-22	3536	967	2291	3890	4299	1079	5378	48	16112	520	20.9
Jun-22	3699	952	2213	3919	4488	1109	5598	47	16427	548	18.5
JuI-22	4078	1167	2302	4042	4933	1082	6015	46	17650	569	14.3
Aug-22	3996	1105	2206	4089	4722	1067	5789	46	17230	556	10.9
Sep-22	3710	1096	2160	4054	4498	1074	5572	47	16640	555	14.1
Oct-22	3322	1097	2140	3792	4101	952	5053	42	15448	498	10.0
Nov-22	2473	955	2049	3090	3175	749	3924	49	12540	418	7.5
Dec-22	2598	1004	2135	2989	3222	697	3919	58	12701	410	6.4
Jan-23	2991	1086	2256	3018	3569	686	4255	61	13666	441	7.8
Feb-23	2530	929	2059	3003	3464	681	4145	52	12718	454	10.8
Mar-23	2911	1047	2240	3461	4101	890	4991	51	14701	474	0.1
TOTAL	**39383**	**12433**	**26330**	**42874**	**49317**	**11174**	**60491**	**597**	**182109**	**499**	**10.9**
AVERAGE	3282	1036	2194	3573	4110	931	5041	50	15176	499	11.080
MAXIMUM	4078	1167	2302	4089	4933	1109	6015	61	17650	569	13.643
MINIMUM	2473	929	2049	2989	3175	681	3919	42	12540	410	6.421
%Growth wrt 2021-22	7	11	12	12	8	5	7	7	9		
Per day Consumption	108	34	72	117	135	31	166	2	499		

Constituent wise net monthly energy consumption during 2021-22									(All Figures in Net MU)		
MONTH	**BSPHCL**	**JUSNL**	**DVC (Own)**	**Odisha**	**WBSEDCL (Own)**	**CESC**	**West Bengal (Total)**	**Sikkim**	**Eastern Region (Total)**	**Avg. Consumpfion (in MU) per Day**	**% Growth w.r.I 2020-21**
Apr-21	3301	922	2027	3141	4396	1054	5450	46	14867	496	54.4
May-21	2980	827	1865	3072	3632	893	4525	47	13316	430	20.8
Jun-21	3243	863	1930	3028	3865	884	4749	45	13858	462	9.3
JuI-21	3817	950	1931	3432	4271	1001	5272	48	15450	498	11.3
Aug-21	3703	953	2000	3481	4324	1028	5352	47	15536	501	11.9
Sep-21	3540	900	1941	3214	3965	960	4925	47	14567	486	4.2
Oct-21	3014	887	1991	3315	3835	955	4790	48	14045	453	0.8
Nov-21	2235	848	1908	3087	2810	724	3534	52	11664	389	8.4
Dec-21	2390	886	1982	3056	2866	678	3544	62	11920	385	6.4
Jan-22	2678	940	2058	3314	2982	654	3636	64	12690	409	6.1
Feb-22	2316	801	1880	2980	2824	609	3433	60	11470	410	3.5
Mar-22	3108	952	2227	3455	4020	890	4910	54	14706	474	4.8
TOTAL	**36325**	**10729**	**23740**	**38575**	**43790**	**10310**	**54100**	**620**	**164089**	**450.00**	**10.9**
AVERAGE	3027	894	1978	3215	3649	859	4508	52	13674	449	11.8
MAXIMUM	3817	953	2227	3481	4396	1034	5430	64	15536	501	54.4
MINIMUM	2235	801	1865	2980	2810	609	3433	45	11470	385	0.8
%Growth wrt 2020-21	4.95	9.32	11.10	28.97	4.72	5.29	4.83	11d1	10.85	10.86	
PerdayConsumption	100	29	65	106	120	28	148	2	450		

Constituent wise net monthly energy consumption during 2020-21									(All Figures in Net MU)		
MONTH	**BSPHCL**	**JUSNL**	**DVC (Own)**	**Odisha**	**WBSEDCL (Own)**	**CESC**	**West Bengal (Total)**	**Sikkim**	**Eastern Region (Total)**	**Avg. Consumpfion (in MU) per Day**	**% Growth w.r.I 2020-21**
Apr-20	2358	683	857	2081	2931	663	3594	43	9626	321	-25.2
May-20	2793	746	1424	2376	2917	720	3637	42	11024	356	-20.9
Jun-20	3042	776	1753	2484	3659	909	4568	42	12675	423	-8.4
JuI-20	3331	837	1892	2722	4067	979	5046	41	13878	448	-0.8
Aug-20	3440	853	1894	2632	4083	934	5017	*36*	13887	448	-2.9
Sep-20	3355	877	1876	2756	4064	989	5053	41	13977	466	4.4
Oct-20	3334	905	1942	2755	3950	983	4933	43	13928	449	14.6
Nov-20	2251	788	1854	2257	2814	734	3548	47	10757	359	3.9
Dec-20	2509	852	1948	2252	2905	658	3563	58	11199	361	6.6
Jan-21	2791	857	2039	2342	3188	656	3844	59	11956	386	10.2
Feb-21	2459	760	1831	2290	3050	629	3679	52	11083	396	10.2
Mar-21	2948	880	2059	2963	4187	938	5125	*53*	14032	*453*	33.8
TOTAL	**34610**	**9812**	**21368**	**29911**	**41815**	**9792**	**51607**	**556**	**148022**	**406**	*0.9*
AVERAGE	2884	818	1781	2493	3485	816	4301	46	12335	405	0.7%
MAXIMUM	3440	905	2059	2963	4187	989	5125	59	14032	466	0.9%
MINIMUM	2251	683	857	2081	2814	629	3548	36	9626	321	-5.0%
%Growthwrt2019-20	**7.94**	**9.27**	**-4.48**	**0.63**	**-1.07**	**-11.13**	**-3.15**	**-1.44**	**0.63**		
PerdayConsumption	95	27	58	82	114	27	141	2	404		

Annexure VII(B)

Ex-Bus figs in MU

States →	BIHAR		JHARKHAND		DVC		ODISHA		WEST BENGAL		SIKKIM		OTHERS		Eastern Region	
MONTH ↓	Actual Consumption	Unrestricted Requirement	Actual Consumption	Unrestricted Requirement	Actual Consumption	Unrestricted Requirement	Actual Consumption	Unrestricted Requirement	Actual Consumption	Unrestricted Requirement	Actual Consumption	Unrestricted Requirement	Actual Consumption	Unrestricted Requirement	Actual Consumption	Unrestricted Requirement
Apr_22	2864	2882	1035	1106	2240	2240	3441	3441	5814	5841	50	50	6	6	16132	16505
May_22	3483	6740	956	1837	2291	3330	3862	6313	5355	5369	48	48	4	4	15999	16151
Jun_22	3640	3709	939	1040	2213	2214	3885	3888	5567	5577	46	46	4	4	16294	16478
Jul_22	4017	4176	1155	1220	2302	2302	4012	4012	5980	5982	45	45	9	9	17520	17746
Aug_22	3933	7608	1093	2138	2206	3261	4056	4056	5757	5762	45	45	8	8	17098	17329
Sep_22	3656	3706	1085	1129	2160	2160	4030	4030	5547	5551	47	47	8	8	16533	16629
Oct_22	3277	6491	1087	2068	2140	3157	3771	3771	5042	5044	42	42	5	5	15366	15435
Nov_22	2441	2454	946	1059	2049	2049	3077	3077	3924	3924	49	49	4	4	12489	12615
Dec_22	2558	2569	993	1105	2135	2135	2972	2972	3919	3920	57	57	1	1	12633	12759
Jan_23	2934	2967	1071	1148	2256	2257	2998	2999	4255	4258	60	60	2	2	13576	13691
Feb_23	2934	2504	917	997	2059	2060	2985	2986	4136	4139	51	51	4	4	12634	12742
Mar_23	2864	2882	1035	1106	2240	2240	3441	3441	4977	4982	50	50	7	7	14615	14710
TOTAL	**38600.69**	**48688.90**	**12311.13**	**15954.61**	**26289.54**	**29402.90**	**42530.24**	**44986.00**	**60274.48**	**60347.93**	**589.24**	**589.32**	**62.85**	**62.85**	**180887.78**	**182790.75**

#OTHERS includes Energy consumption by HVDC Sasaram, HVDC Alipurduar, Startup Power of Barh STPS

NOTE:Drawal from Central sector is at ISGS periphery

Annexure VIII(A)														
		IMPORT BY ODISHA FROM CAPTIVE STATIONS AND IPPs DURING 2022-23												
S.No	Name of IPP / CGPs	Apr_22	May_22	Jun_22	Jul_22	Aug_22	Sep_22	Oct_22	Nov_22	Dec_22	Jan_23	Feb_23	Mar_23	Total
1	Aarti Steel Ltd, ghantikhal	17.62	8.94	5.09	3.41	3.24	8.81	4.85	6.60	7.18	12.52	13.29	9.26	100.81
2	ACC	0.00	0.00	0.00	0.00	0.44	0.19	0.13	0.00	0.65	0.82	0.60	0.86	3.68
3	Action Ispat	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	Aryan Ispat,	6.24	6.29	8.39	2.42	1.57	2.29	0.00	0.00	0.00	0.00	5.17	5.19	37.56
5	BPPL	79.77	81.99	62.68	65.97	49.31	69.37	73.25	74.24	70.83	76.62	66.78	73.39	844.20
6	BPSL, Jharsuguda	13.39	12.19	4.42	4.65	2.13	3.03	0.93	1.34	3.62	6.44	4.39	6.67	63.20
7	TSSL	16.19	17.09	11.17	4.69	6.98	9.03	10.41	11.00	12.06	25.39	41.41	31.91	197.31
8	GMR Kamalanga Energy Ltd.(IPP)	219.55	219.63	188.70	324.40	110.51	168.96	184.01	156.89	213.10	205.06	169.95	189.46	2350.22
9	HINDALCO, Hirakud	1.67	1.95	3.46	1.79	3.44	1.70	3.64	2.94	3.02	2.76	2.02	3.70	32.09
10	IFFCO, Paradeep	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	IMFA , Choudwar	22.62	22.20	19.12	29.85	28.74	22.15	32.17	30.40	30.68	23.89	19.45	29.30	310.57
12	JINDAL, New Duburi	7.22	5.50	1.36	0.53	0.88	3.31	2.02	2.05	2.23	3.35	2.23	2.04	32.71
13	JSPL, Angul	41.82	32.14	8.70	2.76	4.38	7.37	8.07	21.22	21.68	44.18	17.56	30.42	240.29
14	Mahavir Ferro Alloys	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	Maithan Ispat Ltd.	0.02	0.65	2.46	1.40	2.32	6.50	3.62	5.71	4.11	4.66	2.29	3.50	37.25
16	Meenakshi Power Ltd. (SH)	5.61	4.91	3.30	25.27	29.38	27.83	27.48	14.04	8.25	8.52	9.48	10.46	174.53
17	MSP, Jharsuguda	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
18	NALCO , Angul	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	10.13	11.72	10.23	32.09
19	Narbheram	0.04	0.13	0.12	0.06	0.08	0.18	0.03	0.04	0.05	0.08	0.61	3.49	4.90
20	NBVL , Kharag Prasad	73.26	68.78	42.43	36.19	10.35	40.25	30.38	56.61	45.61	50.61	60.20	80.28	594.96
21	NINL , Duburi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	OCL	3.06	4.15	4.18	4.70	3.04	4.26	8.28	9.90	7.87	9.47	6.41	6.22	71.55
23	OPCL, Samal (SH)	9.51	10.69	3.21	8.04	7.87	10.63	10.97	9.91	7.57	7.03	7.32	4.79	97.51
24	BPPLT	0.61	0.00	2.29	14.97	18.22	20.29	16.84	4.22	2.21	1.37	0.67	0.60	82.28
25	Saptadhara	0.10	0.16	0.18	10.17	12.24	11.54	8.02	2.69	1.29	0.67	0.27	0.65	47.97
26	Kakatiya	0.00	0.01	0.01	0.71	1.47	2.94	4.56	1.41	0.00	3.90	3.66	3.45	22.12
27	PSAL, Keonjhar	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97
28	RSP , Rourkela	5.03	0.99	0.07	0.00	0.10	0.00	0.00	0.00	0.65	0.54	0.21	2.22	9.83
29	Shree Ganesh	0.74	1.83	1.81	0.21	0.22	0.26	0.66	0.43	0.44	0.29	0.33	0.34	7.57
30	Shyam Metallics	0.00	0.40	0.05	0.06	0.03	0.01	0.04	0.10	0.08	0.04	0.04	0.09	0.94
31	SMC Power	10.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.68
32	TSIL, Joda	202.15	13.23	12.06	11.49	10.87	7.97	8.18	12.67	12.20	10.75	12.13	10.81	324.51
33	Vedanta Ltd. (IPP)	43.94	334.19	301.70	221.35	204.73	212.06	0.00	288.62	193.05	219.38	290.31	324.74	2634.07
34	Vedanta, Jharsuguda	0.08	10.38	41.38	59.05	40.98	31.53	150.00	92.19	93.64	129.27	157.81	152.65	958.98
35	Vedanta, Lanjigarh	0.11	0.03	0.00	0.01	0.26	0.00	0.00	0.18	0.29	0.50	0.24	0.37	1.99
36	VISA Steel	0.12	0.30	0.00	0.01	0.01	0.00	0.00	0.01	6.14	10.72	7.45	0.27	25.02
37	Yazdani Steel & Power Ltd.	0.00	0.13	0.03	0.00	0.00	0.02	0.11	0.02	0.05	0.05	0.01	0.00	0.43
38	Vedanta, Ltd. (3x600)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL Support from CPP & IPPs		**783.12**	**858.88**	**728.41**	**834.15**	**553.81**	**672.46**	**588.67**	**805.44**	**748.54**	**869.00**	**914.01**	**997.35**	**9353.85**

Annexure VIII(B)

IMPORT BY WBSETCL FROM CAPTIVE STATIONS AND IPPs DURING 2022-23

Name of IPP / CGPs	Apr_22	May_22	Jun_22	Jul_22	Aug_22	Sep_22	Oct_22	Nov_22	Dec_22	Jan_23	Feb_23	Mar_23	Total
PCBL	11.31	7.07	12.49	12.23	12.06	11.02	12.28	9.28	8.72	11.43	10.35	11.26	129.48
Renuka	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TATA POWER	74.73	75.74	67.30	70.78	71.78	71.38	78.88	73.82	75.63	56.34	65.08	80.02	861.49
ELEC STEEL	1.32	1.51	1.13	0.84	1.41	1.39	1.81	1.63	1.81	1.56	1.47	1.66	17.54
CONCAST BENGAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TLDP #3	47.79	56.76	79.22	89.21	83.26	88.65	76.70	32.79	20.11	6.92	6.28	17.78	605.47
TLDP 3 4	49.18	63.45	104.09	112.77	105.95	105.19	91.44	29.39	16.89	10.53	7.63	12.78	709.27
Himadri chemical	4.55	5.32	5.33	6.52	6.43	3.26	4.66	5.63	5.01	2.45	6.47	4.88	60.49
Bengal energy	23.21	24.21	23.09	23.78	23.51	23.24	21.85	21.71	23.30	21.13	13.37	10.73	253.11
Crescen power	24.80	23.96	23.75	17.65	21.06	24.94	26.78	25.15	26.71	27.02	24.34	27.08	293.24
HEL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hiranmoyee	156.35	156.54	157.95	144.29	158.51	92.05	129.04	126.42	151.41	167.94	107.19	154.64	1702.33
TOTAL Support from CPP & IPPs	**393.23**	**414.56**	**474.34**	**478.06**	**483.96**	**421.12**	**443.43**	**325.82**	**329.58**	**305.31**	**242.18**	**320.83**	**4632.41**

Annexure VIII(C)

IMPORT BY DVC FROM CAPTIVE STATIONS AND IPPs DURING 2022-23

Apr_22	May_22	Jun_22	Jul_22	Aug_22	Sep_22	Oct_22	Nov_22	Dec_22	Jan_23	Feb_23	Mar_23	Total
7.35	8.82	13.02	7.91	9.40	7.91	11.96	11.03	8.68	4.40	4.20	3.63	**98.30**

Annexure VIII(D)

IMPORT BY JUVNL FROM CAPTIVE STATIONS AND IPPs DURING 2022-23

Apr_22	May_22	Jun_22	Jul_22	Aug_22	Sep_22	Oct_22	Nov_22	Dec_22	Jan_23	Feb_23	Mar_23	Total
42.22	43.75	39.62	25.99	39.28	33.03	33.79	35.71	39.21	37.16	33.58	39.58	**442.93**

Annexure IX

Month	Frequency range(Hz) in % of time			Instantaneous Frequency						Integrated Frequency				MONTHLY AVERAGE FREQUENCY
	<49.9	49.9-50.05	>50.05	MAX	Date	Hrs	MIN	Date	Hrs	MAX	Date	MIN	Date	
Apr_22	31.98	59.24	8.78	50.26	14.04.2022	18:02	49.43	19.04.22	14:09	50.17	08.04.22	49.51	27.04.22	49.93
May_22	9.83	72.22	17.95	50.35	22.05.22	08:02	49.5	03.05.22	14:55	50.31	23.05.22	49.58	03.05.22	50.00
Jun_22	12.45	73.37	14.18	50.36	19.06.22	13:07	49.48	13.06.22	16:45	50.28	19.06.22	49.6	02.06.22	49.98
Jul_22	7.74	73.79	18.46	50.3	03.07.22	16:07	49.46	18.07.22	19:20	50.24	03.07.22	49.52	18.07.22	50.00
Aug_22	8.77	75.76	15.46	50.3	15.08.22	13:41	49.47	25.08.22	19:24	50.28	15.08.22	49.53	25.08.22	50.00
Sep_22	5.94	80.76	13.29	50.31	16.09.22	13:02	49.5	02.09.22	19:19	50.21	16.09.22	49.66	02.09.22	50.00
Oct_22	4.88	78.26	16.87	50.41	24.10.22	13:06	49.53	25.10.22	18:12	50.32	24.10.22	49.71	25.10.22	50.00
Nov_22	6.7	76.99	16.31	50.27	20.11.22	06:02	49.44	08.11.22	18:30	50.17	21.11.22	49.67	06.11.22	50.00
Dec_22	12.84	57.47	29.7	50.55	26.12.22	06:08	49.41	25.12.22	18:30	50.45	20.12.22	49.46	25.12.22	50.00
Jan_23	13.3	58.7	27.99	50.49	23.01.23	17:03	49.42	09.01.23	14:45	50.3	23.01.23	49.46	20.01.23	50.00
Feb_23	10.75	64.68	24.57	50.4	10.02.23	13:03	49.51	09.02.23	11:46	50.33	10.02.23	49.68	15.02.23	49.99
Mar_23	9.18	65.63	25.19	50.48	04.03.23	18:02	49.56	07.03.23	15:16	50.27	20.03.23	49.67	30.03.23	50.00

ENERGY GENERATION BY VARIOUS POWER STATIONS AND PLANT LOAD FACTOR OF THERMAL STATIONS

OF EASTERN REGION FOR THE YEAR 2020-21 , 2021-22 & 2022-23

(Comparison Statement)

SYSTEM	TYPE	POWER STATION	INSTALLED CAPACITY IN MW as on 31.03.2020	EFFECTIVE CAPACITY IN MW as on 31.03.2023	2020-21		2021-22		2022-23	
					Generation (MU)	PLF (%)	Generation (MU)	PLF (%)	Generation (MU)	PLF (%)
BSPHCL	Th	NTPC, BTPS(U#6&7)	220.00	210.00	60.90	3.31	97.50	5.30	31.20	1.27
		NTPC, BTPS(U#8)	250.00	250.00	1261.78	57.62	1588.08	72.52	1588.21	79.82
		NTPC, BTPS(U#9)	250.00	250.00	79.28	58.25	725.09	80.03	1658.14	83.60
		NTPC MUZAFFARPUR TPS Stg.I	220.00	0.00	224.27	11.64	247.19	12.83	0.00	0.00
		Thermal Total	690.00	710.00	**1626.23**	**42.99**	**2657.86**	**55.28**	**3277.55**	**57.92**
	RES		341.25	378.35	334.86		315.60		373.84	
Total BSPHCL			1031.3	1088.4	**1961.09**		**2973.5**		**3651.4**	
JUVNL	Hy	Subarnrekha	130.00	130.00	50.03		302.47		168.96	
	RES		46.75	97.14	0.00		0.00		0.00	
TVNL	Th	Tenughat TPS	420.00	420.00	2237.96	60.83	1767.12	48.03	2587.53	70.27
	Th	JOJOBERA	240.00	240.00					1321.21	94.39
DVC	Th	Bokaro-B (U #3)	210.00	0.00	18.59	1.01	0.00	0.00	0.00	0.00
		Chandrapura(U 7-8)	500.00	500.00	3268.57	74.62	3816.85	87.14	3478.14	79.41
		Durgapur(U #4)	210.00	210.00	135.82	7.38	215.12	11.69	135.12	9.75
		Mezia(U 1-6)	1340.00	1340.00	7009.59	59.72	8190.96	69.78	8403.36	71.59
		Mezia(U 7-8)	1000.00	1000.00	5819.21	66.43	6408.20	73.15	7264.83	82.93
		Durgapur STPS (U 1-2)	1000.00	1000.00	5780.97	65.99	6138.49	70.07	7096.24	81.01
		Koderma STPS (U 1-2)	1000.00	1000.00	7508.96	85.72	6930.29	79.11	7269.62	82.99
		Raghunathpur (U 1-2)	1200.00	1200.00	5225.68	49.71	6078.72	57.83	5641.51	53.67
		Bokaro-A (U 1)	500.00	500.00	3271.48	74.69	2996.85	68.42	3796.10	86.67
		Thermal Total	6960.00	6750.00	**38038.87**	**62.39**	**40775.48**	**68.96**	**43084.91**	**73.43**
	Hy	Maithon	63.20	63.20	194.03		221.42		100.68	
		Panchet	80.00	80.00	173.09		245.46		136.46	
		Tilaya	4.00	4.00	9.69		22.02		2.41	
		Hydro Total	147.20	147.20	**376.81**		**488.90**		**239.55**	
	RES	RES(Small Hy+Solar)			0.00		0.00		0.00	
Total DVC			7107.20	6897.20	**38415.68**		**41264.38**		**43324.46**	
WBPDCL	Th	Bandel (1,2,5)	320.00	275.00	1170.81	39.90	1730.09	58.95	1855.19	77.01
		Santaldih(U 5-6)	500.00	500.00	3442.94	78.61	3904.04	89.13	4001.76	91.36
		Kolaghat	840.00	840.00	1769.36	16.03	4271.63	38.70	4970.38	67.55
		Bakreswar	1050.00	1050.00	7896.54	85.85	8313.79	90.39	8497.25	92.38
		Sagardighi TPS	1600.00	1600.00	9596.13	68.47	11885.72	84.80	12529.52	89.39
		DPPS	550.00	550.00	2789.51	57.90	2568.16	53.30	2706.20	0.00
Total WBPDCL			5340.00	4815.00	**26665.29**	**57.49**	**32673.43**	**70.44**	**34560.29**	**81.94**
WBSEDCL	Hy	Jaldhaka	35.00	35.00	201.48		178.13		168.65	
		Ramam	51.00	50.92	254.70		268.31		245.62	
		Teesta CF	67.50	67.50	31.08		72.69		139.33	
		Purulia PSP	900.00	900.00	1306.44		1183.40		1578.06	
Total WBSEDCL			1053.50	1053.50	**1793.70**		**1702.53**		**2131.66**	
		RES	527.29	586.95	155.70		170.68		225.97	
	Total (WBPDCL+WBSEDCL+RES)		6,921	6,455	**28,614.69**		**34546.64**		**36917.92**	
DVC, DTPS U#3(140 MW) decommissioned on 10.03.2016										
DVC, CTPS U#1,2,3 (140 MW each) decommissioned on 13.01.2017,30.07.2017 & 19.03.2020 rev										
DVC, BTPS-B U#1&2(2X210 MW each) decommissioned on 30.07.2017										
WBPDCL, BTPS U#3 &U#4 (82.5 MW each)decommissioned from 01.04.2018										
DPL,DPPS U#6 (110 MW) decommissioned on 28.01.2020										

ANNEXURE-X (Page-2/2)

ENERGY GENERATION BY VARIOUS POWER STATIONS AND PLANT LOAD FACTOR OF THERMAL STATIONS

OF EASTERN REGION FOR THE YEAR 2020-21 , 2021-22 & 2022-23

(Comparison Statement)

SYSTEM	TYPE	POWER STATION	INSTALLED CAPACITY 1N MW as on 31.03.2020	EFFECTIVE CAPACITY IN MW as on 31.03.2023	2020-21		2021-22		2022-23	
					Generation (MU)	PLF (%)	Generation (MU)	PLF (%)	Generation (MU)	PLF (%)
		Titagarh	240.00	240.00	0.00	0.00	0.00		0.00	0.00
CESC	Th	**Southern**	135.00	135.00	89.89	7.60	164.03	13.87	635.68	53.75
		Budge-Budge	750.00	750.00	5422.68	82.54	5562.03	84.66	5330.69	81.14
	Total CESC		1125.00	1125.00	**5512.57**	**55.9**	**5726.06**	**58.10**	**5966.37**	**60.54**
HEL	Th	Haldia	600.00	600.00	4224.93	80.38	4275.64	81.35	4219.34	81.14
	Total West Bengal (Incl. CESC & HEL)			9305.45	**38352.19**	59.2	**44548.34**		**47103.62**	
	TH (OPGC)	IB TPS (U#1 &2)	420.00	420.00	2609.84	70.9	2955.80	80.34	2779.51	75.55
		1B TPS (U# 3)	660.00	660.00	2401.88	41.5	3344.41	57.85	4573.52	79.10
		IBTPS9J# 4)	660.00	660.00	3620.49	62.6	3723.83	64.41	4357.39	75.37
		Total Thermal		1740.00	**8632.21**	**62.5**	**10024.0**	**65.76**	**11710.43**	**75.55**
	OHPC, HYDRO	Burla (Hiraltud-1)	275.50	287.80	628.17		707.38		904.80	
		Chipilma (Hiraltud-11)	72.00	72.00	324.74		268.23		326.07	
		Balimela	510.00	510.00	1656.10		1062.08		1004.55	
		Rengali	250.00	250.00	1013.72		866.36		758.55	
		Upper Kolab	320.00	320.00	812.82		451.19		544.40	
		Indrayati HPS	600.00	600.00	1757.40		1156.64		1380.86	
		Megd.(Oriesa dr)	57.38	57.38	303.25		277.30		235.17	
		Hydro Total	2084.88	2097.18	6496.20		**4789.18**		**5154.40**	
	RES	RES	511.21	607.09	601.42		700.24		729.18	
Total ODISHA (NTPC +OPGC+OHPC+RES)			3486.09	4444.27	**15729.83**		**15513.46**		**17594.01**	
SIKKIM"	**RES**	Total	52.18	56.79	16.00		17.00		17.00	
NTPC	**THERMAL**	**FSTPS - I& II**	1600.00	1600.00	8754.84	62.46	9269.51	66.14	9651.55	68.86
		FSTPS - III (U#6)	500.00	500.00	3173.74	72.46	3151.67	71.96	2750.78	62.80
		KhSTPP-I & II	2340.00	2340.00	13231.17	64.55	16026.67	78.19	15595.58	76.08
		TSTPP - I	2340.00	1000.00	7369.73	84.13	7257.16	82.84	7572.53	86.44
		BARH STPS -I	0.00	660.00	0.00		1700.12	76.66	4069.96	70.40
		BARH STPS - II	1320.00	1320.00	7803.80	67.49	7452.26	64.45	9074.41	78.48
		Muzaffarpur Stg-II	390.00	390.00	2244.68	65.70	2602.34	76.17	2991.94	87.58
		BRBCL	750.00	1000.00	4264.44	64.91	5700.57	70.79	6926.76	79.07
		Nabinagar STPP U#1 & U#2	660.00	1320.00	4639.74	80.25	8245.25	68.51	12933.86	78.51
		Darlipali STPP U#1 & U#2		1600.00	4775.88	68.15	9207.90	68.15	11317.49	80.75
	Total NTPC		9360.00	11730.00	**56258.02**	**68.61**	**70613.45**	**68.61**	**83485.67**	**76.91**
	RES	Takher Solar	10	10	13.43		12.85		13.04	
NHPC	Hy	Rangit	60	60	283.19		331.06		323.25	
		Teesta HEP-V	510	510	2807.81		2647.48		2836.21	
		TLDP (NHPC)	292	292	1241.00		1322.76		1314.70	
Total NHPC			862.00	862.00	**4332.00**		**4301.30**		**4474.15**	
EASTERN REGION		THERMAL (exclud.. IPP)	28130.00	27825.00	146732.50	62.79	168513.40	66.48	191756.56	74.55
		HYDRO (exclud. IPP)	4277.58	4289.98	13048.74		11584.30		19272.09	
		RES(Small Hy+Solar)	1489	1636	1121.4		1216.00		1462.90	
IPP	**Th**	MPL (U 1&2)	1050	1050	6383.23	69.40	7489.22	69.40	7555.12	82.18
		APNRL (U 1&2)	540	540	3034.34	64.15	3727.35	64.15	3506.78	73.93
		GMR (U 1-2)	700	1050	4819.75	78.60	4880.62	78.60	4700.06	82.14
		JITPL(U 1-2)	1200	1200	5936.34	56.47	8559.41	56.47	7842.77	74.13
		Total IPP (Thermal)	3490	1200	**20173.66**	**65.99**	**24656.60**	**65.99**	**23604.72**	**78.13**
	Hy	CHUZACHEN (U I-2)	110	110	482.67		507.79		492.59	
		JORTHANG (U# 1&2)	96	96	397.61		442.63		431.53	
		Teesta Urja St III	1200	1200	5997.87		6257.96		6103.42	
		DIKCHU(U 1-2)	96	96	464.84		484.49		537.44	
		TASHIDING (U 1-2)	97	97	368.51		451.15		443.24	
		RONGNICHU	113	113	0.00		301.68		429.12	
		Total IPP (Hydel)	1599.00	1712.00	**7711.50**		**8445.70**		**8437.34**	
EASTERN REGION		THERMAL (INCL. IPP)	30195.00	31315.00	**166906.16**	**63.16**	**193170.00**	**68.02**	**215361.28**	**75.63**
		HYDRO	5876.58	6541.98	**20760.24**		**20030.00**		**27709.43**	
		RES	1488.68	1636	**1121.41**		**1216.00**		**1462.90**	
		TOTAL(TH+HY+RES)	37560.26	39492.98	**188787.81**		**214416.00**		**237446.70**	
IMPORT FROM BHUTAN	**Hy**	CHPC	336.00	336.00	1979.25		1716.81		1569.95	
		KHPS	60.00	60.00	402.88		122.22		28.65	
		TALA HPS	1020.00	1020.00	3182.69		2740.27		2417.33	
		DAGACHU	126.00	126.00	502.10		500.53		422.43	
		Mangdehha HEP ..	720.00	720.00	3184.78		2860.48		2648.51	
		Total Bhutan Import	2076.00	2076.00	**9251.70**		**7940.31**		**7086.87**	
GRAND TOTAL (TH+HY) INCLUDING IMPORT FROM BHUTAN					**198039.51**		**222356.51**		**244533.57**	

* Sikkim's data are estimated as actual data not received.

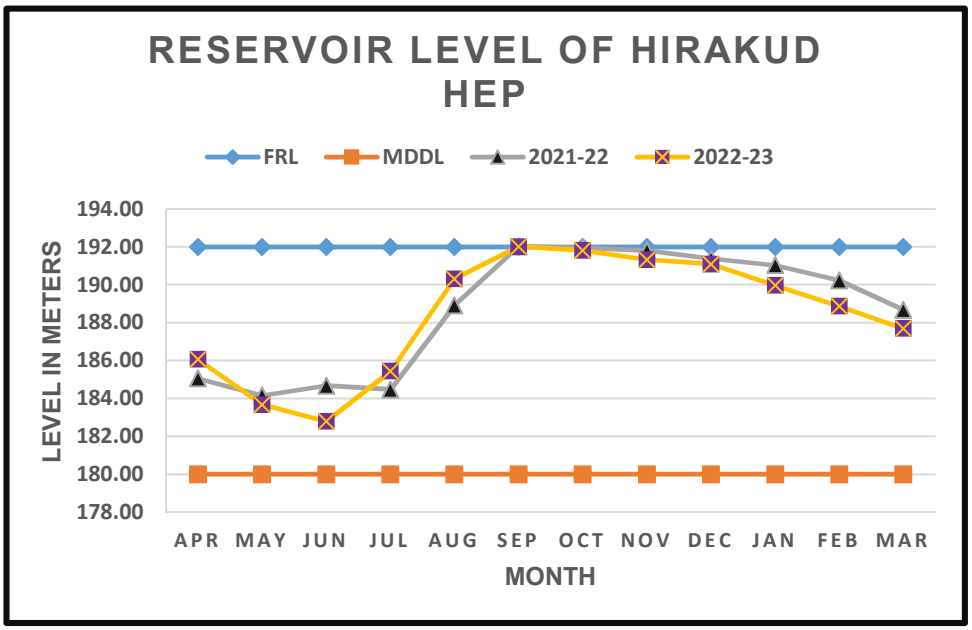
** All the figures considered above for operational data,need not to be used for any commercial purposes

WATER LEVEL IN MAJOR HYDRO RESERVOIRS IN THE REGION DURING 2022-23
(On Last Day of the month)

RESERVOIR LEVEL OF HIRAKUD HEP

All Figs in meters

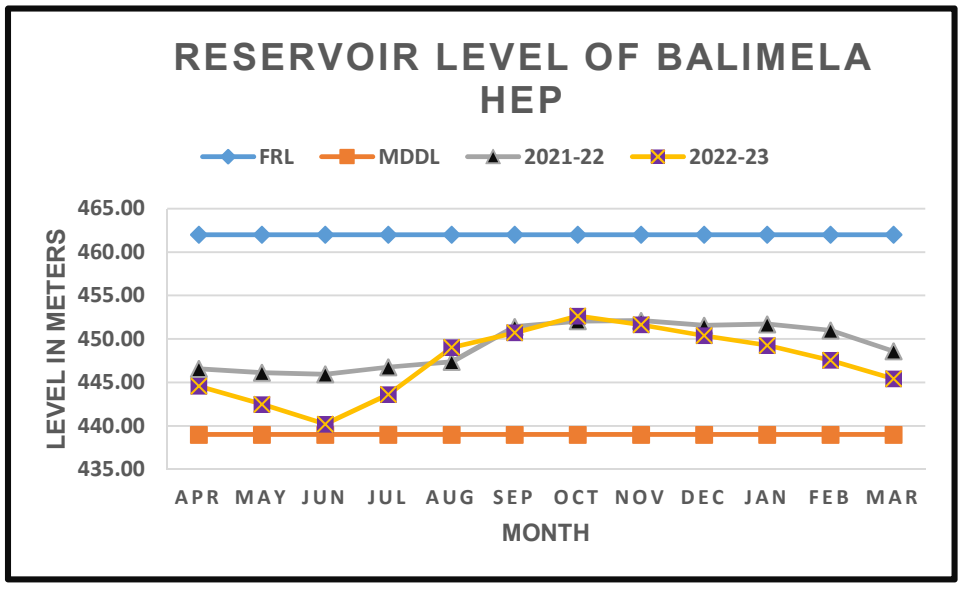
Month	FRL	MDDL	2021-22	2022-23
Apr	192.00	180.00	185.06	186.07
May	192.00	180.00	184.16	183.68
Jun	192.00	180.00	184.68	182.80
Jul	192.00	180.00	184.47	185.45
Aug	192.00	180.00	188.91	190.31
Sep	192.00	180.00	192.02	192.02
Oct	192.00	180.00	191.95	191.81
Nov	192.00	180.00	191.81	191.33
Dec	192.00	180.00	191.38	191.09
Jan	192.00	180.00	191.03	189.97
Feb	192.00	180.00	190.23	188.87
Mar	192.00	180.00	188.68	187.69



RESERVOIR LEVEL OF BALIMELA HEP

All Figs in meters

Month	FRL	MDDL	2021-22	2022-23
Apr	462.00	439.00	446.56	444.58
May	462.00	439.00	446.14	442.51
Jun	462.00	439.00	445.95	440.22
Jul	462.00	439.00	446.78	443.64
Aug	462.00	439.00	447.39	449.03
Sep	462.00	439.00	451.41	450.74
Oct	462.00	439.00	452.05	452.66
Nov	462.00	439.00	452.11	451.65
Dec	462.00	439.00	451.56	450.40
Jan	462.00	439.00	451.71	449.28
Feb	462.00	439.00	451.01	447.57
Mar	462.00	439.00	448.60	445.43

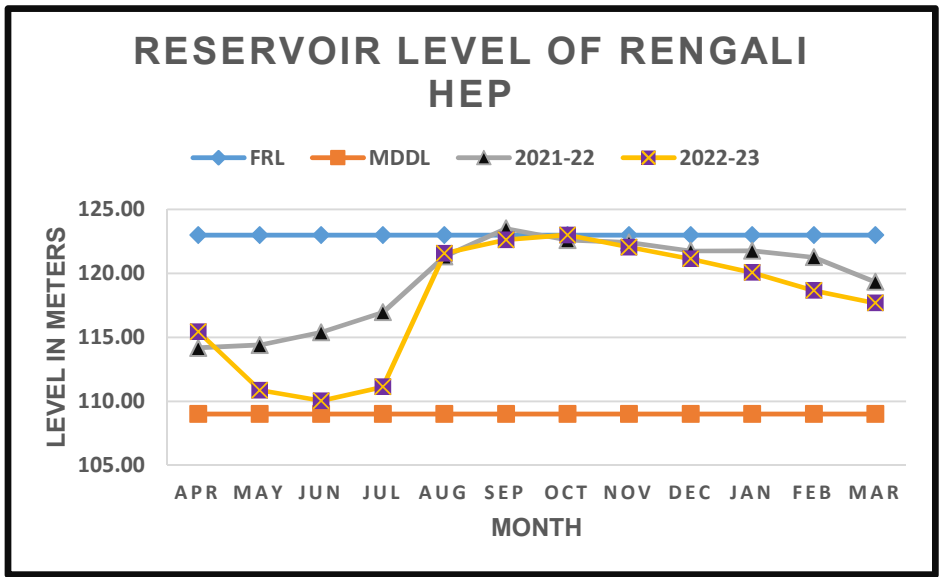


FRL: Full reservoir Level **MDDL**:Minimum Draw down Level

RESERVOIR LEVEL OF RENGALI HEP

All Figs in meters

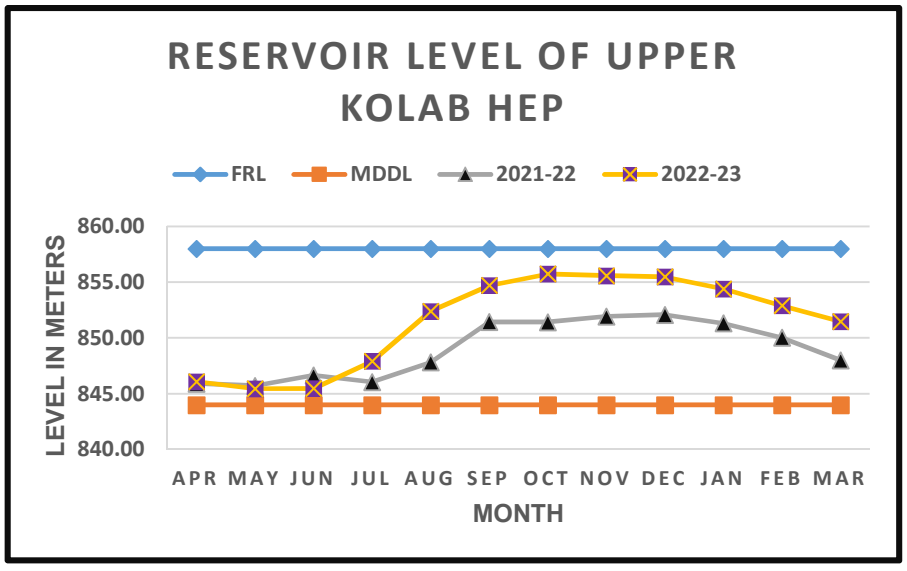
Month	FRL	MDDL	2021-22	2022-23
Apr	123.00	109.00	114.18	115.45
May	123.00	109.00	114.40	110.87
Jun	123.00	109.00	115.40	110.04
Jul	123.00	109.00	116.97	111.14
Aug	123.00	109.00	121.34	121.59
Sep	123.00	109.00	123.53	122.64
Oct	123.00	109.00	122.61	123.01
Nov	123.00	109.00	122.42	122.06
Dec	123.00	109.00	121.78	121.15
Jan	123.00	109.00	121.78	120.07
Feb	123.00	109.00	121.28	118.67
Mar	123.00	109.00	119.35	117.69



RESERVOIR LEVEL OF UPPER KOLAB HEP

All Figs in meters

Month	FRL	MDDL	2021-22	2022-23
Apr	858.00	844.00	845.92	846.09
May	858.00	844.00	845.72	845.46
Jun	858.00	844.00	846.66	845.47
Jul	858.00	844.00	846.06	847.91
Aug	858.00	844.00	847.83	852.4
Sep	858.00	844.00	851.44	854.71
Oct	858.00	844.00	851.42	855.74
Nov	858.00	844.00	851.95	855.59
Dec	858.00	844.00	852.09	855.48
Jan	858.00	844.00	851.33	854.41
Feb	858.00	844.00	850.03	852.91
Mar	858.00	844.00	848.01	851.48

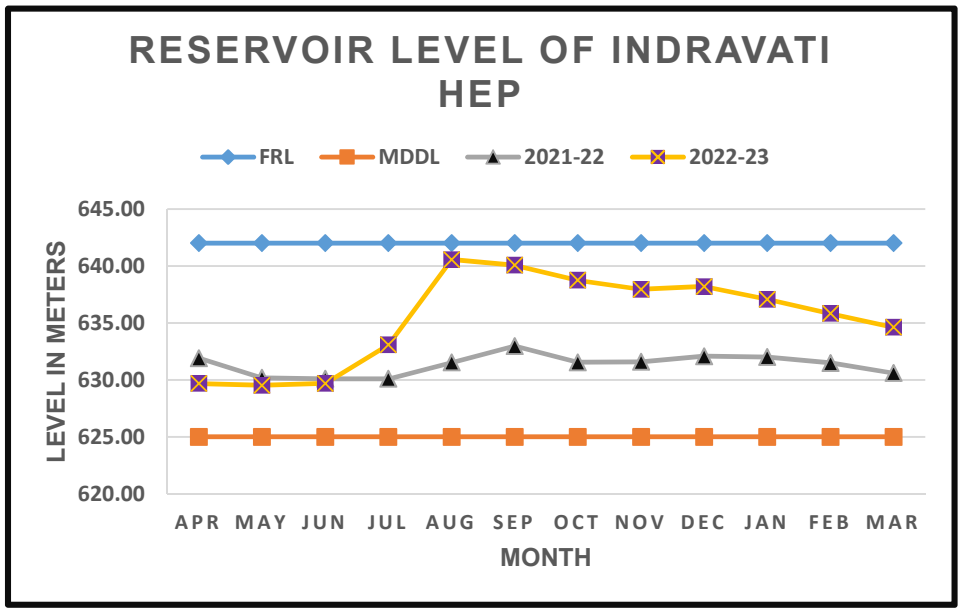


FRL: Full reservoir Level **MDDL**:Minimum Draw down Level

RESERVOIR LEVEL OF INDRAVATI HEP

All Figs in meters

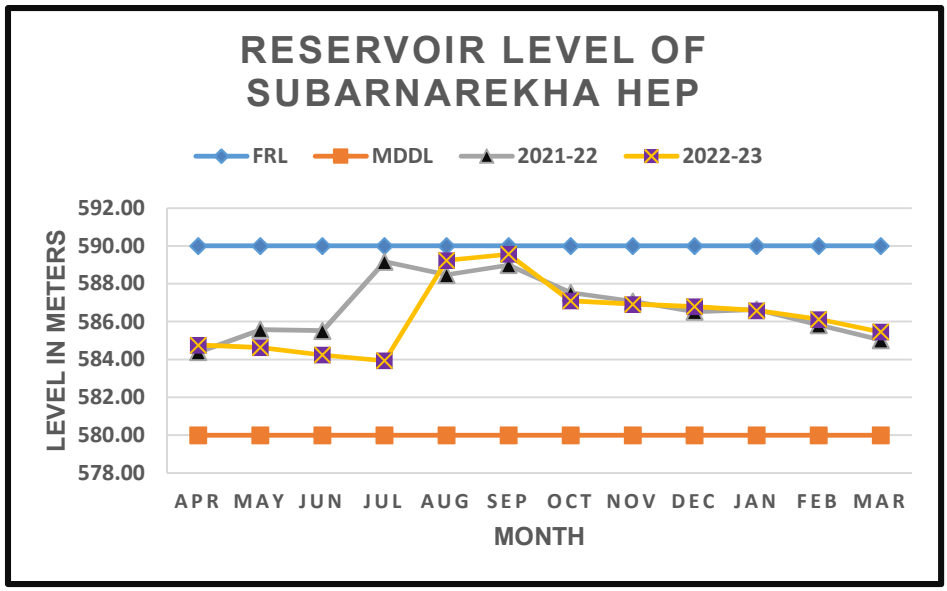
Month	FRL	MDDL	2021-22	2022-23
Apr	642.00	625.00	631.90	629.68
May	642.00	625.00	630.18	629.52
Jun	642.00	625.00	630.10	629.69
Jul	642.00	625.00	630.10	633.09
Aug	642.00	625.00	631.53	640.55
Sep	642.00	625.00	632.97	640.06
Oct	642.00	625.00	631.54	638.75
Nov	642.00	625.00	631.59	637.94
Dec	642.00	625.00	632.08	638.20
Jan	642.00	625.00	632.01	637.07
Feb	642.00	625.00	631.48	635.83
Mar	642.00	625.00	630.60	634.62



RESERVOIR LEVEL OF SUBARNAREKHA HEP

All Figs in meters

Month	FRL	MDDL	2021-22	2022-23
Apr	590.00	580.00	584.39	584.76
May	590.00	580.00	585.58	584.64
Jun	590.00	580.00	585.52	584.24
Jul	590.00	580.00	589.18	583.94
Aug	590.00	580.00	588.48	589.24
Sep	590.00	580.00	589.00	589.57
Oct	590.00	580.00	587.53	587.11
Nov	590.00	580.00	587.08	586.92
Dec	590.00	580.00	586.53	586.80
Jan	590.00	580.00	586.65	586.59
Feb	590.00	580.00	585.83	586.13
Mar	590.00	580.00	585.03	585.46



FRL: Full reservoir Level **MDDL**:Minimum Draw down Level

ANNEXURE-XII

Under Construction Thermal Power Projects of Eastern Region(As on 31.03.2023)

State	Project Name	Implementing Agency	Unit No.	Capacity(MW)	Anticipated Trial run
Bihar	Barh STPP-I	NTPC	2	660	01-04-2024

Under Construction Hydro Power Projects of Eastern Region(As on 31.03.2023)

State	Project Name	Implementing Agency	Unit No.	Capacity(MW)	Likely Commissioning
Sikkim	Teesta-VI	LTHPL	All	500	July'25
Sikkim	Rangit IV	JPCL	All	120	Aug'25

Annexure-XIII

STATUS OF CONSTRUCTION OF TRANSMISSION LINES (220 kV & ABOVE) IN DURING THE YEAR - 2022-23 (As on 31-MAR-2023)

Sl No	Name of Transmission Lines	Ckts (S/C) & (D/C)	Voltage Level (kV)	Total Length (cKm)	Progress Status of Transmission				Target Date		Tag Names	Remarks
					Total Locations (Nos)	Foundation completed (Nos)	Tower Erected (Nos)	Stringing completed (CKm)	Schedule	Revised/ Anticipated		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
DAMODAR VALLEY CORPORATION (DVC)												
1	MTPS - Ramgarh (Bypassing Gola SS)	S/C	220	211	687	687	687	211	MAY-22	JUL-22	RFD	Commissioned 06/22.
2	MTPS- Ranchi (PG) (Bypassing Gola SS)	S/C	220	232	784	784	784	232	MAY-22	JUL-22	RFD	Commissioned 06/22.
3	Parulia - Burdwan line	D/C	220	207	337	337	337	207	JUN-22	OCT-22	RFD	Commissioned 09/22.
POWER GRID CORPORATION OF INDIA LIMITED (PGCIL)												
8	Jeerat (New) - Subhasgram (PM-JTL-TBCB)	D/C	400	214	312	312	312	214	MAY-22	SEP-22	RFD	Commissioned 08/22.
12	LILO of Kishanganj (POWERGRID) - Darbhanga (DMTCL) (QUAD) line at Saharsa (New)	D/C	400	78	114	114	114	78	APR-22	MAY-22	RFD	Commissioned 04/22.
17	Re-conductoring of Maithon RB - Maithon line	D/C	400	63	0	0	0	63	APR-22	AUG-22	RFD	Commissioned 05/22 (Late Reported).
BIHAR STATE POWER TRANSMISSION COMPANY LIMITED (BSPTCL)												
1	Biharsharif - Asthawan (New)	D/C	220	40	0	0	0	40	APR-22	MAY-22	RFD	Commissioned 04/22.
2	Karmnasa (New) - Pusauli (BSPTCL) (TM)	D/C	220	73	127	127	127	73	JUL-22	AUG-22	RFD	Commissioned 07/22.
3	LILO of (Quad) Barh - Patna at Bakhtiyarpur (New)	D/C	400	10	61	49	43		APR-22	FEB-23	RFD	ROW issues.
4	Muzaffarpur (PG) - Chhapra (New)	D/C	220	129	207	207	207	129	APR-22	JAN-23	RFD	Commissioned 12/22.
5	Muzaffarpur (PG) - Gouraul line	D/C	220	20	70	70	70	20	APR-22	JUN-22	RFD	Commissioned 05/22.
6	Pusouli (New) - Dehri	D/C	220	62	159	135	110	18	MAY-22	MAR-23	RFD	work under progress
7	Raxaul (New) - Gopalganj (TM/ Single Zebra)	D/C	220	130	201	201	201	130	SEP-22	AUG-22	RFD	Commissioned 06/22 (Late Reported).
8	Saharsa (New) - Begusarai	D/C	220	187	289	289	289	187	APR-22	AUG-22	RFD	Commissioned 07/22.
9	Saharsa (New) - Khagaria (New)	D/C	220	72	236	236	236	72	APR-22	MAY-22	RFD	Commissioned 04/22.
10	Sheiikhopursarai-Asthawan (New)	D/C	220	35	0	0	0	35	APR-22	JUL-22	RFD	Commissioned 06/22.
11	Tajpur- Goraul line	D/C	220	102	0	0	0		AUG-22	MAR-23	RFD	
12	Tajpur- Samastipur (New) Trans. line	D/C	220	37	0	0	0		AUG-22	MAR-23	RFD	
ENERGY & POWER DEPARTMENT,GOVT. OF SIKKIM (SPD)												
1	Dikchu -Singhik	D/C	220	22					JUN-22		RFD	
2	Samardong - Dikchu Pool	D/C	220	23					APR-22		RFD	
ORISSA POWER TRANSMISSION CORPORATION LTD. (OPTCL)												
1	LILO of Balimela-Malkangir line at Kalimela	D/C	220	72	128	128	128	72	JUL-22	DEC-22	RFD	Commissioned 11/22.
2	LILO of Budhipadar - Tarkera at Bamra	S/C	220	11	39	39	39	11	NOV-22	AUG-22	RFD	Commissioned 07/22.
3	LILO of Budhipadar - Tarkera at Kuanramunda	D/C	220	32	66	66	66	32	OCT-22	FEB-23	RFD	Commissioned 01/23.
4	LILO of Duburi - Balasore at Dhamra	D/C	220	70	133	133	116	56	JAN-23	MAR-23	RFD	Schedule of Completion may be made as June 20
5	Pandiabili PGCIL - Pratapsasan line	D/C	220	61	114	114	114	60	MAY-22	JUN-22	RFD	Commissioned 05/22.
SIKKIM POWER DEVELOPMENT CORPORATION LTD. (SIKKIM)												
1	Samardong - Dikchu Pool line	D/C	220	45	0	0	0	45	APR-22	APR-23	RFD	Commissioned 02/23 (Late Reported).

Sl No	Name of Transmission Lines	Ckts (S/C) & (D/C)	Voltage Level (kV)	Total Length (cKm)	Progress Status of Transmission				Target Date		Tag Names	Remarks
					Total Locations (Nos)	Foundation completed (Nos)	Tower Erected (Nos)	Stringing completed (CKm)	Schedule	Revised/ Anticipated		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
WEST BENGAL STATE ELECTRICITY TRANSMISSION CO. LIMITED (WBSETCL)												
1	Bhangar (UG Cable) (PGCIL) -New Town-IIC (GIS) S/S	D/C	220	18	0	0	0		OCT-22	MAR-23	RFD	
2	Gokarna - New Chanditala	D/C	400	360	532	532	532	360	JUN-22	JUN-22	RFD	Commissioned 05/22.
3	Jeerat - Krishnanagar	D/C	220	114	0	0	0		JUL-22	DEC-22	RFD	
4	LILO of Durgapur - Asansole Tr. Line at proposed Mongalpur 220kV GIS	D/C	220	2	0	0	0		JUN-22	MAR-23	RFD	
5	LILO of Howarh-KTPP at Jangalpur 220 kV GIS	D/C	220	1	0	0	0		JUL-22	MAR-23	RFD	
6	LILO of KTPP-Howrah at Proposed Food Park (GIS) s/s	D/C	220	2	0	0	0	2	JUL-22	APR-23	RFD	Commissioned 12/22 (Late Reported).
7	Rajarhat (PGCIL) - Barasat 220kV s/s	D/C	220	17	0	0	0	17	MAY-22	JUN-22	RFD	Commissioned 05/22.
ADANI POWER LTD. (APL)												
5	North Karanpura - Chandwa (Jharkhand) NKSTPP line (NKTL -TBCB)	M/C	400	26	42	42	42	26	JAN-23	NOV-22	RFD	Commissioned 10/22.
6	North Karanpura - Chandwa (Jharkhand) PS line (NKTL -TBCB)	D/C	400	50	73	73	73	50	JAN-23	NOV-22	RFD	Commissioned 10/22.

ANNEXURE-XIVA

% SHARE ALLOCATION FOR THE MONTH OF APRIL,2022(FIRST MONTH OF FY 2022-23)

	Station	Farakka I&II	Farakka III	Khalgaonl	KhalgaonII	Talcher I	Barh	Barh-I	NPGC	Rangeet	Teesta	Chukha	Kurichu	Tala	Mangdechhu	KBUNL-II Unit 1	Darlipali STPS-I
INSTALLED CAPACITY / REGION	STATES	1600	500	840	1500	1000	1320	660	1980	60	510	270	60	1020	720	390	1600
ER	BIHAR	31.398	21.518	41.873	4.980	41.245	90.803	60.906	84.766	35.000	21.260	29.630	0.000	25.500	36.870	74.973	11.860
	JHARKHAND	8.574	10.135	3.205	1.249	7.668	0.308	0.540	0.000	13.330	12.340	10.740	0.000	11.460	0.000	0.100	9.220
	DVC	0.000	0.000	0.000	0.000	0.200	0.000	0.000	0.000	10.000	8.640	10.370	50.000	5.540	0.000	0.000	0.000
	ODISHA	0.554	17.150	0.536	2.621	32.344	0.000	1.118	0.000	0.000	20.590	15.190	0.000	4.250	10.970	0.248	58.820
	WEST BENGAL	32.849	38.558	6.991	0.919	10.129	0.000	0.000	0.000	28.340	23.980	31.850	50.000	38.250	32.140	0.280	18.350
	SIKKM	0.000	0.000	0.000	0.000	0.000	0.008	0.102	0.012	13.330	13.190	2.220	0.000	0.000	0.000	0.000	0.875
SR	ANDHRA PRADESH	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	KARNATAKA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	TELANGANA	0.752	0.734	0.684	0.763	0.713	0.678	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.279	0.000
	TAMIL NADU	1.290	0.000	0.700	0.000	0.850	8.088	13.617	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24.120	0.000
	KERALA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	PONDICHERRY	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WR	CHATTISGARH	0.000	0.000	0.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	GUJARAT	15.950	11.814	16.790	9.730	2.400	0.000	23.718	3.810	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.875
	MADHYA PRADESH	0.000	0.000	0.000	4.930	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	MAHARASHTRA	0.000	0.000	0.000	9.870	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	D & N H	0.000	0.000	0.000	0.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	D & D	0.000	0.000	0.000	0.130	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	GOA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NR	UTTAR PRADESH	2.080	0.000	9.120	16.730	0.000	0.000	0.000	11.412	0.000	0.000	0.000	0.000	4.410	0.000	0.000	0.000
	HARYANA	0.690	0.000	3.040	4.580	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.470	0.000	0.000	0.000
	RAJASTHAN	0.000	0.000	3.040	7.110	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.470	0.000	0.000	0.000
	JAMMU & KASHMIR	0.850	0.000	3.680	5.560	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.770	0.000	0.000	0.000
	HIMACHAL PRADESH	0.000	0.000	0.000	1.530	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	DELHI	1.390	0.000	6.070	10.490	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.940	0.000	0.000	0.000
	PUNJAB	0.000	0.000	0.000	8.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.940	0.000	0.000	0.000
	UTTARAKHAND	0.000	0.000	0.000	1.870	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	CHANDIGARH	0.000	0.000	0.000	0.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NER	ASSAM	2.548	0.092	2.200	5.185	2.187	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.020	0.000	0.000
	MEGHALAYA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	NAGALAND	0.430	0.000	0.425	0.000	0.425	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	ARUNACHAL PRADESH	0.192	0.000	0.192	0.000	0.197	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	MIZORAM	0.142	0.000	0.142	0.000	0.142	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OTHERS	PG	0.000	0.000	0.119	0.000	0.000	0.114	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	NVVN BAN	0.313	0.000	1.193	1.333	1.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	MPL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Tata Steel	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Indian Rlys	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	NTPC Badarpur	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL		100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

ANNEXURE-XIVB

% SHARE ALLOCATION FOR THE MONTH OF MARCH,2023(LAST MONTH OF FY 2022-23)

	Station	Farakka I&II	Farakka III	KhalgaonI	KhalgaonII	Talcher I	Barh-II	Barh-I	NPGC	Rangeet	Teesta	Chukha	Kurichu	Tala	Mangdechhu	KBUNL-II Unit 1	Darlipali STPS-I	North Karanpura
INSTALLED CAPACITY(MW) / REGION	STATES	1600	500	840	1500	1000	1320	660	1980	60	510	270	60	1020	720	390	1600	660
ER	BIHAR	30.236	19.187	40.823	4.113	40.203	86.336	57.803	82.670	38.802	27.159	34.198	5.501	25.500	39.263	72.502	19.899	44.655
	JHARKHAND	7.353	11.208	2.086	0.613	6.572	1.294	0.899	1.645	12.982	11.949	10.221	0.820	11.460	1.181	0.716	9.303	26.726
	DVC	0.000	0.000	0.000	0.000	0.200	0.000	0.000	0.000	10.000	8.640	10.370	50.000	5.540	0.000	0.000	0.000	0.000
	ODISHA	1.872	18.788	1.737	3.452	33.527	1.755	1.219	0.861	1.778	19.293	14.764	1.111	4.250	10.931	0.970	51.984	22.001
	WEST BENGAL	33.807	37.909	7.863	1.523	10.988	1.274	0.885	0.625	24.621	21.628	28.450	42.477	38.250	28.482	0.705	17.031	6.453
	SIKKIM	0.108	0.134	0.098	0.068	0.097	0.144	0.100	0.239	11.816	11.331	1.998	0.091	0.000	0.131	0.080	0.908	0.164
SR	ANDHRA PRADESH	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	KARNATAKA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	TELANGANA	0.752	0.734	0.684	0.763	0.713	0.678	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.279	0.000	0.000
	TAMIL NADU	1.290	0.000	0.700	0.000	0.850	8.405	14.259	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24.748	0.000	0.000
	KERALA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	PONDICHERRY	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WR	CHATTISGARH	0.000	0.000	0.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	GUJARAT	15.950	11.948	16.790	9.730	2.400	0.000	24.835	2.548	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.875	0.000
	MADHYA PRADESH	0.000	0.000	0.000	4.930	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	MAHARASHTRA	0.000	0.000	0.000	9.870	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	DADRA & NAGAR HAVELI	0.000	0.000	0.000	0.330	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	DAMAN & DIU	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	GOA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NR	UTTAR PRADESH	2.080	0.000	9.120	16.730	0.000	0.000	0.000	11.412	0.000	0.000	0.000	0.000	4.410	0.000	0.000	0.000	0.000
	HARYANA	0.690	0.000	3.040	4.580	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.470	0.000	0.000	0.000	0.000
	RAJASTHAN	0.000	0.000	3.040	7.110	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.470	0.000	0.000	0.000	0.000
	JAMMU & KASHMIR	0.850	0.000	3.680	5.560	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.770	0.000	0.000	0.000	0.000
	HIMACHAL PRADESH	0.000	0.000	0.000	1.530	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	DELHI	1.390	0.000	6.070	10.490	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.940	0.000	0.000	0.000	0.000
	PUNJAB	0.000	0.000	0.000	8.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.940	0.000	0.000	0.000	0.000
	UTTRAKHAND	0.000	0.000	0.000	1.870	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NER	ASSAM	2.548	0.092	2.200	5.185	2.187	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.011	0.000	0.000	0.000
	MEGHALAYA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	NAGALAND	0.430	0.000	0.425	0.000	0.425	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	ARUNACHAL PRADESH	0.192	0.000	0.192	0.000	0.197	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	MIZORAM	0.142	0.000	0.142	0.000	0.142	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OTHERS	PG	0.000	0.000	0.119	0.000	0.000	0.114	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	NVVN BAN	0.313	0.000	1.190	1.333	1.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	MPL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Tata Steel	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Indian Rlys	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	NTPC Badarpur	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL SHARE(%)		100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Annexure-XV

S. No.	Owner/Agency	Date	Time	Load Loss (MWh)	Gen. Loss (MWh)	Category	Reason
1	JUSNL	05-04-2022	12:19	68	0	GD-I	At 12:19 Hrs, 220 kV Daltonganj-Garhwa D/c tripped due to B_N fault. Total power failure occurred at Garhwa S/s and radially fed downstream S/s. 40 MW load loss occurred at Garhwa.
2	BSPTCL	05-04-2022	18:03	91	0	GD-I	At 18:03 Hrs, all emanating lines from Hazipur tripped during Y_ph LA failure of 220 kV Barauni-Hazipur-1 at Hazipur end. Total supply failure occurred at Hazipur, Amnour. 260 MW load loss occurred in Siwan, Chhapra, Amnour, Sheetalpur, Ekma, Raghunathpur, Hazipur.
3	Jorethang HEP	08-04-2022	10:15	0	2.4	GD-I	At 10:15 Hrs, 220 kV Jorethang-New Melli D/c tripped from Jorehtang end only due to DC Earth fault in Trip coil. One running unit at Jorethang tripped and 48 MW load loss occurred.
4	DVC	09-04-2022	12:31	426.67	501.34	GD-I	At 12:31 Hrs, during diversion of 220 kV Ramgarh-Bokaro-2 at Ramgarh, Bus fault at Ramgarh occurred. Total power failure occurred at 220 kV Bokaro & Ramgarh S/s due to delayed clearance of the fault. Consequently, entire load of Jamshedpur shifted to 220 kV Joda-JSPL-Jamshedpur which tripped on O/c. 400 kV Koderma-Bokaro-1 and U#1 at Bokaro A also tripped at the same time. 470 MW generation loss and 400 MW load loss occurred in Jamshedpur, Bokaro B, Kolaghat, Mosabani
5	Dikchu HEP	17-04-2022	15:07	0	62.33	GD-I	At 15:07 Hrs, 400 kV Rangpo-Dikchu tripped due to R_N fault. This led to total power failure at Dikchu as main bay of 400 kV Teesta 3-Dikchu was already under breakdown, which caused loss of evacuation path. One running unit at Dikchu also tripped. 55 MW generation loss occurred.
6	Teesta -V(NHPC)	23-04-2022	12:37	0	53.2	GD-I	At 12:37 Hrs, 400 kV Teesta 5-Rangpo-1 tripped from Teesta 5 end only due to delayed clearance of fault in 400 kV Rangpo-Binaguri-1. This led to total power failure at Teesta 5 (400 kV Teesta 5-Rangpo-2 was under shutdown). One running unit at Teesta-5 tripped and 168 MW generation loss occurred.
7	Teesta -V(NHPC)	26-04-2022	18:20	0	187.74	GD-I	At 18:20 Hrs, 400 kV Teesta 5-Rangpo-1 trippedd ue to R_B_N fault. This led to total power failure at Teesta 5 (400 kV Teesta 5-Rangpo-2 was under shutdown). All three running units at Teesta-5 tripped and 512 MW generation loss occurred.
8	Teesta -V(NHPC)	26-04-2022	18:59	0	1248.34	GD-I	At 18:59 Hrs, 400 kV Teesta 5-Rangpo-1 tripped again due to R_B_N fault. This led to total power failure at Teesta 5 (400 kV Teesta 5-Rangpo-2 was under shutdown). All three running units at Teesta-5 tripped and 350 MW generation loss occurred.
9	Jorethang HEP	26-04-2022	19:24	0	0	GD-I	At 19:24 Hrs, 220 kV Jorethang-New Melli-2 tripped due to R_N fault. This led to total power failure at Jorehtang as 220 kV Jorethang-New Melli-1 already tripped at 19:11 Hrs. No generation loss occurred.
10	JUSNL	01-05-2022	15:53	47	0	GD-I	At 15:53 Hrs, 220 kV Daltonganj-Garhwa D/c tripped. This led to total power failure at 220 kV Garhwa S/s. 30 MW load loss occurred in Garhwa and Meral area

S. No.	Owner/Agency	Date	Time	Load Loss (MWh)	Gen. Loss (MWh)	Category	Reason
11	JUSNL	01-05-2022	17:40	36.4	0	GD-I	At 17:40 Hrs 220 kV Daltonganj-Chatra D/c tripped from Daltonganj end only due to fault in downstream. This led to total power failure at Chatra. Total 13 MW load loss occurred.
12	BTPS A/ DVC	12-05-2022	13:56	0	225	GD-I	At 13:56 Hrs, 400 kV Bus-1&2 at Bokaro A S/s became dead. As reported, during testing of main bay of 400 kV Bokaro A-Koderma-2 at Bokaro A, LBB maloperated and both buses tripped. 450 MW generation loss occurred as U#1 of Bokaro A tripped due to loss of evacuation path.
13	JUSNL	14-05-2022	16:04	96	0	GD-I	At 16:04 Hrs, 400 kV New Ranchi-Patratu D/c tripped due to B_N fault. This led to total power failure at 400/220 kV Patratu S/s. Load loss of around 60 MW occurred in Kanke and Burmu area which were radially fed from Patratu.
14	BTPS/ BSPTCL	19-05-2022	17:25	66.867	511.34	GD-I	At 17:25 Hrs, 220 kV Barauni-Begusarai D/c tripped due to B_N fault. Units at Barauni got in islanded mode with Mokama load which was fed radially through 220 kV Barauni-Mokama D/c. The island didn't survive. Total 260 MW generation loss occurred at Barauni and 34 MW load loss occurred in Mokama area.
15	JUSNL	21-05-2022	01:33	78.67	0	GD-I	At 01:33 Hrs, R_ph and Y_ph bus side jumper of 220 kV Joda-Ramchandrapur-1 snapped at Ramchandrapur which created a bus fault. This led to tripping of all elements at Ramchanrapur. Total 80 MW load loss occurred in Adityapur, Jadugoda and Golmuri area.
16	JUSNL	23-05-2022	19:59	40.5	0	GD-I	At 19:59 Hrs, 220 kV Daltonganj-Garhwa (New) D/c tripped on R_N fault, leading to total power failure at 220/132 kV Garhwa S/s. Around 30 MW load loss occurred in Garhwa and Meral area.
17	OPTCL	27-05-2022	15:56	13.53	37.34	GD-I	At 15:56 Hrs, cross bus of 220 kV Katapalli-Lapanga-1 snapped at Lapanga end and fell on both 220 kV Bus. This led to tripping of both bus as all elements tripped in either Zone-4 or Zone-2 from remote ends. 220 kV Budhipadar-Vedanta D/c and 220 kV Budhipadar-Bhushan Steel D/c also tripped sensing the same fault and blackout occurred in Vedanta and Bhushan Steel CPP.U#2 of IBTPS also tripped and 160 MW generation loss occurred. 44 MW net load loss (820 MW generation and 864 MW load loss) occurred at Vedanta and 14 MW net load loss occurred at Bhushan Steel.
18	OPTCL	30-05-2022	11:09	0	0	GD-I	At 11:09 Hrs, both 400 kV Bus at Rourkela became dead while trying to open line isolator of 400 kV TSTPP-Rourkela-1 at Rourkela end. Teed protection operated, however, B_ph breaker of Talcher-1 at Rourkela was stuck, thereafter LBB operated however LBB didn't function properly due to which all lines tripped from remote ends in Zone-2. No load loss or generation loss occurred.
19	OPTCL	14-06-2022	14:57	88.34	0	GD-I	At 14:57 Hrs, 220 kV Bus-1 & 2 at Atri tripped. As informed, switchyard lighting cable snapped and fell on 220 kV Bus-2 at Atri. Both 220 kV Buses tripped and total power failure occurred at Atri S/s. Around 100 MW load loss at Atri, banki and Khurda reported by Odisha SLDC
20	JUSNL	17-06-2022	11:36	28	0	GD-I	At 11:36 Hrs, 220 kV Daltonganj-Chatra D/c tripped due to R_N fault leading to total power failure at 220/132 kV Chatra S/s. Load loss of 20 MW reported during the event by Jharkhand SLDC. Inclement weather reported at Daltonganj and Chatra.

S. No.	Owner/Agency	Date	Time	Load Loss (MWh)	Gen. Loss (MWh)	Category	Reason
21	JUSNL	18-06-2022	09:05	12.5	0	GD-I	At 09:05 Hrs, 220 kV Daltonganj-Chatra D/c tripped due to B_N fault leading to total power failure at 220/132 kV Chatra S/s. Load loss of 15 MW reported during the event by Jharkhand SLDC. Inclement weather reported during the event at Daltonganj and Chatra.
22	OPTCL	20-06-2022	16:31	9.75	578.5	GD-I	At 16:30 Hrs, R_ph fault occurred in 400 kV New Duburi-Meramundali-2 & B_ph fault occurred in 400 kV New Duburi-Meramundali-1. While clearing the fault of 400 kV New Duburi Meramundali-2, tie bay of the line at Meramundali remained stuck, which does not have LBB protection. This led to tripping of all elements in 400 kV Bus-1 at Meramundali. 400 kV JSPL S/s, 400 kV GMR (STU) S/s became dead. U#3 (350 MW) at GMR and U#1 (600 MW) at JITPL tripped. Total 890 MW generation loss occurred, and 15 MW net load loss occurred at JSPL.
23	JUSNL	22-06-2022	15:25	306	0	GD-I	At 15:25 Hrs on 22nd June 2022, 220 kV Bus-1 & 2 at Daltonganj tripped on bus bar protection. Power supply to 220/132 kV Garhwa and Chatra S/s and radially fed downstream areas interrupted. As reported by SLDC Jharkhand, 120 MW load loss occurred at Daltonganj, Garhwa and Chatra.
24	JUSNL	01-07-2022	13:50	25.3	0	GD-I	At 13:48 Hrs, 220 kV Daltonganj-Chatra 1 tripped due to R_N fault. At 13:50 Hrs, 220 kV Daltonganj-Chatra-2 also tripped due to R_N fault leading to total power failure at 220/132 kV Chatra S/s. Load loss of 23 MW reported during the event by Jharkhand SLDC.
25	BTPS/BSPTCL	06-07-2022	15:34	133.8	276	GD-I	At 15:34 hrs on 06/07/2022, 220kV Begusarai S/S became dead and all emanating lines tripped from Begusarai due to blast of Y phase CT of 220kV bus coupler bay at Begusarai. At the same time 220 kV Barauni- Hajipur -I, single remaining circuit from Barauni for power evacuation tripped from Barauni end on overcurrent (overload) resulting in tripping of Barauni unit 8 & 9 due to overspeed.
26	JUSNL	09-07-2022	14:27	34	0	GD-I	At 14:27 Hrs on 14.07.2022, during testing of 220 kV bus bar differential panel at 220/132 kV Ramchandrapur S/S, spurious tripping command generated to the main Bus-1, which led to tripping of all connected feeders from main Bus -1, which are 400/220kV 315 MVA ICT 1&2 at Jamshedpur, 220kV-Ramchandrapur-Chandil-1, 220kV-Ramchandrapur-Joda-1, 220KV-Ramchandrapur-Chaibasa-1. This has resulted in total power failure at 220/132 kV Ramchandrapur S/S. Total load loss was around 60 MW.
27	BSPTCL	11-07-2022	21:04	165	253	GD-I	At 21:03 hrs R-phase High Level jumper of 132KV Main Bus at GSS Begusarai got snapped resulting in tripping of all feeders connected to Begusarai S/S. At the same time 220 kV Barauni- Hajipur single remaining circuit tripped from Barauni end on overcurrent resulting in tripping of Barauni unit 8 & 9 due to loss of evacuation path.
28	OPTCL	12-07-2022	09:27	8.4	0	GD-I	At 09:27 Hrs on 12th June 2022, 220 kV side of Keonjhor S/s became dead during isolator switching operation for shutdown of 400 kV Baripada-Keonjhor. As reported, due to opening of bus side isolator of dia element of Baripada line instead of its own bus side isolator at Keonjhor, bus fault occurred and 400 kV Bus-2 at Keonjhor tripped. Inter-trip command sent to LV CB of both 400/220 kV ICTs and 220 kV side became dead. As reported 8 MW load loss occurred in radially fed Keonjhor area.
29	JUSNL	14-07-2022	16:17	14.67	0	GD-I	At 16:17 Hrs, 220 kV Daltonganj-Chatra 1 & 2 tripped within an interval of 48 seconds. Consequently, 220/132 kV Chatra S/s became dead. Load loss of 20 MW reported during the event by Jharkhand SLDC. Inclement weather reported during the event at Chatra.
30	ISTS	14-07-2022	17:43	0	0	GD-I	At 17:43 Hrs on 14th July 2022, 220 kV Bus-1 Alipurduar (WBSETCL) tripped during restoration of 220 kV Alipurduar-Alipurduar (WBSETCL)-1. At the same time, 220 kV Alipurduar-Alipurduar (WBSETCL)-2 tripped from PG end only. Consequently, both 220 kV Bus at Alipurduar (WBSETCL) became dead. No load loss or generation loss occurred as supply at 132 kV was intact through other links.

S. No.	Owner/Agency	Date	Time	Load Loss (MWh)	Gen. Loss (MWh)	Category	Reason
31	WBSETCL	23-07-2022	08:46	72.8	0	GD-I	At 08:46 Hrs on 23rd July 2022, total power failure occurred at 220/132 kV KLC Bantala S/s. As reported, LBB of 220 kV KLC Bantala-NewTown AA 3 operated at Bantala. As Bantala S/s has Single main and transfer scheme, power supply interrupted due to bus tripping. 52 MW load loss reported during the event by SLDC West Bengal.
32	JUSNL/OPTCL	27-07-2022	11:30	50	0	GD-I	220KV-JODA-TTPS #1 Tripped at 10:25 Hrs on R_B, FD-1.71 KM from TTPS. Line was under patrolling. To reduce loading on ckt-2, 132 kV Joda-Kendposi(Jharkhand) line was opened. Joda was getting around 150 MW power from 220 kV TTPS onlythrough 220 kV TTPS-Joda ckt-2. Further at 11:30 hrs 220 kV TTPS-Joda ckt-2 tripped on R-ph fault causing total power failure at 220 kV Joda S/S.
33	BSPTCL	31-07-2022	00:28	218.67	0	GD-I	At 00:28 hrs, Y_ph CT of 220 kV Barauni-Hajipur-1 burst at Hajipur end. Both buses at Hajipur tripped. Power supply to Hajipur and Amnour failed. Around 320 MW load loss in Hajipur and Amnour area reported by Bihar SLDC
34	JUSNL	01-08-2022	11:56	86.67	0	GD-I	At 11:56 Hrs, 220 kV Patratu-Burmu(Ratu) /c tripped due to R_N fault leading to total power failure at 220/132 kV Burmu S/s. 400/220 kV ICT- at Patratu also tripped at the same time. Load loss of 80 MW reported at Kanke and Burmu by Jharkhand SLDC.
35	Dikchu HEP	10-08-2022	11:57	0	52.5	GD-I	At 11:57 Hrs, 400 kV Rangpo-Dikchu tripped due to B_N fault. 400 kV Bus-2 at Dikchu S/s is out of service since 05.05.21 and 400 kV Teesta 3-Dikchu and 400 kV Rangpo-Dikchu are in one dia, with main bay of Teesta 3 line out of service. Consequently 400 kV Teesta 3-Dikchu also tripped due to tripping of tie bay leading to tripping of both units at Dikchu due to loss of evacuation path and 105 MW generation loss occurred.
36	WBSETCL	26-08-2022	10:13	0	9.34	GD-I	At 10:13, Y_ph PT of 220 kV Bus-1 at Bantala(KLC) burst. All associated feeders and transformers tripped, leading to total power failure at Bantala (KLC). 56 MW load loss occurred.
37	WBSETCL	04-09-2022	05:57	0	0	GD-I	At 05:57, 400 kV bus 1 & 2 at Malda (Having Double Main Transfer i.e. DMT switching scheme) tripped due to bus bar protection operation resulting in outage of all 400 kV feeders connected to Malda S/S.
38	JUSNL	12-09-2022	18:54	589.5	0	GD-I	At 12:55 Hrs, R_B_N fault struck 220 kV Tenughat-Govindpur D/c. 220 kV Govindpur-Dumka-1 and 210 MW U#2 at Tenughat also tripped at the same time. 150 MW generation loss occurred at Tenughat.
39	JUSNL	13-09-2022	10:03	707.4167	0	GD-I	At 18:54 Hrs, 400/220 kV ICT-2 at Patratu tripped due to operation of WTI and OSR relay. Consequently, power supply to radially fed 220 kV Ratu (Burmu) S/s interrupted and around 90 MW load loss occurred at Burmu and Kanke.
40	JUSNL	20-09-2022	16:50	0	0	GD-I	At 16:50 Hrs, 400 kV Bus-2 at Chandwa tripped during testing work on 400 kV Bus-1 at Chandwa(under shutdown) for interconnection of existing bus with new bus. Total power failure occurred at 400 kV Chandwa S/s (having DMT scheme). No load loss or generation loss occurred.

S. No.	Owner/Agency	Date	Time	Load Loss (MWh)	Gen. Loss (MWh)	Category	Reason
41	CTPS/DVC	24-09-2022	10:55	66.67	65.5	GD-I	AT 10:50 Hrs, 220 kV CTPS B-BTPS (Bokaro B)-2 was handtripped to control loading of 2* 315 MVA 400/220 kV ICTs at Bokaro. At 10:55 Hrs, 220 kV CTPS B-BTPS (Bokaro)-1 was also handtripped to further reduce loading of those ICTs. However, Y_ph CB of this line got stuck at CTPS B end, LBB operated and this gave tripping command to all elements in both buses. At 11:03 Hrs, 220 kV CTPS A-Kalyaneshwari also got tripped which led to total power failure at 220 kV CTPS A S/s also. Both running units at CTPS B tripped leading to 360 MW generation loss. Around 400 MW load loss also reported.
42	JUSNL	28-09-2022	15:04	0	0	GD-I	At 16:50 Hrs, 400 kV Bus-1 at Chandwa tripped during testing work on 400 kV Bus-2 at Chandwa(under shutdown) for interconnection of existing bus with new bus. Total power failure occurred at 400 kV Chandwa S/s (having DMT scheme). No load loss or generation loss occurred.
43	JUSNL	13-10-2022	10:22	151.3	0	GD-I	At 10:22 Hrs on 13.10.2022, 220 kV Daltonganj-Chatra-1 tripped due to R_N fault. Total power failed at Chatra S/s as it is being fed radially through only one circuit. 220 kV Daltonganj-Chatra-2 is LILOed at Latehar, however, 220 kV Latehar-Chatra is not charged yet. 17 MW load loss reported at Chatra by Jharkhand SLDC.
44	JUSNL	17-10-2022	10:50	9.634	0	GD-I	At 10:50 Hrs on 17.10.2022, 220 kV Daltonganj-Chatra-1 tripped due to B_N fault. Total power failed at Chatra S/s as it is being fed radially through only one circuit. 220 kV Daltonganj-Chatra-2 is LILOed at Latehar, however, 220 kV Latehar-Chatra is not charged yet. 17 MW load loss reported at Chatra by Jharkhand SLDC.
45	JUSNL	19-10-2022	15:09	6.167	0	GD-I	At 15:09 Hrs on 19.10.2022, 220 kV Daltonganj-Chatra-tripped due to Y_N fault. Total power failed at Chatra S/s as it is being fed radially through only one circuit. 220 kV Daltonganj-Chatra-2 is LILOed at Latehar, however, 220 kV Latehar-Chatra is not charged yet. 10 MW load loss reported at Chatra by Jharkhand SLDC.
46	Tashiding HEP	13-11-2022	16:34	0	0	GD-I	At 16:26 Hrs on 13.11.2022, while desynchronizing U#1 at Tashiding, its breaker didn't open. 220 kV Tashiding-New Melli-1 tripped connected to same bus tripped. At 16:34 Hrs, reverse power flow was observed in ckt-2 at Tashiding end and that line was hand-tripped from Tashiding to avoid any unanticipated issue with generating units. No generation loss or load loss occurred.
47	JUSNL	18-11-2022	01:23	33.734	0	GD-I	At 01:23 Hrs on 18.11.2022, 220 kV Daltonganj-Chatra-1 tripped due to B_N fault. Total power failed at Chatra S/s as it is being fed radially through only one circuit. 220 kV Daltonganj-Chatra-2 is LILOed at Latehar, however, 220 kV Latehar-Chatra is not charged yet. 23 MW load loss reported at Chatra by Jharkhand SLDC.
48	Tashiding HEP	28-11-2022	14:16	0	0	GD-I	At 14:16 Hrs on 28.11.2022, during testing of bus bar protection scheme at Tashiding, tripping command was extended to master trip relay of both outgoing feeders and 220 kV Tashiding-New Melli D/c tripped from Tashding only. No load loss or generation loss occurred.
49	JUSNL	17-12-2022	11:23	542.67	0	GD-I	At 10:45 hrs, B_ph CT of 220 kV Ramchandrapur-Chaibasa-1 burst at Ramchandrapur, leading to operation of Bus Bar protection and 220 kV Bus-1 tripped. At 11:23 Hrs, 220 kV Main Bus-2 was made off by tripping remaining feeders as a safety precaution and to extinguish fire caused by CT blast. Consequently, total supply failed at Ramchandrapur. 296 MW load loss occurred at Adityapur, Rajkharsawan, Jadugoda and Golmuri
50	NHPC	24-12-2022	12:05	51.67	0	GD-I	At 12:05 Hrs, 220/132 kV Jayanagar and 220 kV Balimela S/s became dead. One running unit, U#5 at Balimela tripped leading to a generation loss of 20 MW. No load loss occurred as entire load of Jayanagar was fed through Machkund. As per PMU, there was a high resistive fault in R_ph which persisted for around 5 seconds and subsequently evolved to a R_B_N fault.

S. No.	Owner/Agency	Date	Time	Load Loss (MWh)	Gen. Loss (MWh)	Category	Reason
51	WBSETCL	04-01-2023	04:42	7.67	0	GD-I	At 04:42 Hrs on 04th January 2023, total power failure occurred at 220/132 kV KLC Bantala S/s. As reported, LBB of 220 kV Bantala-NewTown AA-3 operated spuriously, leading to tripping of all associated feeders and transformers. Bantala has Single bus scheme. 20 MW load loss reported during the event by SLDC West Bengal.
52	WBSETCL	04-01-2023	05:42	3.85	0	GD-I	reported, LBB of 220 kV Bantala-NewTown AA-3 again operated spuriously, leading to tripping of all associated feeders and transformers. Bantala has Single bus scheme. 21 MW load loss reported during the event by SLDC West Bengal.
53	JUSNL	04-01-2023	13:41	76.67	0	GD-I	At 13:41 Hrs, during LBB testing at Ramchandrapur, 220 kV Bus-2 at Ramchandrapur along with connected feeders tripped. 220 kV Bus-1 was under shutdown for LBB testing. This led to load loss of around 100 MW at Ramchandrapur, Adityapur.
54	JUSNL	04-01-2023	14:24	51	0	GD-I	At 14:24 Hrs, during LBB testing at Ramchandrapur, 220 kV Bus-2 at Ramchandrapur along with connected feeders tripped again. 220 kV Bus-1 was under shutdown for LBB testing. This led to load loss of around 85 MW at Ramchandrapur, Adityapur.
55	BSPTCL	22-02-2023	18:11	59.5	63	GD-I	At 17:57 Hrs, B_ph CT of 220/132 kV ATR-3 burst at Hazipur S/s. At the same time, 220 kV Muzaffarpur-Hazipur D/c and 220 kV Barauni-Hazipur-2 tripped. Subsequently, both units (U#8 & U#9- 250 MW each) at Barauni along with Mokama, Hajipur and Amnour load got islanded and survived for 13 minutes. At 18:10 Hrs, due to sudden load throw-off at Amnour, both units tripped on Over-speed protection and total power supply failed at Barauni, Hazipur, Amnour and Mokama S/s. 270 MW generation loss and 255 MW load loss occurred.
56	Dikchu HEP	26-03-2023	04:02	0	0	GD-I	At 04:02 Hrs, 400 kV Rangpo-Dikchu tripped due to B_N fault. At the same time, 400 kV Teesta 3-Dikchu tripped from Teesta 3 end. This led to total power failure at Dikchu. There was no generation or load loss at Dikchu as no unit was running at that time.
57	JUSNL	31-03-2023	18:23	30	0	GD-I	At 18:23 Hrs, 220 kV Daltonganj-Latehar-Chatra (220 kV Daltonganj-Chatra-2 LILOed at Latehar) tripped due to B_N fault, leading to total power failure at Latehar S/s. At 18:25 Hrs, 220 kV Daltonganj-Chatra-1 also tripped, leading to total power failure at Chatra S/s also. Total 24 MW load loss occurred.

Annexure-XVI

S. No.	Owner/Agency	Date	Time	Load Loss (MWh)	Gen. Loss (MWh)	Category	Reason
1	IB-TPS/OPGC	03-07-2022	01:39	0	635.234	GI-1	At 01:39 Hrs, 220 kV IBTPS-Budhipadar-2,3,4 tripped successively due to multiple faults along with both station transformer. IBTPS U#2 tripped due to loss of all fuel. At 01:45 Hrs, IBTPS U#1 also tripped due to loss of auxilliary supply. Total 323 MW generation loss occurred at IBTPS.
2	TVNL	09-09-2022	12:55	0	905	GI-1	At 12:55 Hrs, R_B_N fault struck 220 kV Tenughat-Govindpur D/c. 220 kV Govindpur-Dumka-1 and 210 MW U#2 at Tenughat also tripped at the same time. 150 MW generation loss occurred at Tenughat.
3	Mejia TPS(DVC)	20-11-2022	10:40	0	213.5	GI-1	At 10:40 Hrs on 20.11.2022, 220 kV Mejia-Durgapur (DVC) tripped due to B_N fault. At the same time its LBB relay maloperated and all elements connected to 220 kV Bus-3 at Mejia tripped. SST#D was connected to 220 kV Bus-4, however, its CT switching relay was defective and isolator status was showing that it was connected to both buses, hence 220 kV Bus-4 at Mejia also tripped. 250 MW U#5, U#6 tripped leading to 366 MW generation loss at Mejia.
4	NTPC	22-12-2022	07:26	0	5662.67	GI-2	At 07:26 Hrs, 400 kV Barh-Patna-3 tripped due to B_N fault. A/r attempt failed after dead time, however other two healthy phase of the line didn't trip at Barh. After around 11 seconds, other two phase tripped. At the same time, 660 MW U#1 at Barh also tripped, leading to generation loss of 620 MW at Barh.
5	APNRL	12-03-2023	20:29	0	2101.67	GI-2	At 20:31 Hrs, both units at Adhunik (270 MW each) tripped. As reported, generator differential protection operated in U#2 and supply to all auxiliaries failed. Supply to two of three CW pumps was from U#2 auxiliary, tripping of which led to low vacuum pressure of U#1 and U#1 also tripped at the same time.

ANNEXURE-XVII

Month	Major Recommendations against occurrence of Grid disturbances
114th PCC held on 13th MAY_22	1. **Disturbance at 220 kV Ramgarh (DVC) S/s on 09/04/2022 at 12:31 Hrs** *->DVC to reduce the bus coupler overcurrent setting so as to enable it to isolate the bus fault in case of failure of busbar protection.*
	2. **Total Power Failure at 220 kV Hajipur S/s on 05/04/2022 at 18:03 Hrs** *->BSPTCL to check the CT switching scheme w.r.t. LBB protection at Hazipur.*
	3. **Total Power Failure at 220 kV Garhwa S/S on 05/04/2022 at 12:19 Hrs** *-> SOTF to be enabled for zone-1 operation to avoid single phase tripping during fault in reclaim time and it was further clarified that SOTF may be enabled for all zones except zone-4 protection.*
115th PCC held on 20th JUNE _22	1. **Disturbance at 400/220/132 kV Lapanga(OPTCL) S/s on 27.05.2022 at 15:56 hrs.** • *OPTCL to test the healthiness of lv side back up overcurrent relay of 400/220 kV ICTs at Lapanga and submit the observations to ERPC/ERLDC.* • *OPTCL to ensure healthiness of all substation equipment at 220 kV Lapanga S/s by adopting periodical inspection & preventive maintenance activity in the substation. As n-1 contingency criteria of 220 kV Katapalli-Lapanga d/c is not being satisfied, special attention may be given to the equipment associated with these lines for identification of hotspots & rectification thereof.*
	2. **Disturbance at 220 kV Barauni(BSPTCL) S/S on 19.05.2022 at 17:25 Hrs** • *BSPTCL to keep 220 kV Mokama-Biharsharif D/C in closed condition whenever both the circuits of 220 kV BTPS-Hazipur is under shutdown or out of service.*
	3. **Total Power failure at 220 kV Garhwa(JUSNL) S/s on 01.05.2022 at 15:53 Hrs** *->220kV line patrolling to be done by JUSNL*
116th PCC held on 18th JULY _22	1. **Disturbance at 400/220 kV Meramundali(OPTCL) S/s on 20.06.2022 at 16:31 Hrs** *->OPTCL to ensure healthiness of all the protection system in the substation at the earliest and also to submit a timeline for restoration of LBB protection for all the concerned bays at Meramundali end.*
	2. **Total Power failure at 220 kV Atri (OPTCL) S/s on 14.06.2022 at 14:57 Hrs.** *->OPTCL to do proper clamping & bolting in all other substation in their system & to carry out assessment and strengthening of all such clamping/joint on periodic basis.*
	3.**Total Power failure at 220 kV Chatra(JUSNL) S/s on 17.06.2022 at 11:36 Hrs** *->JUSNL to ensure implementation of weak infeed protection(with PUTT scheme) at Chatra end with a delay of 50 ms for current reversal guard timer for 220 kV Daltonganj-Chatra D/C line*

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117th PCC held on 22nd AUG _22	1. **Total Power failure at 220 kV Joda (OPTCL) S/s on 27.07.2022 at 11:30 Hrs** *->OPTCL to implement autorecloser without PLCC at TTPS end of 220kV Joda – TTPS-2 line.*
	2. **Disturbance at 400/220 kV Keonjhor S/S on 12.07.2022 at 09:27 Hrs** *->OPTCL to include tie CB status to extend inter-trip signal on busbar protection operation.*
	3. **Total Power failure at 220/132 kV Bantala(WBSETCL) S/s on 23.07.2022 at 08:46 Hrs** *->WBSETCL to adopt suitable measures for combating contamination of relay contacts by prevailing pollution in the area and preventing subsequent maloperation.*
	4. **Total Power failure at 220 kV Ramchandrapur(JUSNL) S/s on 09.07.2022 at 14:27 Hrs** *->JUSNL to recheck the scheme of busbar protection relay and test the busbar relay for its healthiness.* *->JUSNL to make the high set setting in earth fault relay of transformer as directional.*
	5. **Total power failure at 220 kV Alipurduar(WBSETCL) S/s on 14.07.2022 at 17:43 Hrs** *->WBSETCL to implement line differential protection immediately after completion of OPGW work in the 220 kV Alipurduar-Alipurduar(WBSETCL)-2 line*
	6. **Disturbance at 220kV Hajipur (BSPTCL) S/s on 31.07.2022 at 00:28 Hrs** *->BSPTCL to keep old Bus Bar Relay out of service. Till Bus Bar protection is kept out of service, it was advised to set zone-4 timing of all connected feeders to 250 msec as a back up of busbar protection.* *->BSPTCL to analyze the reason for each CT failure and the issue may be further taken up with OEM. Further it was stated by ERPC Secretariat that any failure of substation elements shall be reported to CEA and accordingly BSPTCL was advised to share the information of CT failure with CEA*
118th PCC held on 20th SEP _22	1. **Disturbance at 220 kV Burmu(JUSNL) S/S on 01.08.2022 at 11:56 Hrs** *->JUSNL to review the time setting of backup overcurrent relay of both the ICTs and coordinate the same to avoid unwanted tripping of the transformer for faults at lower voltage level.*
	2. **Disturbance at 400 kV Dikchu S/s on 10.08.2022 at 11:57 Hrs** *->Dikchu HEP to restore Main Bus-2 at the earliest with installation of .Circuit Breaker* *->Dikchu HEP to submit a firm time-line for restoration of the main bus-2 which would be monitored in PCC meeting.*
	3.Total Power failure at 220/132 kV Bantala(WBSETCL) S/s on 23.07.2022 at 08:46 Hrs *->WBSETCL to replace of Y-Phase defective relay to restore busbar protection in service*
119th PCC held on	1. **Disturbance at 220 kV Tenughat (TVNL) S/S on 09.09.2022 at 12:55 Hrs** *->JUSNL to rectify all clearance related issues present in 220 kV Tenughat-Govindpur D/C line so that similar type of incidents can be avoided in future.*

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18th OCT _22	*->JUSNL to share PSL logic of the relay with ERPC/ERLDC besides communicating with relay manufacturer for testing and firmware updation.* *-> TVNL to review overcurrent settings of unit #2 considering the present transmission network & fault level data at Tenughat.*
	2. **Total Power failure at 220 kV CTPS A and CTPS B (DVC) S/s on 24.09.2022 at 10:55 Hrs** *->DVC to submit the criteria/philosophy behind conservative setting for broken conductor and further advised to review the setting and the broken conductor protection may be set in alarm mode instead of issuing tripping command* *-> DVC to implement numerical bus bar protection at CTPS A and CTPS B at earliest*
	3. **Disturbance at 400 kV Malda(WBSETCL) S/S on 04.09.2022 at 05:57 Hrs** *->WBSETCL to make status of the Bus coupler "forced close" using soft logic. The B/C CB status will not be decided based on Auxiliary contact. and also, during B/C shutdown the setting can be changed.*
	4. **Disturbances at 400kV Chandwa S/s** *->Tripping scheme of bus bar changed to Scheme 2 INX from Scheme 1 RADSS so that similar type of events can be avoided in future*
120th PCC held on 16th NOV _22	**(a)Total Power Failure at 220 kV Chatra(JUSNL) S/s on 13.10.2022 at 10:22 Hrs** **(b) Total Power Failure at 220 kV Chatra(JUSNL) S/s on 17.10.2022 at 10:50 Hrs** **(c)Total Power Failure at 220 kV Chatra(JUSNL) S/s on 19.10.2022 at 15:09 Hrs** *-> JUSNL to resolve the autorecloser issue by Nov'22.*
121st PCC held on 16th DEC _22	**Grid Disturbances at 220 kV Tashiding S/s** *-> Tashiding HEP to take necessary precautions while conducting busbar/LBB test so that spurious tripping of Master trip relay can be avoided in future.*
122nd PCC held on 16th JAN _23	1. **Total Power failure at 220 kV Ramchandrapur(JUSNL) S/s on 17.12.2022 at 11:23 Hrs.** *-> JUSNL to test the concerned relay for 132 kV Ramchandrapur-Adityapur D/c at Adityapur end in consultation with relay OEM and share observation to ERPC/ERLDC after testing.* *-> JUSNL/SLDC Jharkhand to maintain uniform feeder distribution for each bus at Ramchandrapur as well as for other substations.*
	2. **Total Power failure at 220/132 kV Jayanagar (OPTCL) and 220 kV Balimela HEP S/s on 24.12.2022 at 12:05 Hrs** *->OPTCL to test DEF relay at Laxmipur end for 220 kV Jayanagar- Laxmipur circuit-1 in coordination with relay OEM and in case the relay is found faulty, the same needs to be replaced at the earliest.*

	->OPTCL to check & ensure zero sequence polarization was set in relay instead of negative sequence polarization.
123rd PCC held on 21st FEB_23	1. **Total Power failure at 220/132 kV KLC Bantala(WBSETCL) S/s on 04.01.2023 at 04.42 Hrs** *-> WBSETCL to put in series connection output of 86 relay with the LBB timer contact for initiation of LBB protection, as this would avoid spurious tripping of LBB relay.* *->WBSETCL to do periodic cleaning of all the contacts, humidity control in the relay room etc. in order to avoid deposition of sedimentation.*
	2. **Disturbance at 220 kV Ramchandrapur(JUSNL) S/s on 04.01.2023 at 14:24 Hrs** *-> JUSNL to disconnect all 96 relays during any testing of bus bar/LBB protection so that spurious trippings can be avoided*
124th PCC held on 17th MAR_23	**Total Power Failure at 220 kV Barauni, Hazipur, Amnour and Mokama S/s on 22.02.2023 at 18:11 Hrs** *-> SLDC Bihar to prepare SOP for evacuation of generation from Barauni units in case of contingencies.*
125th PCC held on 19th APR_23	1. **Total Power failure at 220 kV Latehar and 220 kV Chatra S/s on 31.03.2023 at 18:23 Hrs** *->JUSNL to configure earth fault protection relay settings in consultation with OEM M/S GE to avoid failure of DC system.* *->POWERGRID to carry out necessary rectification in DC/SCADA system.*
	2. **Total Power failure at 400 kV Dikchu S/s on 26.03.2023 at 04:02 Hrs.** *->TEESTA-III HEP to enable voltage measurement for O/V protection as phase to ground. Further the settings may be set at 110% with delay of 5-6 sec for stage 1 and 120-125 % with delay of 100 ms for stage-2.*

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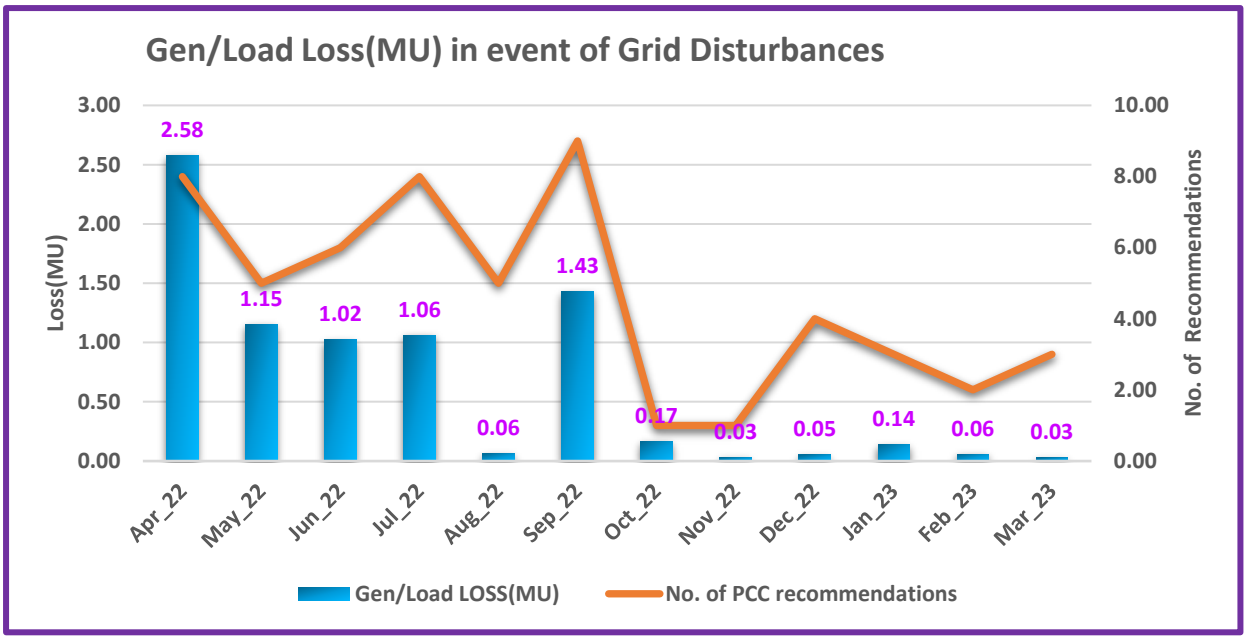


Annexure-XVIII

Transmission Charges paid by various ER Constituents during the year 2022-23		
SI.	**Constituents**	**Charges (Rs. Cr.)**
1	BIHAR	2188
2	JHARKHAND	327
3	DVC	151
4	ODISHA	687
5	WEST BENGAL	991
6	SIKKIM	34
7	POWERGRID(PASAULI)	0
8	NVVN (BPDB)	262
9	TATA STEEL	79
10	RAILWAYS_JHARKHAND	15
11	RAILWAYS_BIHAR	37
12	RAILWAYS_DVC	43
13	RAILWAYS_ODISHA	0
14	RAILWAYS_WEST BENGAL	0
15	HVDC ALIPURDUAR	1
16	NPGC NABINAGAR	6
17	NPGC NABINAGAR	5
	Total	**4826**

Annexure-XIX(A)

LTA Status of Eastern Region (As on 31.03.2023)

S. No.	Name of LTA Customer (Injecting utility)	Generator/Load/Trader	Region	Quantum of LTA granted	LTA with tied up beneficiaries	LTA quantum related to Champa Kurkshetra HVDC Pole-I	LTA quantum related to Champa Kurkshetra HVDC Pole-II	Name of the beneficiaries				Remarks
1	ACB Limited	Generator	WR	243	208 12			Gujarat CSPDCL, Chattisgarh				LTA reconfigured on firming up of beneficiaries **wef 01.03.2018**. Refer CTU ltrs no. C/CTU-Plg/LTA/W/ACBIL/R1 dtd 21.02.2018 & Ltr no. C/CTU-Plg/LTA/W/ACBIL/R1 dtd 28.02.2018 and ACBIL Ltr no. ACBIL/PGCIL/17-18 dtd 07.03.2018.(Copy enclosed). **Transmission charges for 8MW (Gujarat) and 23 MW(Target) are payable by ACBIL only.**
2	Adani Power Limited	Generator	WR	0	0			NA				LTA quantum of 342 MW relinquished wef 01.04.2018 vide CTU Letter C/CTU-plg/LTA/APL-rel dtd 26.03.2018
3	Adani Power Limited	Generator	WR	1495	1495			APL (Haryana). POC charges payable by APL, see remarks				Based on CERC order dated 29/07/2013, for APL ,Mundra TPS stage #3 to Haryana LTA, the APMuL would pay for the LTA of 1495 MW at both Mundra TPS stage#3 injection POC rate as well as Haryana with drawl POC rates.
4	Adani Power Limited	Generator	WR	0	0			NA				LTA quantum of 200 MW relinquished wef 01.04.2018 vide CTU Letter C/CTU-plg/LTA/APL-rel dtd 26.03.2018
5	ADHPL	Generator	NR		0			NA				LTA of 168.96 MW has been relinquished w.e.f. 24.08.2021 vide CTU letter dated 27.08.2021.
6	BRPL (DVC Power)	Load	NR	100	100			BRPL				
7	BRPL (DVC Power)	Load	ER	31	31			BRPL				
8	BYPL (DVC Mejia U#7)	Load	NR	119.19	119.19			BYPL				
9	BYPL (DVC Mejia U#8)	Load	NR					BYPL				Please refer to CERC Order dtd 08.11.2019 under Petition no. 85/MP/2014 along with I.A. No. 43/2019
10	BYPL (DVC Power)	Load	NR	63	63			BYPL				

S. No.	Name of LTA Customer (Injecting utility)	Generator/Load/Trader	Region	Quantum of LTA granted	LTA with tied up beneficiaries	LTA quantum related to Champa Kurkshetra HVDC Pole-I	LTA quantum related to Champa Kurkshetra HVDC Pole-II	Name of the beneficiaries				Remarks
11	BYPL (DVC Power)	Load	ER	19	19			BYPL				
12	DD (NSPCL)	Load	WR	70	70			DD				
13	DNH (NSPCL)	Load	WR	100	100			DNH				
14	DVC (DVC Durgapur U#2)	Generator	ER	100	100			PSPCL				
15	DVC (DVC Koderma U#1)	Generator	ER	100	100			Haryana				
16	DVC (DVC Mejia U#7)	Load	ER	12.5	12.5			DVC				
17	DVC (DVC Mejia U#8)	Load	ER	12.5	12.5			DVC				
18	DVC (MPL U#1)	Load	ER	140.5	140.5			DVC				
19	GMR Warora Energy Ltd, Maharashtra (formerly EMCO Energy Ltd.)	Generator	WR	200	200			MSEDCL				1. LTA commencement w.e.f. 10.12.2012 as per CERC Order dtd 21.02.14 in Pet. 127/MP/2013. (2) LTA of 200MW was tied up with MSEDCL by EMCO w.e.f. 17.03.2014.
19	GMR Warora Energy Ltd, Maharashtra (formerly EMCO Energy Ltd.)	Generator	WR	200	155.41			GUVNL				As per the CTU Intimation out of the 200 MW untied LTA, 155.41 MW was tied up with GUVNL(while the remaining 44.59 MW left untied) w.e.f. 22.10.2021.(LTA Intimation attached), accordingly billing w.e.f 22.10.2021 for 155.41 MW is to be done on GUVNL and balance 44.59 MW will be on GMR Warora.
19(a)	GMR Warora Energy Ltd, Maharashtra (formerly EMCO Energy Ltd.)	Generator	WR	150	150			TANGEDCO, TN				**LTA effective from 25.01.2016.** Refer CTU Ltr dtd 15.01.2016, PG mail dtd 22.01.2016 & SRLDC mail dtd 22.01.2016 (Copy enclosed).
20	Haryana (DVC Mejia U#7)	Load	NR	50	50			Haryana				

S. No.	Name of LTA Customer (Injecting utility)	Generator/Load/Trader	Region	Quantum of LTA granted	LTA with tied up beneficiaries	LTA quantum related to Champa Kurkshetra HVDC Pole-I	LTA quantum related to Champa Kurkshetra HVDC Pole-II	Name of the beneficiaries				Remarks
21	Haryana (DVC Mejia U#8)	Load	NR	50	50			Haryana				
22	Haryana (PPCL)	Load	NR	140	140			Haryana				
23	Himachal Sorang	Generator	NR	0	0			NA				**LTA has been relinquished w.e.f. 01.10.2017.** Copy of CTU Ltr dtd 31.10.2017 is enclosed for reference.
24	HPSEB(BASPA)	Load	NR	300	300			HPSEB				
25	Himachal Baspa Power Company Ltd (formerly Jaiprakash Power Ventures Limited(JPVL)	Generator	NR	704	264			Haryana				**The firm allocation of LTAs (880MW) of HBPCL has been reorganized wef 01.01.2018 as per the CTU Ltr no. C/CTU-Plg/LTA/N/2017/HBPCL dtd 29.12.2017 (Copy enclosed). Transmission charges shall be paid by HBPCL (formerly JPVL) only.** (As per above CTU letter, the LTA quantum gets revised to 820MW wef 14.09.2023) Refer CTU Letter C/CTU-plg/LTA/N/2017/HBPCL dtd 28.03.18 200 MW to Punjab wef 01.04.18
					200			UPPCL				
					40			Rajsthan Discoms				
					200			Punjab				
26	Himachal Baspa Power Company Ltd (formerly Jaiprakash Power Ventures Limited(JPVL)	Generator	NR	176	64			Rajasthan Discoms				
					112			Haryana				
27	JINDAL, Raigarh (4x250MW)	Generator	WR	0	0			NA				**500MW LTA of JPL has been relinquished w.e.f 01.11.2017 vide CTU ltr no. C/CTU/JPL/1611 dtd 16.11.2017**
28	Lanco Anpara	Generator	NR		0			NA				100 MW LTA got relinquished wef 01.08.2020 as per CTU letter C/CTU/N/07/Lanco dtd 06.08.2020 (copy enclosed)
29	Lanco Green Power Private Limited	Generator	NR					Himachal Pradesh				Please refer to CERC Order dtd 20.11.2019 under Petition no. 265/MP/2018
30	Lanco Kondapalli PPL	Generator	SR	0	0			NA				250MW relinquished by LKPL w.e.f. 14.08.2012 as per CERC Order dtd 21.02.2014 in Pet. 63/MP/2013.

S. No.	Name of LTA Customer (Injecting utility)	Generator/Load/Trader	Region	Quantum of LTA granted	LTA with tied up beneficiaries	LTA quantum related to Champa Kurkshetra HVDC Pole-I	LTA quantum related to Champa Kurkshetra HVDC Pole-II	Name of the beneficiaries				Remarks
31	MPPTC (DVC Power)	Trader	WR	0	0			MP				LTA quantum of 356 MW relinquihsed wef **01.03.2018.** Refer CTU Letter no. C/CTU/E/09/MPPMCL dtd 21.02.2018. (Copy enclosed)
32	NDPL (CLP Jhajjar)	Load	NR	124	124			NDPL				
33	NDPL (DVC Power)	Load	NR	64.21	64.21			NDPL				LTA quantum got revised to 64.21 MW wef 26.06.2019 after signing of Agreement as per CTU intimation C/CTU/E/07/TPDDL dtd 15.05.2019 (Copy enclosed)
34	NDPL (MPL U#1)	Load	NR	140.625	140.625			NDPL				LTA quantum got revised to 140.625MW wef 26.06.2019 after signing of Agreement, vide intimation C/CTU/E/07/TPDDL dtd 07.05.2019.(Copy enclosed)
35	NDPL (MPL U#2)	Load	NR	140.625	140.625			NDPL				LTA quantum got revised to 140.625MW wef 26.06.2019 after signing of Agreement, vide intimation C/CTU/E/07/TPDDL dtd 07.05.2019.(Copy enclosed)
36	NDPL (DVC Power)	Load	ER	19.55	19.55			NDPL				LTA quantum got revised to 19.55 MW wef 26.06.2019 after signing of Agreement as per CTU intimation C/CTU/E/07/TPDDL dtd 15.05.2019 (Copy enclosed)
37	PTC(Lanco Amarkantak)	Trader	WR	273	273			MP				As per the CERC order dtd 16.03.2017 in Petition no. 305/MP/2015 (Copy enclosed), the LTA quantum has been reduced from 300 MW to 273 MW. Transmission charges shall be payable by PTC only.
38	PTC(Malana-II/Everest Power)	Trader	NR	86	86			PSEB				
39	Punjab (DVC Durgapur U#1)	Load	NR	100	100			PSPCL				
40	Punjab (PPCL)	Load	NR	140	140			Punjab				

S. No.	Name of LTA Customer (Injecting utility)	Generator/Load/Trader	Region	Quantum of LTA granted	LTA with tied up beneficiaries	LTA quantum related to Champa Kurkshetra HVDC Pole-I	LTA quantum related to Champa Kurkshetra HVDC Pole-II	Name of the beneficiaries				Remarks
41	Spectrum Coal & Power	Generator	WR	30	2.5			Chattisgarh				**Please refer CTU letter C/CTU-Plg/LTA/W/SCPL/R1 dtd 26.02.18.Copy Enclosed. Validity is upto 24.07.2022.**
					5			Chattisgarh				**Please refer CTU letter CTU/W/07/ACB/R0 dtd 16.06.22 regarding firming up of beneficiaries and the same is eefective from the date of sigining of supplementary LTA Agreement i.e., w.e.f 25.07.2022.**
42	Torrent Power	Generator	WR	250	50			MP				Please refer to CTU letter C/CTU-Plg/WR/LTA/TPL dtd 25.01.18.Copy Enclosed. **As per the CTU letter C/CTU/W/07/LTA/TPL-rel-2 dtd 24.03.2020 (copy enclosed), 25 MW to MPPMCL got relinquished wef 01.04.2021.**
43	WBSEDCL (MPL U #1&2)	Load	ER	141.375	141.375			WBSEDCL				**LTA has been revised from 140.5 MW to 141.375 MW w.e.f 20.07.2018 as per CTU letter C/CTU/E/07/Maithon-RB/Op dtd 18.07.2018.** Refer CTU Ltr C/CTU-Plg/E/08/WB-TPDDL-DVC/Rev-1 dtd 20.04.2018.
44	WBSEDCL (MPL U#1&2)	Load	ER	141.375	141.375			WBSEDCL				**LTA has been revised from 140.5 MW to 141.375 MW w.e.f 20.07.2018 as per CTU letter C/CTU/E/07/Maithon-RB/Op dtd 18.07.2018.** Refer CTU Ltr C/CTU-Plg/E/08/WB-TPDDL-DVC/Rev-1 dtd 20.04.2018.
45	Adhunik Power & Natural Resources Ltd	Generator	ER	100	100			WBSEDCL				
46	Tata Steel Ltd (DVC, Mejia B)	Load	ER	100	100			Tata Steel				200MW LTA effective from 01.06.2014.
47	Tata Steel Ltd (DVC, DSTPS)	Load	ER	100	100			Tata Steel				
48	Jindal Power (4x600MW, Chattisgarh) stg2	Generator	WR	400	400			TANGEDCO				**LTA-224 MW upto 04.10.2015 & enhanced to 400 MW effective from 05.10.2015**. Refer PG letter dtd 01.10.2015 (Copy enclosed). **Transmission charges shall be paid by JPL only**
49	JPVL - Nigri STPS (Unit#1)	Generator	WR	232.65	232.65			MPPMCL				LTA to MPPMCLto be considered 232.65 MW from 21.09.2014 onwards
50	JPVL - Nigri STPS (Unit#2)	Generator	WR	232.65	232.65			MPPMCL				LTA to MPPMCLto be considered 232.65 MW from 07.05.2015 onwards

S. No.	Name of LTA Customer (Injecting utility)	Generator/Load/Trader	Region	Quantum of LTA granted	LTA with tied up beneficiaries	LTA quantum related to Champa Kurkshetra HVDC Pole-I	LTA quantum related to Champa Kurkshetra HVDC Pole-II	Name of the beneficiaries				Remarks
51	MB Power	Generator	WR	197.4	197.4			MPPMCL				LTA to MPPMCLto be considered 197.4 MW from 20.05.2015 onwards
52	DB Power Ltd (Chattisgarh)	Generator	WR	208	208			TANGEDCO				LTA-**117 MW upto 04.10.2015 & enhanced to 208 MW effective from 05.10.2015**. Refer PG letter dtd 01.10.2015(Copy enclosed). **Transmission charges shall be paid by DB Power only**
53	KSK Mahanadi Power Company Ltd (Chattisgarh)	Generator	WR	500	500			TANGEDCO				**LTA-281 MW upto 04.10.2015 & enhanced to 500 MW effective from 05.10.2015.** Refer PG letter dtd 01.10.2015(Copy enclosed). **Transmission charges shall be paid by KSK Mahanadi only**
54	MB Power, Annupur, Madhya Pradesh	Generator	WR	192	192			Uttar Pradesh				LTA effective from **26.08.2015**. Refer PG letter dtd 19.08.2015. **Transmission charges shall be paid by MB Power only.**
55	Balco Ltd, Korba, Chattisgarh	Generator	WR	100	100			TANGEDCO				LTA-**56 MW upto 04.10.2015** & **enhanced to 100 MW effective from 05.10.2015**. Refer PG letter dtd 01.10.2015(Copy enclosed). **Transmission charges shall be paid by Balco Only.**
56	IL&FS Tamilnadu Power Co.Ltd, TN	Generator	SR	540	540			TANGEDCO				LTA effective from 29.09.2015. Refer PG letter dtd 24.09.2015(Copy enclosed). **Transmission charges shall be paid by IL&FS TNPCL only.**
57	PTC(Lanco Amarkantak)	Trader	WR	285	285			Haryana				**Hon'ble APTEL vide order dated 03.09.2019 in the appeal no. 242 / 2019 directed that the surrendered/relinquished 5 % of LTA by M/s PTC shall not be billed from the date of the of Order. Hence 285 MW LTA shall be effective w.e.f. from 03.09.2019. Transmission charges shall be payable by PTC only.**
58	Ind-Barath Energy (Utkal) Ltd, Odisha	Generator	ER	500	500			TANGEDCO, TN				**LTA for 500MW effective from 16.12.2015 till 18.07.2018 only. Transmision charges are payable by Ind-barath only. (In view of non-opening of LC, notice for termination of TSA has been issued by CTU on 18.06.2018 and after a month i.e from 19.07.2018, Ind-Barath shall cease to be a DIC as LC has not been opened and is also not allowed open access in line with with directions as per CERC Order dtd 08.03.2018 in Pet no.229/RC/2015.**
59	Balco Ltd, Korba, Chattisgarh	Generator	WR	100	100			TANGEDCO, TN				**LTA effective from 19.12.2015.** Refer CTU Ltr dtd 15.12.2015, PG mail dtd 17.12.2015 & WRLDC mail dtd 29.12.2015 (Copy enclosed)**. Transmission charges shall be payable by Balco only.**
60	Dhariwal Infrastructure Ltd, Maharashtra	Generator	WR	100	100			TANGEDCO, TN				**LTA effective from 16.12.2015.** Refer CTU Ltr dtd 15.12.2015, PG mail dtd 15.12.2015 & WRLDC mail dtd 29.12.2015 (Copy enclosed)**.Transmission charges shall be payable by Dhariwal Infra only.**

S. No.	Name of LTA Customer (Injecting utility)	Generator/Load/Trader	Region	Quantum of LTA granted	LTA with tied up beneficiaries	LTA quantum related to Champa Kurkshetra HVDC Pole-I	LTA quantum related to Champa Kurkshetra HVDC Pole-II	Name of the beneficiaries				Remarks
61	KSEB (Maithon Power Ltd-RBTPP)	Load	ER	140.625	140.625			KSEB				**LTA quantum got revised to 140.625 MW wef 28.06.2019 after signing of Agreement as per CTU intimation C/CTU/E/07/KSEB dtd 19.06.2019 (Copy enclosed)**
62	BESCOM, Karnataka (Mejia 7&8, DVC)	Load	ER	188.5	188.5			BESCOM, Kar				**LTA quantum** revised from **200MW to 188.5MW w.e.f. 02.03.2022** on account of auxillary consumption vide CTU letter ref: CTU/E/07/BESCOM-DVC, dated **22.04.2022 & email dated 25.04.2022**
63	Adhunik Power & Natural Resources Ltd	Generator	ER	100	100			TANGEDCO, TN				**LTA effective from 01.01.2016.** Refer CTU Ltr dtd 30.12.2015, PG mail dtd 30.12.2015 & SRLDC Ltr dtd 31.12.2015 (Copy enclosed)**. Transmission charges shall be payable by Adhunik Power & NR Ltd only.**
64	BESCOM, Karnataka (Koderma)	Load	SR	235.625	235.625			BESCOM, Kar				**LTA quantum** revised from **250MW to 235.625MW w.e.f. 02.03.2022** on account of auxillary consumption vide CTU letter ref: CTU/E/07/BESCOM-DVC, dated **22.04.2022 & email dated 25.04.2022.**
65	KSEB (Mejia 7&8-DVC)	Load	SR	94.75	94.75			KSEB				**LTA enhanced from 18.85 MW to 94.75 MW effective from 01.04.2016.** Refer CTU Ltr C/CTU/plg/LTA/S/O/2016/ Apr'14-02 dtd 22.03.2016, PG Ltr dtd C/Comml/SRLDC/LTA-Optn/KSEBL/Apr'14/ 2016 dtd 23.03.2016 and SRLDC Ltr SRLDC/MO/2016-17 dtd 01.04.2016 (Copy enclosed).
66	KSEB (Raghunathpur - 1 & 2)	Load	SR	46.75	46.75			KSEB				**LTA effective from 01.04.2016.** Refer CTU Ltr C/CTU/plg/LTA/S/O/2016/ Apr'14-02 dtd 22.03.2016, PG Ltr dtd C/Comml/SRLDC/LTA-Optn/KSEBL/Apr'14/ 2016 dtd 23.03.2016 and SRLDC Ltr SRLDC/MO/2016-17 dtd 01.04.2016 (Copy enclosed).
67	MPPMCL (MB Power Unit#2,MP)	Load	WR	197.4	197.4			MPPMCL,MP				**LTA effectve from 30.04.2016.** Refer CTU Ltr C/CTU-Plng/W/06/INT/1111/04/R1 dtd 29.04.2015, PG Ltr no. C/Comml/WRLDC/LTA-Optn/MPPMCL:197.4 dtd 29.04.2016 and WRLDC mail dtd 30.04.2016 (Copy enclosed)
68	MPPMCL (Jabhua Power,MP)	Load	WR	197.4	197.4			MPPMCL,MP				**LTA effectve from 10.05.2016.** Refer CTU Ltr C/CTU/LTA/MPPMCL (Jabhua Power) dtd 06.05.2016, PG Ltr no. C/Comml/WRLDC/LTA-Optn/MPPMCL:197.4-Jabhua dtd 06.05.2016 and WRLDC mail dtd 26.05.2016 (Copy enclosed)
69	DVC, Raghunathpur (Unit-1 & 2)	Generator	ER	100	100			Haryana (U1-50MW & U2-50MW)				**LTA effective from 18.05.2016.** Refer CTU Ltr C/CTU-Plng/ DVC/2016/Scheduling/ HPPC dtd 19.04.2016, PG Ltr no. C/Comml/ERLDC/LTA-DVC Haryana dtd 17.05.2016 and NRLDC mail dtd 26.05.2016(Copy enclosed). **Transmission charges shall be payable by Haryana only**.
70	Thermal Powertech Corporation India Ltd	Generator	SR	1240	839.45			Telangana (839.45 MW)				**LTA effective from 21.06.2016.** Refer letter C/Comml/LTA TPCIL 1240 MW dt. 21.06.2016.(Copy enclosed) & SRLDC Letter dt. 28.06.2016. **Transmission charges shall be payable by TPCIL only. Further, the Telangana LTA started from 01.07.2016.**
					230.55			AP				**The AP LTA of 230.55 MW commenced from 01.07.2016**. However, TPCIL has also availed the MTOA for 230.55 MW for which offset may be given against their AP LTA charges. Scheduling of this power under MTOA has been withdrawn w.e.f. 07.01.2017.

S. No.	Name of LTA Customer (Injecting utility)	Generator/Load/Trader	Region	Quantum of LTA granted	LTA with tied up beneficiaries	LTA quantum related to Champa Kurkshetra HVDC Pole-I	LTA quantum related to Champa Kurkshetra HVDC Pole-II	Name of the beneficiaries				Remarks
71	Simhapuri Energy Pvt Ltd	Generator	SR	0	0			NA				**As per Aptel Order dtd 18.12.2018 in Appeal no. 205 of 2017, the TSA of SEL has been terminated and SEL is not allowed to inject power under LTA/MTOA/STOA wef 09.08.2018, vide CTU letter no. CC:Comml/TSA Termination/Simhapuri EL dtd 27.12.2018 (Copy enclosed). LTA termination letter wef 09.08.2018 is being issued. No further billing wef 09.08.2018.** (LTA of 546 MW effective from 16.06.2016. An LTA of 146 MW was relinquished wef 01.06.2018 vide CTU Letter C/CTU/S/LTA/SEL dt. 26.06.2018.)
72	GMR Kamalanga Energy Ltd	Generator	ER	387	312			Haryana (312 MW)				**LTA effective from 14.07.2016.** Refer letter C/Comml/ERLDC/LTA-GMR Haryana & NR 387 MW dt. 11.07.2016 (Copy enclosed) & ERLDC mail dt. 22.07.16. **Transmission charges shall be payable by GMR Kamalanga only**.
73	DVC, Raghunathpur (Unit-1 & 2)	Generator	ER	300	300			Punjab (U1-150 MW & U2-150 MW)				**LTA effective from 15.07.2016.** Refer letter C/Comml/ERLDC/LTA-DVC:PSPCL 300 MW dt. 13.07.2016 (Copy enclosed) & ERLDC mail dt. 22.07.16. **Transmission charges shall be payable by Punjab only**.
74	Udupi Power Corporation Ltd (UPCL)	Generator	SR	939	939			Karnataka - 939 MW				LTA effective from 01.07.2011 and the transmission charges are payable by Karnataka Discoms & UPCL as per CERC Order dtd 30.06.2016 under Pet no. 10/SM/2014. **(LTA of 18.5 MW to UPCL stopped as per direction of CERC vide Order dtd 23.08.17 in Pet no.242/MP/2016**)
75	DB Power Ltd.	Generator	WR	236	236			Rajasthan -236 MW				**Vide CTU letter C/CTU-Plg/WR/LTA/DBPL-Op/1 dtd 26.07.18 LTA of 250(175+75) MW has been revised to 311 MW to Rajasthan Discoms w.e.f 01.08.2018.**(Copy enclosed).**Transmission charges shall be payable by DB Power Ltd only**.
76	DB Power, Chhattisgarh	Generator	WR	75	75	75		Rajasthan Discoms -75 MW				
77	Maruti Clean Coal Ltd (1x300MW)	Generator	WR	150	150	150		Rajasthan				As per CTU letter dtd 28.09.18 , Relinqishment of 55 MW is from 205 MW LTA granted to MCCPL for Power transfer to Rajasthan.Hence the transmission charges of 150 MW (205-55) shall be payable by Maruti Clean Coal Ltd under this transaction.
78	Maruti Clean Coal Ltd (1x300MW)	Generator	WR	45	45			Rajasthan				The Transmission charges of 45 MW shall be payable by Maruti Clean Coal Ltd only.
79	RKM Powergen Pvt. Ltd.	Generator	WR	200	200			UTTAR PRADESH - 200 MW				**LTA effective from 30.11.2016**. Refer CTU Letters no. C/CTU-Plg/LTA/O/2016/RKMPPL dtd 04.11.16 and no. C/Comml/WRLDC/LTA-RKMPPL -200MW dtd 18.11.2016. (Copy enclosed). **Transmission charges shall be payable by RKM Power Pvt Ltd only.**
			WR	150	150			UTTAR PRADESH - 150 MW				Untied LTA of 150 MW to WR is to be billed up to **13.02.19** only. Wef **14.02.2019**, the untied LTA to WR has been tied up with UP vide CTU letter C/CTU/W/07/RKM-Op dtd 12.02.19 (Copy enclosed). **Transmission charges shall be payable by RKM Power Pvt Ltd only.**
80	TRN Energy Pvt. Ltd.	Generator	WR	150	150			UTTAR PRADESH - 150 MW				**LTA effective from 30.11.2016**. Refer CTU Letters no. C/CTU/OA/LTA-Op dtd 04.11.16 and no. C/Comml/WRLDC/LTA-TRN Energy -150MW dtd 15.11.2016. (Copy enclosed). **Transmission charges shall be payable by TRN Energy Pvt Ltd only.**
			WR	240	240	240		UTTAR PRADESH - 240 MW				**LTA effective from 20.04.2017**. Refer CTU Letters no. C/CTU-Plg/LTA/W/2016/TRNEPL/Op dtd 24.03.2017, C/CTU-Plg/LTA/W/2017/TRNEPL dtd 20.04.2017 and no. C/Comml/WRLDC/LTA-TRN Energy -240MW dtd 01.05.2017. (Copy enclosed). **Transmission charges shall be payable by TRN Energy Pvt Ltd only.**
			WR	3	0			NA				**LTA effective from 01.10.2017**. **Transmission charges shall be payable by TRN Energy Pvt Ltd only.**

S. No.	Name of LTA Customer (Injecting utility)	Generator/Load/Trader	Region	Quantum of LTA granted	LTA with tied up beneficiaries	LTA quantum related to Champa Kurkshetra HVDC Pole-I	LTA quantum related to Champa Kurkshetra HVDC Pole-II	Name of the beneficiaries				Remarks
81	Jabhua Power Ltd	Generator	WR	109.25	109.25			KSEB Ltd, Kerala				**LTA effective from 22.12.2016**. Refer CTU Letters no. C/CTU-Plg/LTA/Jabhua-OP dtd 06.12.16, Ltr no. C/Comml/WRLDC/LTA-Jabhua 109.25 dtd 20.12.2016 and WRLDC mail dtd 28.12.2016.(Copy enclosed). **Transmission charges shall be payable by Jabhua Power Ltd only.**
82	Dhariwal Infrastructure Ltd, Maharashtra	Generator	WR	34	34			Noida Power Company Ltd, Uttar Pradesh				**LTA effective from 01.12.2016**. Refer CTU Letters no. C/CTU-Plg/LTA W/2016/DIL dtd 29.07.2016 and no. C/Comml/WRLDC/LTA-DIL 34MW dtd 10.11.2016. (Copy enclosed). **Transmission charges shall be payable by Dhariwal Infrastructure Ltd only.**
83	Dhariwal Infrastructure Ltd, Maharashtra	Generator	WR	136	136	136		Noida Power Company Ltd, Uttar Pradesh				**LTA effective from 29.03.2017.** Refer CTU Letters no. C/CTU-Plg/LTA/W/2016/DIL/Op dtd 24.03.2017 and no. C/Comml/LTA-DIL 136 MW dtd 27.03.2017 (Copy enclosed). **Transmission charges shall be payable by Dhariwal Infrastructure Ltd only.**
84	Jindal Power Ltd (4x600MW), Chattisgarh stg2	Generator	WR	190	190			KSEB Ltd, Kerala				**LTA effective from 10.01.2017**. Refer CTU Letters no. C/CTU-Plg/LTA/W/2015/Dec'14-02 dtd 01.10.2015 and no. C/Comml/JPL 190 MW LTA KSEB dtd 07.01.2017 and WRLDC mail dtd 07.01.2017 (Copy enclosed). **Transmission charges shall be payable by Jindal Power Ltd only.**
85	KSK Mahanadi Power Company Ltd (Chattisgarh)	Generator	WR	1000	1000	1000		UP DISCOMS, UP				**LTA effective from 20.04.2017 (LC establishment date considered as per CTU Ltr dtd 18.04.2017).** Refer CTU Letters no. C/CTU-Plg/LTA/W/2017/KMPCL dtd 1 8.04.2017 and no. C/Comml/LTA-1000 MW /KSK dtd 19.04.2017 (Copy enclosed). **Transmission charges shall be payable by KSK Mahanadi Power Company Ltd (Chattisgarh) only.**
			WR	0	0			-				**LTA quantum revised from 840MW to 400 MW w.e.f 01.12.2017 on relinquishment of 440 MW LTA (to WR) by KSK Mahanadi. Transmission charges shall be payable by KSK Mahanadi Power Co.Ltd only. Vide CTU letter dated 22.04.22, balance 400 MW LTA to WR relinquished w.e.f 14.03.2022 .**
86	MB Power (Madhya Pradesh) Ltd , MP	Generator	WR	169	169	169		UP DISCOMS, UP				**LTA effective from 01.04.2017 (LC establishsment date as per CTU Ltr dtd 30.03.2017).** Refer CTU Letters no. C/CTU-Plg/LTA/W/2016/ MBPMPL dtd 29.07.16 and no. C/Comml/LTA-MB Power -169 MW dtd 30.03.2017 (Copy enclosed). **Transmission charges shall be payable byMB Power (Madhya Pradesh) Ltd , MPonly.**
			WR	31	0		31	NA				**LTA effective from 01.10.2017.Transmission charges shall be payable byMB Power (Madhya Pradesh) Ltd , MPonly.**
87	KSEB (Maithon Power Ltd-RBTPP)	Load	ER	140.625	140.625			KSEB				**LTA quantum got revised to 140.625 MW wef 28.06.2019 after signing of Agreement as per CTU intimation C/CTU/E/07/KSEB dtd 19.06.2019 (Copy enclosed)**
88	TSSPDCL, Telangana (MARWA Thermal Power Plant)	Load	SR	947.5	947.5			TGPCC (947.5MW)				**LTA quantum is modified from 1000 MW to 947.5 MW w.e.f. 01.12.2019 vide** CTU Letter C/CTU/LTA/TSSPDCL dt 31.12.19 . (Copy enclosed). **Transmission charges are payable by Telangana only.**
89	GMR Kamalanga Energy Ltd	Generator	ER	260	260			Bihar (260 MW)				**LTA effective from 09.07.2017.** Refer letter C/Comml/ERLDC/Bihar/LTA-260MW dt. 07.07.2017(Copy enclosed). **Transmission charges shall be payable by GMR Kamalanga only**.
90	Bhartiya Rail Bijlee Company Limited(BRBCL)	Generator	ER	910	910			ECR {Bihar-100 MW, DVC-110 MW,Maharashtra-120 MW, MP-209 MW, UP-150 MW, Haryana- 55 MW, Punjab - 35 MW, Rajasthan- 10 MW, Delhi-15 MW, Karnataka -10 MW, Assam-5 MW} & BSP(H)CL, Bihar (91 MW)				As per CTU letter C/CTU/E/01/Nabinagar-I dtd 30.12.2021 **the said transmission charges are applicable w.e.f 01.01.2022**.Transmission charges shall be payable by East Central Railway & BSP(H)CL .

S. No.	Name of LTA Customer (Injecting utility)	Generator/Load/Trader	Region	Quantum of LTA granted	LTA with tied up beneficiaries	LTA quantum related to Champa Kurkshetra HVDC Pole-I	LTA quantum related to Champa Kurkshetra HVDC Pole-II	Name of the beneficiaries				Remarks
92	NTPC, Kudgi	Generator	SR	2250	2250			Karnataka (1227.30MW), Kerala (104.74 MW) , Tamilnadu (302.59MW) , Andhra Pradesh (360.68MW), Telangana (254.70 MW)				**LTA effective from 01.08.2017. CTU has revised the LTA quantum to differemt Beneficiaries vide their letterC/CTU /S/07/Kudgi- R2 dtd 16.05.19, whihc may be reviewed by SRPC/NLDC as the allocation is from Central Generating Station. Transmission charges shall be payable by beneficiaries as mentioned.**
93	Rosa Power	Generator	NR	300	300			UP- 300 MW				LTA effective from 01.09.2017.Transmission charges shall be payable by UPPCL only.
94	Jindal Power Ltd (4x600MW), Raigarh, Tamnar stg2	Generator	WR	142.5	142.5			KSEB Ltd, Kerala				**LTA to be effective from 01.10.2017**. Transmission charges are payable by Jindal Power only
95	Jindal Power Ltd (225 MW LTA - 50 MW from DCPP(4x135MW) & 175 MW from exitsing Tamnar TPS)	Generator	WR	125	0			NA				**The LTA has been reduced from 225 MW to 125 MW w.e.f 01.10.2019 through relinquishment of 100 MW vide CTU Ltr no. C/CTU/W/07/JPL-1/Rel dtd 09.10.2019. (Copy enclosed).Transmission charges are payable by Jindal Power only.**
96	Jndal India Thermal Power Ltd (JITPL), Odisha (2x600MW)	Generator	ER	95	95			KSEB Ltd, Kerala				**LTA effective from 01.10.2017** . Transmission charges are payable by JITPL
97	Bharat Aluminium Co.Ltd (BALCO), Chattisgarh (4x300MW)	Generator	WR	95	95			KSEB Ltd, Kerala				**LTA effective from 01.10.2017.** Transmission charges are payable by BALCO
98	Jabhua Power Ltd (1x600MW)	Generator	WR	95	95			KSEB Ltd, Kerala				**LTA effective from 01.10.2017**. Transmission charges are payable by Jabhua Power only.
99	Sembcorp Gayathri Power Ltd (SGPL), AP	Generator	SR	740	450			BPDB, Bangladesh				LTA effective from 01.10.2017 . 250 MW tied up with BPDB, Bangladesh wef 01.04.2020. Transmission charges are payable by Sembcopr only. **LTA 200 MW was further tied up with Bangladesh w.e.f. 01.01.2023.**
100	SKS Powergen (Ch) Ltd (4x300MW)	Generator	WR	0	0			NA				**LTA effective from 01.10.2017 till 17.12.2017 only**. **From 18.12.2017 onwards, the LTA of 683 MWhas been kept under abeyance as per the stay granted by Delhi High Court and as per the CERC ROP dtd 09.01.2018 under Pet no. 253/MP/2017 of SKS Power Generation.**

S. No.	Name of LTA Customer (Injecting utility)	Generator/Load/Trader	Region	Quantum of LTA granted	LTA with tied up beneficiaries	LTA quantum related to Champa Kurkshetra HVDC Pole-I	LTA quantum related to Champa Kurkshetra HVDC Pole-II	Name of the beneficiaries				Remarks
101	DB Power Ltd (2x600MW)	Generator	WR	186	0			NA				**Vide CTU letter C/CTU-Plg/WR/LTA/DBPL-Op/1 dtd 26.07.18 LTA of 247 MW has been revised to 186 MW w.e.f 01.08.2018. Transmission charges are payable by DB Power Ltd only.**
102	Chattisgarh State Power Trading Co.Ltd (from various gen.plants in Chattisgarh in WR)*allocation from various generators are as per **Annexure-A**	Trader	WR	604	343			Chattisgarh				LTA of 604 MW (WR-Target) effective from 01.10.2017 to 09.01.2018 only. W.e.f 10.01.2018, LTA quantum of 288MW firmed up with Chattisgarh. Refer CTU Ltr no. C/CTU-Plg/LTA/W/2017/CSTrCL dtd 08.01.2018 for firm-up of 288MW to Chattisgarh and WRLDC e-mail dtd 17.01.2018 for scheduling of power. **Wef 01.01.2019 to 31.10.2030, LTA quantum of 55 MW firmed with Chhattisgarh**. Refer CTU ltr no. C/CTU/W/07/CSPTrCL dtd 27.12.2018 for firming up of 55 MW to Chhattisgarh. (Copy enclosed).
103	WBSEDCL, West Bengal (1000MW State Surplus)	DIC	ER	1000	0			NA				**LTA effective from 01.10.2017 .** Transmission charges are payable by WBSEDCL only.
104	Coastal Energen Pvt Ltd, Tuticorin, Tamilnadu	Generator	SR	558	558			TANGEDCO, Tamil Nadu				LTA of 558 MW effective from 01.10.2017. **(**Please refer CERC RoP dtd 01.03.2018 in IA No. 1/2018 in Petition No. 246/MP/2016 vide which LTA for balance 542 MW was relinquished, subject to final order in the petition.) Transmission charges are payable by Coastal Energen Pvt Ltd only.
105	PSPCL (Bokaro TPS, DVC Power)	Load	ER	200	200			PSPCL				**LTA effective from 26.03.2018**. Transmission charges are payable by PSPCL. Refer PG ltr no. C/CTU-plg/E/08/PSPCL dtd 20.03.2018, CTU Mail 24.03.2018, ERLDC mail dtd 29.03.18
106	Kanti Bijlee Utpadan Nigam Ltd.	Generator	ER	121.59	121.59			As per the MoP allocation to be decided by respective RPC				LTA effective from 01.04.2018. As KBUNL is a CGS, NLDC may please verify the MOP allocations of its beneficiaries for POC billing. Transmission charges shall be payable by beneficiaries as mentioned Refer CTU Letter C/CTU/E/07/KBUNL/Op dtd 23.03.2018
107	Singrauli Samall Hydro Plants (NTPC)	Generator	NR	8	8			As per the MoP allocation to be decided by respective RPC				LTA effective from 30.09.2016 as per CERC order in Pet No. 198_MP_2016 dtd 07.02.18. Transmission charges shall be payable as per CERC Order. Refer CTU Letter C/CTU-Plg/LTA/N/2018/Singrauli Hydro dtd 19.04.2018
108	PTC (Teesta-III HEP)	Trader	ER	174	174			UP				**LTA effective from 12.05.2018**. from 12.05.18 to 31.03.31 -174 MW, then upto 25 years - 168 MW, Refer CTU ltr no. C/CTU-plg/E/07/Teesta-III dtd 10.05.2018 (Copy enclosed). **Transmission charges are payable by PTC only.**
109	PTC (Teesta-III HEP)	Trader	ER	87	87			RAJASTHAN				**100 MW LTA effective from 23.02.2019.** Please refer CTU Ltr C/CTU/E/07/PTC dtd 21.02.19 (Copy enclosed). **Transmission charges are payable by PTC only. Relinquished 13 MW wef 23.02.2019. Currently the balance is 87 MW only**
110	MB Power (Madhya Pradesh) Ltd , MP	Generator	WR	144	-							**LTA Effective from 02.05.2018. Please refer CTU Ltr C/CTU-Plg/LTA/W/2016/MBPMPL dtd 29.07.2016 and CTU Ltr C/CTU-Plg/08/MBPMPL-Op/1 dtd 18.09.2018 (Copy enclosed). Transmission charges are payable by MB Power only.**

S. No.	Name of LTA Customer (Injecting utility)	Generator/Load/Trader	Region	Quantum of LTA granted	LTA with tied up beneficiaries	LTA quantum related to Champa Kurkshetra HVDC Pole-I	LTA quantum related to Champa Kurkshetra HVDC Pole-II	Name of the beneficiaries				Remarks
111	Jndal India Thermal Power Ltd (JITPL), Odisha (2x600MW)	Generator	ER	228	228			Bihar Discoms				**LTA effective from 31.12.2018. Please refer CTU Ltr. C/CTU/E/01/JITPL dtd 13.12.2018 (Copy enclosed).** Transmission charges are payable by JITPL
112	NVVNL (injection is from DVC, West Bengal)	Trader	ER	300	300			NVVNL, BPDB				LTA effective from 01.01.2019. Please refer CTU Ltr C/CTU/E/01/JITPL dtd 31.12.2018 (Copy enclosed). Transmission charges shall be payable by NVVNL.
113	Common Pool (Champa Kurukshtra Pole-II)						1469					
114	Gati Infrastructure Limited,Chuzachen HEP (2x55MW)	Generator	ER	99	99			Haryana				LTA effective from 23.02.2019. Please refer CTU Ltr C/CTU/E/07/GIL dtd 21.02.19 (Copy enclosed). **Later LTA firmed up wef 25.02.2021 as per CTU letter C/CTU/E/07/Chuzachen dtd 23.02.2021 & email dtd 24.02.2021(copy enclosed)**
115	Dans Energy Private Limited,Jorethang HEP (2x48MW)	Generator	ER	86.4	86.4			HPPC				LTA effective from 23.02.2019. Vide CTU letter C/CTU/E/07/DANS dtd 06.11.2019, LTA got revised to 86.4 MW wef 13.08.2019 after relinquishment of 9.6 MW. Out of 86.4 MW LTA, 43.2 MW (earlier under NR target)has been firmed-up with Haryana w.e.f 18.04.2021 vide CTU letter CTU/E/07/DANS dtd 16.04.2021. Vide CTU letter CTU/E/07/DANS dtd 29.04.2021 (copy enclosed), balance 43.2 MW has also been firmed up with Haryana wef 01.05.2021. Vide CTU letter CTU/E/07/DANS dtd 01.06.2021 (copy enclosed), 86.4 MW has been switched from Firm to Target basis to NR wef 27.05.2021. **Vide CTU letter CTU/E/07/DANS-Scheduling dtd 02.01.2023 (copy enclosed), 86.4 MW has been switched from Target basis to HPPC as a beneficiary wef 04.01.2023.**
116	Shiga Energy Private Limite, Tashiding HEP (2x48.5MW)	Generator	ER	87.3	87.3			HPPC				LTA effective from 23.02.2019. Vide CTU letter C/CTU/E/07/Shiga dtd 06.11.2019, LTA got revised to 87.3 MW wef 13.08.2019 after relinquishment of 9.7 MW. Out of 87.3 MW LTA, 43.65 MW (earlier under NR target)has been firmed-up with Haryana w.e.f 18.04.2021 vide CTU letter CTU/E/07/Shiga dtd 16.04.2021. Vide CTU letter CTU/E/07/Shiga dtd 29.04.2021 (copy enclosed), balance 43.65 MW has also been firmed up with Haryana wef 01.05.2021. **Vide CTU letter CTU/E/07/Shigha dtd 01.06.2021 (copy enclosed), 87.3 MW has been switched from Firm to Target basis to NR wef 27.05.2021.** **Vide CTU letter CTU/E/07/Shiga-Scheduling dtd 02.01.2023 (copy enclosed), 87.3 MW has been switched from Target basis to HPPC as a beneficiary wef 04.01.2023.**
117	Greenko Budhil Hydro Power Private Ltd (GBHPPL)	Generator	NR	61.6	61.6			Uttrakhand				**LTA effective from 19.04.2019.** Please refer CTU Ltr C/CTU/N/07/1200001795/Op dtd 16.04.19 and **CTU mail dtd 18.04.2019 regarding clarification on the date of effectiveness of LTA** (Copy enclosed). Transmission charges shall be payable by Greenko Budhil Hydro Power Private Ltd (GBHPPL).
118	NTPC Gadarwara	Generator	WR	1507.99	1507.99							LTA effective from 11.07.2018. Since there is no generation, bilateral billing for ATS charges done on NTPC till 31.05.2019. As Unit-1 of NTPC-Gadarwara has been commisioned wef 01.06.2019, LTA of 754 MW corresponding to Unit-I to be considered by WRPC/NLDC as the allocation is from Central Generating Station, in line with CERC directions in Pet 261/MP/2017 (Kudgi Order). **Unit 2 has been commissioned wef 01.03.2021 (COD letter enclosed) and hence the full LTA has to be considered by WRPC/NLDC.** Transmission charges shall be payable by beneficiaries as mentioned.
119	Suryakanta Hydro Energies Pvt Ltd, Nanti Small Hydro Electric Project (SHEP), Himachal Pradesh	Generator		14	14			TPDDL				LTA effective from 01.10.2018. Please refer CTU Ltr C/CTU-Plg/N/07/1200001580/Op dtd 28.09.18. Transmission charges shall be payable by Suryakanta hydro Energies Pvt Ltd.
120	Nabinagar Power Generating Company Limited	Generator	ER	1856.25	1856.25			North Bihar- 543.55 MW, South Bihar - 911.92 MW, Sikkim - 9.37 MW, Jharkhand-56.25 MW, UP- 195.94 MW, Unallocated -139.22 MW				LTA operationalized from 29.08.2019 vide CTU Ltr dtd 27.08.2019 (copy attcahed). Nabinager-II generation declared CoD of unit -1 on **06.09.2019**.(One unit out of three units of NPGCL COD declared till now). Transmission charges shall be payable by beneficiaries as mentioned. .

S. No.	Name of LTA Customer (Injecting utility)	Generator/Load/Trader	Region	Quantum of LTA granted	LTA with tied up beneficiaries	LTA quantum related to Champa Kurkshetra HVDC Pole-I	LTA quantum related to Champa Kurkshetra HVDC Pole-II	Name of the beneficiaries				Remarks
121	Nanti Hydro Power private Limited	Generator	NR	11.45	11.45			TPDDL				LTA operationalized from 01.09.2019 (11.45 MW - 01.09.2019 to 31.08.2029 and 10.60 MW 01.09.2029 to 31.10.2037)(vide CTU Ltr C/CTU-Plg/N/07/1200002168/Op dtd 30.08.2019 (copy attcahed). Transmission charges shall be payable by NNPPL .
122	NTPC , Lara (2X800 MW)	Generator	WR	1500	1500			CSPDCL,MPPMCL,GUVNL,MSEDCL,GOA,DNH, & DD				LTA of 793.25 MW made effective from 09.10.2019. CTU has revised the LTA quantum to 750 MW to differemt Beneficiaries vide their letterC/CTU /W/07/LARASTPP dtd 25.10.2019, apportionment may be reviewed by WRPC/NLDC as the allocation is from Central Generating Station. Further, LTA of 750 MW made effective from 01.04.2020. vide CTU letterC/CTU /W/07/LARASTPP dtd 31.03.2020. Only Unit -1 commissioned on 01.10.2019. Transmission charges for Unit-1 generation shall be payable by beneficiaries in line with CERC directions in Pet 261/MP/2017 (Kudgi Order) and billing of Unit-2 to be bilateral on NTPC till 06.11.2020 and in PoC from 07.11.2020 as COD of unit 2 is 07.11.2020 (COD letter of unit 2 is enclosed).
123	NLC India Limited	Generator	SR	314.79	156.56			Karnataka, Telangana, Andhra Pradesh, Tangedco, KSEB, PED				LTA of 156.56 MW is being operationalized w.e.f. 22.12.2019 as per CTU vide their letter C/CTU/S/07/Neyveli dtd 20.12.2019.(Letter attached) Apportionment may be reviewed by SRPC/NLDC as the allocation is from Central Generating Station. Transmission charges shall be payable by beneficiaries.
124	M/s Taranda Hydro Power Private Limited	Generator	NR	12.65	12.65			TPDDL				12.65 MW LTA made effective from 25/12/2019 as per C/CTU/N/07/LTA/1200002109/Op dtd 23.12.19.Transmission charges shall be payable byM/s Taranda Hydro Power Private Limited.
125	NTPC Khargone (U#1)	Generator	WR	622.05	622.05			CSPDCL,MPPMCL,GUVNL,MSEDCL,GED,DNHPDCL,ED(D&D)				LTA of 622.05 MW made effective from 01.02.2020 vide CTU letter C/CTU/W/07/KhargoneSTPP dtd 31.01.2020 . The apportionment may be done by WRPC/NLDC as the allocation is from Central Generating Station. Unit -1 commissioned on 01.02.2020. Transmission charges shall be payable by beneficiaries.
126	NTPC Khargone (U#2)	Generator	WR	622.05	622.05			CSPDCL,MPPMCL,GUVNL,MSEDCL,GED,DNHPDCL,ED(D&D)				LTA of 622.05 MW made effective from 03.04.2020 vide CTU letter C/CTU/W/07/KhargoneSTPP dtd 01.04.2020 . The apportionment may be done by WRPC/NLDC as the allocation is from Central Generating Station. Unit-2 COD 04.04.2020. For 03.04.2020 (1 day), Billing for U#2 shall be done bilateraly to NTPC. Transmission charges shall be payable by beneficiaries.
127	NTPC Darli Palli	Generator	ER	1498	1498	749		Bihar = 151.125MW, West Bengal = 233.91MW, Jharkhand = 117.64MW, Sikkim = 22.32MW, Unallocated = 225MW Odisha = 748MW				LTA effective from 10.01.2020. Since there is no generation, bilateral billing for ATS charges done on NTPC till 29.02.2020. As Unit-1 of NTPC-DarliPalli has been commisioned wef 01.03.2020, LTA of 749 MW corresposning to Unit-I to be considered by WRPC/NLDC as the allocation is from Central Generating Station. Transmission charges for Unit-1 generation shall be payable by beneficiaries in line with CERC directions in Pet 261/MP/2017 (Kudgi Order).
128	NTPC Auraiya, 20 MW Solar Project	Generator	NR	20	15			UPPCL				15 MW LTA operationalized w.e.f. 25/10/2020, as per CTU letter C/CTU/N/07/LTA/1200002836/Op dtd 21/10/2020. Transmission charges for 15 MW shall be payable NTPC Auraiya.
					5			UPPCL				5 MW LTA operationalized w.e.f. 30/11/2020, as per CTU letter C/CTU/N/07/LTA/1200002836/Op dtd 21/10/2020. Transmission charges for 5 MW shall be payable NTPC Auraiya.
129	Madhya Bharat Power Coporation Limited (2x56.49 MW)	Generator	ER	113	113			CSPDCL				LTA was enhanced from 96 MW to 113MW w.e.f. 04.07.2021 with CSPDCL as a beneficiary,vide CTU intimation dated 30.06.2021.
130	UPPCL (from Rajghat HEP in MP)	DISCOM	WR	6.9	6.9			UPPCL from Rajghat HEP in MP				LTA of 6.9 MW made effective from 25.07.2021 vide CTU letter dtd 23.07.2021 .

S. No.	Name of LTA Customer (Injecting utility)	Generator/Load/Trader	Region	Quantum of LTA granted	LTA with tied up beneficiaries	LTA quantum related to Champa Kurkshetra HVDC Pole-I	LTA quantum related to Champa Kurkshetra HVDC Pole-II	Name of the beneficiaries				Remarks
131	NTPC Ltd. (Tanda-II, Unit-II)	Generator	NR	178.39	178.39			UPCL, HPPC, RUVNL, PDD(J&K), EDC(Chandigarh)				LTA operationalized w.e.f. 01.07.2021 vide CTU letter dated 28.06.2021.
132	Central Raiway	Load	WR	2.32	2.32			Central Railway, Maharashtra from NTPC Mauda (Stage-I & II)				LTA operationalized w.e.f. 13.12.2021 to 12.12.2033 vide CTU letter C/CTU/W/07/1200003431 dated 09.12.2021 (Copy enclosed)
133	Teesta Urja Limited (TUL)	Generator	ER	275	275			UPPCL				LTA operationalised w.e.f. 01.05.2022 to 19.10.2046 vide CTU letter CTU/E/TUL/3659 dated 22.04.2022
134	SJVN Ltd. (Naitwar Mori HEP)	Generator	NR	60	0			NA				LTA operationalised w.e.f. 30.09.2022 vide CTU letter dated 26.09.2022. COD yet to be achieved and the liability of transmission charges shall be levied as per Regulation 13(7) of Sharing Regulations, 2020. Also included in Format II G (3).
135	NTPC, Northkaranpura	Generator	ER	1856.25	1856.25			North Bihar = 270.90MW South Bihar = 374.10MW, Jharkhand = 468.75MW GRIDCO = 371.25MW WBSEDCL = 92.81MW Unallocated =				LTA of 618.75MW is operationalised w.e.f. 18.01.2023 vide CTU letter dated 16.01.2023.
			Total	**35859.8**	**33066.5**	**2519.0**	**1500.0**					

Note : ***1. The above information is based on LTA intimation/Letter issued by CTU to different applicants. For billing purpose, the same may be verified by RLDCs/RPCs/NLDC and addition / deletion of LTA/MTOA to the above, noticed if any, may please be informed***

Annexure-XIX(B)

MTOA Status(As on 31.03.2023)

Sl. No.	Name of the Applicant	Injection of Power		MTOA Granted for (MW)	Date from which MTOA is Granted	Date upto which MTOA Granted	Drawl of Power					Remarks
		Entity / Location of Generating Station	Region				Entity / Location of Loads	Region				
1	MPPMCL	RUVNL, Rajasthan	NR	58	01-09-2020	31-03-2023	MPPMCL	WR				
2	SAIL Salem Steel Plant	NSPCL Bhilai TPS	WR	13.65	01-09-2020	31-03-2023	SAIL, Salem Steel Plant / SR	SR				Refer CTU letter C/CTU/W/06/MPPMCL-Op dtd 28.08.2020. Transmission charges shall be payable by MPPMCL only.
3	Manikaran Power Limited	DB Power Limited, Chhattisgarh	WR	51.8	01-03-2022	31-07-2023	GUVNL, Gujarat	WR				Refer CTU letter C/CTU/S/06/1200002517/Op dtd 21.08.2020. Transmission charges shall be payable by SAIL only.
4	DB Power Ltd	DB Power generation project, Raigarh, Chhhatisgarh	WR	100	01-05-2022	19-01-2025	TANGEDCO, TN	SR				MTOA was operationalized w.e.f. 01.05.22
5	PTC India Limited	MB Power (MP) Ltd, Madhya pradesh	WR	150	01-06-2022	30-11-2024	TANGEDCO, TN	SR				MTOA was operationalized wef 01.06.2022. However, RLDC was requested to stop the scheduling of MTOA as per the directions of Hon'ble Madras High Court in order dated 01.06.2022 till further directions in this matter. In light of the directions passed by Madras High Court in order dated 01.06.2022 in W.M.P. No. 13062 of 2022 in W.P. No. 13767 of 2022, the billing of transmission charges against the subject MTOA of 150 MW granted to PTC was kept on-hold or suspended till further directions in this regard. Now, Hon'ble Supreme Court vide order dated 29.08.2022 has set aside the interim order dated 01.06.2022 & 04.07.2022 of Honb'ble Madras High Court. In view of the order passed by Hon'ble Supreme Court, interim order dated 01.06.2022 & 04.07.2022 stand vacated. Accordingly, CTU vide letter dated 30.08.2022 has requested SRLDC to resume the scheduling of power under PTC MTOA.
6	Jaiprakash Power Venture Limited	Jaiprakash Power Venture Limited	WR	50	01-06-2022	19-01-2025	TANGEDCO, TN	SR				MTOA was operationalized wef 01.06.2022
7	Tata Power Trading Company Ltd.	Jindal India Thermal Power Ltd (2x600MW), Angul, Odisha	ER	204.2	01-04-2022	31-07-2023	GUVNL, Gujarat	WR				MTOA has been operationalized wef 04/07/22
8	Sembcorp Energy India Limited - Project 2(2x660MW)	Sembcorp Energy India Limited - Project 2(2x660MW), Nellore, Andhra Pradesh	SR	102	01-04-2022	31-07-2023	GUVNL, Gujarat	WR				MTOA has been operationalized wef 04/07/22
9	Adani Enterprises Ltd.	Raigarh Energy Generation Limited, Chhattisgarh	WR	510	01-08-2022	31-07-2023	GUVNL, Gujarat	WR				MTOA has been operationalized wef 01/08/22
10	Jindal Power Limited	Jindal Power Limited Stage-I (4x250MW), Chhattisgarh	WR	72	01-10-2022	31-08-2025	South Eastern Railway, Jharkhand	ER				MTOA has been operationaliesed w.e.f. 01/10/2022
11	Adani Enterprises Ltd. (1200003750)	Raigarh Energy Generation Limited [Raigarh (Kotra) PS]	WR	10.6	01-10-2022	31-03-2023	MPSEZ Utilities Ltd (DISCOM)	WR				MTOA has been operationaliesed w.e.f. 01/10/2022
12	Adani Enterprises Ltd. (1200003746)	Raipur Energen Ltd. (Raipur Pool)	WR	42.4	01-10-2022	31-03-2023	MPSEZ Utilities Ltd (DISCOM)	WR				MTOA has been operationaliesed w.e.f. 01/10/2022
13	Tata Power Trading Company Limited(1200003840)	Jindal Power Limited Stage-I 400kV PGCIL Raipur	WR	71.4	01-10-2022	31-03-2023	TPL-Ahmedabad Discom, Gujarat	WR				MTOA has been operationaliesed w.e.f. 01/10/2022
14	Jindal Power Limited (1200003885)	Jindal Power Limited Stage-II, Tamnar, Chhattisgarh	WR	123	01-10-2022	30-09-2025	West Central Railway, Madhya Pradesh	WR				MTOA has been operationaliesed w.e.f. 01/10/2022
15	Jindal Power Limited (1200003863)	Jindal Power Limited Stage-II, Tamnar, Chhattisgarh	WR	WR	01-10-2022	30-09-2025	North Central Railways, Allahabad	NR				MTOA has been operationaliesed w.e.f. 01/10/2022
16	Indian Railway Gujarat (0530700002)	Raghunathpur TPS (2x600MW) Damodar Valley Corporation (DVC), West Bengal	ER	30	01-12-2022	30-11-2024	Indian Railway Gujarat (Western Railway)	WR				MTOA has been operationaliesed w.e.f. 01/12/2022
17	North Western Railways, Rajasthan	Raghunathpur TPS (2x600MW) Damodar Valley Corporation (DVC), West Bengal	ER	37.66	08-12-2022	07-12-2024	North Western Railways, Rajasthan	NR				MTOA has been operationaliesed w.e.f. 08/12/2022
18	Northern Railways, Uttar Pradesh	Raghunathpur TPS (2x600MW) Damodar Valley Corporation (DVC), West Bengal	ER	47.05	02-12-2022	01-12-2024	Northern Railways, Uttar Pradesh	NR				MTOA has been operationaliesed w.e.f. 02/12/2022
19	North Central Railway, Uttar Pradesh	Raghunathpur TPS (2x600MW) Damodar Valley Corporation (DVC), West Bengal	ER	30	01-12-2022	30-11-2024	North Central Railway, Uttar Pradesh	NR				MTOA has been operationaliesed w.e.f. 01/12/2022
20	Jindal Power Limited Stage-II, Tamnar, Chhattisgarh (1200003871)	Jindal Power Limited Stage-II, Tamnar, Chhattisgarh	WR	92.3	01-10-2022	30-09-2025	Western Railways, Gujarat	WR				MTOA has been granted from 01/10/2022 however the same has been operationalised w.e.f. 01/02/2023
22	PTC India Limited (1200003894)	SKS Power Generation (Chhattisgarh)	WR	72.1	01-10-2022	31-03-2023	TPL- Surat DISCOM, Gujarat	WR				MTOA has been granted from 01/10/2022 however the same has been operationalised w.e.f. 01/02/2023

Annexure-XX-A

APR-2022

Constituents	Total Scheduled (MWH)	Total Actual (MWH)	Deviation(MWH)	% of Deviation from Schedule
APNRL	278082.145	274640.4336	-3441.711368	-1.24
NVVN-BD	-663939.9355	-661789.5206	2150.414873	-0.32
BARH-II	851328.3102	848819.0018	5614.392312	0.66
BARH SG1_U2_INFIRM	0	-2519.4816	-2519.4816	0
BARH-I	355537.801	354042.7405	-1495.060488	-0.42
BSPHCL	-3251777.156	-3254731.548	-2954.392073	0.09
BRBCL	591482.0258	588189.7395	-3292.286265	-0.56
CHUKHA	110538.235	146815.8191	36277.58409	32.82
CHUZACHEN	38520.8525	40206.3648	1685.5123	4.38
DARLIPALI	906114.9553	905039.2465	-1075.70885	-0.12
DIKCHU	56523.85	57682.99933	1159.149325	2.05
DVC	1396251.05	1392548.299	-3702.751873	-0.27
NR	-1348632.328	-1691998.162	-343365.8336	25.46
NER	125009.2741	375342.4473	250333.1733	200.25
SR	-1130828.153	-1808029.063	-677200.9105	59.89
WR	-689613.2016	228593.7318	918206.9334	-133.15
FSTPP - I & II	713452.072	704109.2749	-4911.38441	-0.69
FSTPP-III	336355.2098	325399.2967	-8681.663832	-2.58
GMRKEL	352182.2325	356408.2147	4225.982154	1.2
HVDC ALIPURDUAR	-447.146632	-510.5172	-63.370568	14.17
HVDC SASARAM	-611.257724	-279.84797	331.409754	-54.22
JBVNL	-737213.1006	-763685.9191	-26472.81845	3.59
JITPL	679907.1725	678566.9022	-1340.270252	-0.2
JORETHANG HEP	21460.375	19439.168	-2021.207	-9.42
KHSTPP-I	530344.4914	521891.121	-8453.370461	-1.59
KHSTPP-II	876336.4037	863240.8642	-427.994695	-0.05
KURICHU	806.25	9911.0124	9104.7624	1129.27
MANGDECHU	205039.2375	156127.2348	-48912.00269	-23.85
MPL	625648.8675	612257.3757	197.345154	0.03
MTPS-II	242904.6676	241967.58	-937.087636	-0.39
NVVN-NEPAL	-96671.84554	-124951.9987	-28280.15319	29.25
NVVN_BHUTAN	368633.63	384040.5325	15406.90255	4.18
NPGC	875325.7954	874959.3043	2544.808069	0.29
NPGC-INFIRM	0	-2330.7675	-2330.7675	0
GRIDCO	-1512817.4	-1560997.088	-48179.6874	3.18
RANGIT	22975	24348.8124	1373.8124	5.98
RONGNICHU HEP	26928.5	27644.432	715.932	2.66
SIKKIM	-44103.35839	-47118.55255	-3015.194165	6.84
TALCHER SOLAR	1144.8375	1175.55	30.7125	2.68
TALA	52249.9075	71186.46625	18936.55875	36.24
TUL	414203.93	412281.7413	-1922.188653	-0.46
TEESTA	260116.6225	266654.7137	6353.828726	2.44
THEP	20192.975	17470.38635	-2722.588651	-13.48
TPTCL	22017.5	15794.3903	-6223.109696	-28.26
TSTPP	641192.9209	644975.4976	3782.576786	0.59
VAE_ER	16777.275	0	-16777.275	-100
WBSETCL	-1859789.447	-1909362.712	-49573.26508	2.67
Total	**679140.0418**	**613465.5155**	**-21861.74508**	**-3.22%**

May-22

Constituents	Total Scheduled (MWH)	Total Actual (MWH)	Deviation(MWH)	% of Deviation from Schedule
APNRL	351994.66	353257.451	1262.791017	0.36
NVVN-BD	-666751.6864	-658482.0298	8269.65659	-1.24
BARH-II	827820.0282	814114.7183	-3870.269334	-0.47
BARH SG1_U2_INFIRM	0	-2900.9088	-2900.9088	0
BARH-I	368961.3695	367828.015	-1037.141831	-0.28
BSPHCL	-3176509.728	-3184855.616	-8345.88752	0.26
BRBCL	548045.2831	543689.5946	-4355.68855	-0.79
CHUKHA	55082.2175	95492.16218	40409.94468	73.36
CHUZACHEN	43574.82	44530.992	956.172	2.19
DARLIPALI	509412.4009	509383.7626	-28.638296	-0.01
DIKCHU	64108.07	62734.272	-1373.798002	-2.14
DVC	1284848.468	1262495.191	-22353.2763	-1.74
NR	-1939821.691	-2260928.112	-321106.4211	16.55
NER	266823.3553	-83462.12258	-350285.4779	-131.28
SR	-255363.9765	-1260221.193	-1004857.216	393.5
WR	-1126892.034	701904.9884	1828797.023	-162.29
FSTPP - I & II	675583.641	666800.78	-4050.026054	-0.6
FSTPP-III	309223.2386	299451.8285	-5578.542462	-1.8
GMRKEL	423402.1775	424812.8685	1410.691045	0.33
HVDC ALIPURDUAR	-564.253358	-562.0686	2.184758	-0.39
HVDC SASARAM	-530.638156	-296.335357	234.302799	-44.15
JBVNL	-693407.1338	-709313.4326	-15906.29884	2.29
JITPL	613391.16	613682.1574	290.997382	0.05
JORETHANG HEP	31389.305	27828.992	-3560.313	-11.34
KHSTPP-I	424642.976	412448.7004	-12194.27563	-2.87
KHSTPP-II	913582.7771	894762.7798	-806.161874	-0.09
KURICHU	18085.9	22242.2292	4156.3292	22.98
MANGDECHU	161703.5	152452.1439	-9251.356148	-5.72
MPL	634619.5725	609097.703	3375.608784	0.53
MTPS-II	235986.7034	237149.486	4286.9113	1.82
NVVN-NEPAL	-79602.56747	-90634.54455	-11031.97708	13.86
NVVN_BHUTAN	397936.4625	396661.2826	-1275.179902	-0.32
NPGC	803503.6777	785670.4433	-2674.697398	-0.33
NPGC-INFIRM	0	69220.56631	69220.56631	0
GRIDCO	-1631325.708	-1677894.777	-46569.06848	2.85
RANGIT	31848.75	33005.1816	1156.4316	3.63
RONGNICHU HEP	43813.5	45291.072	1477.572	3.37
SIKKIM	-43284.45424	-46599.75298	-3315.298733	7.66
TALCHER SOLAR	1298.245	1325.973	27.728	2.14
TALA	163064.845	126474.7474	-36590.09763	-22.44
TUL	498350.32	497220.4314	-1129.888585	-0.23
TEESTA	279585	285086.979	5898.181774	2.11
THEP	23937.97	20563.488	-3374.482	-14.1
TPTCL	29740.8	17330.43682	-12410.36318	-41.73
TSTPP	568473.1523	569630.5674	1157.415081	0.2
VAE_ER	-49691.4175	0	49691.4175	-100
WBSETCL	-1373629.036	-1404923.389	-31294.35256	2.28
Total	**566460.0213**	**582567.7044**	**100554.8212**	**17.75%**

Jun-22

Constituents	Total Scheduled (MWH)	Total Actual (MWH)	Deviation(MWH)	% of Deviation from Schedule
APNRL	328049.065	329284.1422	1235.077171	0.38
NVVN-BD	-661546.4911	-660289.8115	1256.679551	-0.19
BARH-II	768256.5534	750748.6181	-5042.349999	-0.66
BARH SG1_U2_INFIRM	0	-3076.524	-3076.524	0
BARH-I	404371.0306	402483.458	-1887.572614	-0.47
BSPHCL	-3315134.982	-3325067.762	-9932.780446	0.3
BRBCL	583281.7798	581318.4669	-1963.312932	-0.34
CHUKHA	91544.25	231168.1116	139623.8616	152.52
CHUZACHEN	70697.0925	71910.2688	1213.1763	1.72
DARLIPALI	773137.377	773867.0096	729.632653	0.09
DIKCHU	73108.59	73908.45381	799.863813	1.09
DVC	1224166.755	1221109.646	-3057.108187	-0.25
NR	-2701751.083	-3367901.103	-666150.0203	24.66
NER	392596.1693	-104246.6836	-496842.8529	-126.55
SR	-81304.17863	-1272919.661	-1191615.482	1465.63
WR	-1436767.156	1114086.246	2550853.402	-177.54
FSTPP - I & II	861868.9797	856243.0974	-40.940586	0
FSTPP-III	183020.6951	176382.4195	-4599.903179	-2.51
GMRKEL	317106.0275	315110.1786	-1995.848894	-0.63
HVDC ALIPURDUAR	-671.524581	-679.8762	-8.351619	1.24
HVDC SASARAM	-511.182996	-638.481509	-127.298513	24.9
JBVNL	-706551.4467	-718800.2143	-12248.76757	1.73
JITPL	342242.2525	334352.4328	-7889.819667	-2.31
JORETHANG HEP	65899.825	59360.416	-6539.409	-9.92
KHSTPP-I	401674.7374	386791.803	-14882.93441	-3.71
KHSTPP-II	940306.6015	922312.5701	-2804.34091	-0.3
KURICHU	22604.25	35591.2092	12986.9592	57.45
MANGDECHU	330020.75	354800.5783	24779.82828	7.51
MPL	694014.935	666981.0479	513.39601	0.07
MTPS-II	214123.9618	208928.558	-2326.518986	-1.09
NVVN-NEPAL	177693.9856	189031.7072	11337.7216	6.38
NVVN_BHUTAN	955800.25	989836.6322	34036.38216	3.56
NPGC	1017070.114	992518.2447	-4898.040762	-0.48
NPGC-INFIRM	0	0	0	0
GRIDCO	-1898528.929	-1955418.031	-56889.10214	3
RANGIT	40447.25	40254.69	-192.56	-0.48
RONGNICHU HEP	65842.875	67989.728	2146.853	3.26
SIKKIM	-45277.03491	-44189.45217	1087.582741	-2.4
TALCHER SOLAR	1117.515	1095.729	-21.786	-1.95
TALA	511631	368276.7331	-143354.2669	-28.02
TUL	838448.385	831106.0281	-7342.356947	-0.88
TEESTA	339081	346244.4693	7276.010999	2.15
THEP	64087.555	61983.2	-2104.355	-3.28
TPTCL	74034.835	53332.56667	-20702.26833	-27.96
TSTPP	581146.6733	581662.5101	515.836811	0.09
VAE_ER	-51924.23	0	51924.23	-100
WBSETCL	-1698085.348	-1733478.834	-35393.48547	2.08
Total	**1150439.528**	**1203364.535**	**138386.1353**	**12.03%**

Jul-22

Constituents	Total Scheduled (MWH)	Total Actual (MWH)	Deviation(MWH)	% of Deviation from Schedule
APNRL	225416.9575	221207.9251	-4209.032405	-1.87
NVVN-BD	-598615.2961	-596524.7209	2090.575214	-0.35
BARH-II	833399.9368	808720.508	-15062.57268	-1.81
BARH SG1_U2_INFIRM	0	-7333.9128	-7333.9128	0
BARH-I	316048.8287	308364.5937	-7684.234967	-2.43
BSPHCL	-3658203.307	-3719313.387	-61110.07964	1.67
BRBCL	481490.8455	482212.2861	721.440585	0.15
CHUKHA	76700	229368.8522	152668.8522	199.05
CHUZACHEN	75259.545	76473.5808	1214.0358	1.61
DARLIPALI	918352.6832	912631.7982	-5720.884922	-0.62
DIKCHU	67304.9	66632.38114	-672.518859	-1
DVC	1196918.661	1197788.92	870.258641	0.07
NR	-2589393.296	-2644063.637	-54670.34096	2.11
NER	242649.0343	-336752.3711	-579401.4055	-238.78
SR	-65742.18135	-1002444.62	-936702.4388	1424.81
WR	-728265.803	1062707.393	1790973.196	-245.92
FSTPP - I & II	862356.2815	856358.1368	-4327.910498	-0.5
FSTPP-III	0	0	0	0
GMRKEL	237187.9	233211.7069	-3976.193094	-1.68
HVDC ALIPURDUAR	-809.638836	-777.4572	32.181636	-3.97
HVDC SASARAM	-598.507412	-636.983543	-38.476131	6.43
JBVNL	-779820.6183	-791001.585	-11180.96673	1.43
JITPL	441285.75	437593.6682	-3692.081793	-0.84
JORETHANG HEP	74739.6025	67465.056	-7274.5465	-9.73
KHSTPP-I	431812.3774	419250.168	-12562.20939	-2.91
KHSTPP-II	858778.9938	851602.1069	8489.845205	0.99
KURICHU	15732.5	32204.9556	16472.4556	104.7
MANGDECHU	342885.5	366838.5781	23953.0781	6.99
MPL	666898.0225	633359.1209	4229.725244	0.63
MTPS-II	114661.4491	109896.556	-2983.488685	-2.6
NVVN-NEPAL	235589.35	243318.1794	7728.829426	3.28
NVVN_BHUTAN	1063616.5	1099235.402	35618.90178	3.35
NPGC	1070240.403	1039136.717	-10210.87784	-0.95
GRIDCO	-1848902.484	-1874047.713	-25145.22875	1.36
RANGIT	40314.725	41147.073	832.348	2.06
RONGNICHU HEP	51938.25	52204.576	266.326	0.51
SIKKIM	-43653.73525	-43463.23614	190.499112	-0.44
TALCHER SOLAR	899.7375	881.45475	-18.28275	-2.03
TALA	628298.5	470823.0159	-157475.4841	-25.06
TUL	954939.5275	943584.8633	-11354.66423	-1.19
TEESTA	376836	386265.1234	9357.842141	2.48
THEP	76271.35	74633.856	-1637.494	-2.15
TPTCL	87043.76	60501.46502	-26542.29498	-30.49
TSTPP	665743.2692	665137.8804	-605.3888	-0.09
VAE_ER	-67468.7125	0	67468.7125	-100
WBSETCL	-2086964.184	-2127449.988	-40485.8038	1.94
Total	**1263173.376**	**1306948.286**	**131100.2898**	**10.38%**

Aug-22

Constituents	Total Scheduled (MWH)	Total Actual (MWH)	Deviation(MWH)	% of Deviation from Schedule
APNRL	300718.6	295539.7062	-5178.893817	-1.72
NVVN-BD	-679887.0958	-677467.9201	2419.175668	-0.36
BARH-II	773194.3936	757970.6532	-11996.69245	-1.55
BARH SG1_U2_INFIRM	0	-7100.1216	-7100.1216	0
BARH-I	82229.17501	75910.89642	-6318.278583	-7.68
BSPHCL	-3635058.916	-3687329.747	-52270.83139	1.44
BRBCL	450810.053	450171.1956	-638.857385	-0.14
CHUKHA	97197.5	263874.6108	166677.1108	171.48
CHUZACHEN	80131.265	79375.872	-755.393	-0.94
DARLIPALI	850259.9234	847968.944	-2290.979418	-0.27
DIKCHU	76794.805	77091.63561	296.830609	0.39
DVC	1047106.966	1038844.744	-8262.221932	-0.79
NR	-2763575.558	-2868927.111	-105351.5524	3.81
NER	168732.1075	-204649.401	-373381.5086	-221.29
SR	70657.43454	-842072.988	-912730.4225	-1291.77
WR	-811131.2337	800520.7793	1611652.013	-198.69
FSTPP - I & II	818625.6959	806016.4826	-6291.359093	-0.77
FSTPP-III	58297.67426	57742.45419	-555.220075	-0.95
GMRKEL	372963.1475	367364.7962	-5598.351299	-1.5
HVDC ALIPURDUAR	-762.773432	-758.376	4.397432	-0.58
HVDC SASARAM	-538.499371	-616.051984	-77.552613	14.4
JBVNL	-688674.3109	-685453.0686	3221.242283	-0.47
JITPL	694749.6123	694553.8114	-195.800925	-0.03
JORETHANG HEP	77618.16	69350.656	-8267.504	-10.65
KHSTPP-I	397326.3233	383295.9916	-14030.33178	-3.53
KHSTPP-II	842536.3745	826550.2073	-3621.387426	-0.43
KURICHU	8725	36213.8868	27488.8868	315.06
MANGDECHU	439110	451761.9227	12651.92275	2.88
MPL	678263.35	654650.1026	5751.244076	0.85
MTPS-II	229804.2041	224638.678	-1525.991159	-0.66
NVVN-NEPAL	239121.5825	240436.5067	1314.924153	0.55
NVVN_BHUTAN	1252715	1293060.661	40345.66078	3.22
NPGC	1114911.032	1099043.771	-6407.519607	-0.57
GRIDCO	-1921122.093	-1954366.547	-33244.45335	1.73
RANGIT	39467.25	39991.4304	524.1804	1.33
RONGNICHU HEP	62564.75	62682.792	118.042	0.19
SIKKIM	-46277.78368	-43188.46301	3089.320665	-6.68
TALCHER SOLAR	920.5025	879.1293	-41.3732	-4.49
TALA	707682.5	541210.2404	-166472.2596	-23.52
TUL	919027.6915	907705.3728	-11322.31874	-1.23
TEESTA	356364	365585.1237	9289.816704	2.61
THEP	78432.48	77605.472	-827.008	-1.05
TPTCL	91351.68	67662.83462	-23688.84538	-25.93
TSTPP	397548.1697	397260.6117	-287.558012	-0.07
VAE_ER	-86736.3225	0	86736.3225	-100
WBSETCL	-1837521.796	-1875484.812	-37963.01611	2.07
Total	**1404672.021**	**1505117.365**	**164887.4872**	**11.74%**

Sep-22

Constituents	Total Scheduled (MWH)	Total Actual (MWH)	Deviation(MWH)	% of Deviation from Schedule
APNRL	281322.15	274091.9246	-7230.225445	-2.57
NVVN-BD	-658335.4546	-654024.1387	4311.315922	-0.65
BARH-II	725445.9432	712018.7346	-14793.52763	-2.04
BARH SG1_U2_INFIRM	0	-6235.6536	-6235.6536	0
BARH-I	321954.2483	302250.8179	-16392.67132	-5.09
BSPHCL	-3362631.402	-3367489.636	-4858.234718	0.14
BRBCL	537437.0208	536814.9764	-622.044363	-0.12
CHUKHA	112040	255503.3005	143463.3005	128.05
CHUZACHEN	76238.82	76672.5744	433.7544	0.57
DARLIPALI	869524.4779	870966.3275	1441.849628	0.17
DIKCHU	73854.96	75944.99925	2090.03925	2.83
DVC	619270.0572	580894.0194	-38376.03778	-6.2
NR	-2440368.073	-3073967.962	-633599.8886	25.96
NER	219926.023	-238125.9459	-458051.9689	-208.28
SR	115445.3226	-974618.133	-1090063.456	-944.22
WR	-1784443.7	496242.358	2280686.059	-127.81
FSTPP - I & II	831555.6146	819773.7962	-8848.455873	-1.06
FSTPP-III	159077.2163	157375.3576	-1701.858672	-1.07
GMRKEL	303067.705	298340.7972	-4726.907831	-1.56
HVDC ALIPURDUAR	-694.930951	-699.3276	-4.396649	0.63
HVDC SASARAM	-423.172185	-601.894852	-178.722667	42.23
JBVNL	-680079.4884	-677469.4575	2610.030914	-0.38
JITPL	681819.75	675063.6661	-6756.083915	-0.99
JORETHANG HEP	75117.6	67388.992	-7728.608	-10.29
KHSTPP-I	308784.4272	296981.6301	-11802.79713	-3.82
KHSTPP-II	820720.5018	807961.1416	-1967.238735	-0.24
KURICHU	7055	37326.6792	30271.6792	429.08
MANGDECHU	444692.5	442609.0106	-2083.489442	-0.47
MPL	653859.385	627806.0664	5606.003533	0.86
MTPS-II	229991.4479	229592.27	-700.022634	-0.3
NVVN-NEPAL	254277.1925	261988.7974	7711.604876	3.03
NVVN_BHUTAN	1237775	1270600.398	32825.39813	2.65
NPGC	1126644.556	1107857.553	-5453.50458	-0.48
GRIDCO	-1530129.505	-1541577.664	-11448.15961	0.75
RANGIT	40451	41567.9136	1116.9136	2.76
RONGNICHU HEP	71468.75	73313.536	1844.786	2.58
SIKKIM	-44799.15085	-44614.92584	184.225009	-0.41
TALCHER SOLAR	1032.485	990.0243	-42.4607	-4.11
TALA	673987.5	535161.4078	-138826.0922	-20.6
TUL	880183.4	875292.573	-4890.826968	-0.56
TEESTA	344208	353271.4874	9101.32144	2.64
THEP	75902.4	77156.576	1254.176	1.65
TPTCL	83098.25	62488.26646	-20609.98354	-24.8
TSTPP	311200.9101	310435.9317	-764.978397	-0.25
VAE_ER	-7980.1525	0	7980.1525	-100
WBSETCL	-1549002.068	-1568072.54	-19070.47251	1.23
Total	**1509542.517**	**1464246.624**	**15103.84141**	**1.00%**

Oct-22

Constituents	Total Scheduled (MWH)	Total Actual (MWH)	Deviation(MWH)	% of Deviation from Schedule
APNRL	237061.7125	230661.2341	-6400.478405	-2.7
NVVN-BD	-668583.5259	-663919.4843	4664.041614	-0.7
BARH-II	393576.4354	377736.6028	-18062.69197	-4.59
BARH SG1_U2_INFIRM	0	-3114.2808	-3114.2808	0
BARH-I	363424.9712	348931.5617	-11452.41955	-3.15
BSPHCL	-2992048.907	-2992499.013	-450.105192	0.02
BRBCL	520008.6858	519035.7039	-972.981864	-0.19
CHUKHA	103447.5	246023.0087	142575.5087	137.82
CHUZACHEN	53049.535	53654.0448	604.5098	1.14
DARLIPALI	868359.7704	866927.994	-1431.776417	-0.16
DIKCHU	62491.28	62666.36301	175.083011	0.28
DVC	783629.2566	772165.9462	-11463.31036	-1.46
NR	-1810293.624	-2730363.47	-920069.8454	50.82
NER	297524.4564	-199912.247	-497436.7034	-167.19
SR	-156919.6815	-1388838.337	-1231918.655	785.06
WR	-2751094.951	-103405.5639	2647689.387	-96.24
FSTPP - I & II	611062.5019	607232.9476	-7098.041473	-1.16
FSTPP-III	240327.9811	240654.2439	29.270767	0.01
GMRKEL	384763.445	379541.8871	-5221.55795	-1.36
HVDC ALIPURDUAR	-482.345419	-646.5792	-164.233781	34.05
HVDC SASARAM	-525.242725	-595.430878	-70.188153	13.36
JBVNL	-660112.4492	-661886.3162	-1773.866934	0.27
JITPL	606777.5925	606184.3575	-593.235002	-0.1
JORETHANG HEP	59798.315	58944.224	-854.091	-1.43
KHSTPP-I	325795.719	323038.9533	-2756.765752	-0.85
KHSTPP-II	649149.6801	654969.788	8520.508348	1.31
KURICHU	7440	38334.6936	30894.6936	415.25
MANGDECHU	293157.5	284806.2517	-8351.248333	-2.85
MPL	629064.29	603405.5213	6846.831753	1.09
MTPS-II	227650.0979	229959.826	-1718.313544	-0.75
NVVN-NEPAL	250936.0625	264975.0518	14038.98933	5.59
NVVN_BHUTAN	886740	917643.5398	30903.53982	3.49
NPGC	1106801.541	1089141.153	-5947.226211	-0.54
GRIDCO	-1365827.341	-1371427.605	-5600.264285	0.41
RANGIT	42272	44024.04	1752.04	4.14
RONGNICHU HEP	40279.75	50992.672	10712.922	26.6
SIKKIM	-41199.22764	-39684.54915	1514.678494	-3.68
TALCHER SOLAR	1157.395	1101.42555	-55.96945	-4.84
TALA	482695	348479.5859	-134215.4141	-27.81
TUL	677285.995	673277.4478	-4008.547209	-0.59
TEESTA	326718	334766.2149	8165.797677	2.5
THEP	58998.995	60795.52	1796.525	3.05
TPTCL	66013.94	53559.21833	-12454.72167	-18.87
TSTPP	633473.7249	636051.0163	2577.291406	0.41
VAE_ER	-41569.7525	0	41569.7525	-100
WBSETCL	-726908.9587	-736425.3622	-9516.40353	1.31
DARLIPALI_INFIRM	0	171518.1989	171518.1989	0
NKSTPP_U1_INFIRM	0	-1007.127424	-1007.127424	0
NKSTPP_U1_INFIRM	0	-641.672771	-641.672771	0
Total	**1075367.122**	**1256833.199**	**221727.4325**	**20.62%**

Nov-22

Constituents	Total Scheduled (MWH)	Total Actual (MWH)	Deviation(MWH)	% of Deviation from Schedule
APNRL	143221.8	138414.7622	-4807.037766	-3.36
NVVN-BD	-596918.9454	-594430.6119	2488.333468	-0.42
BARH-II	589940.9756	572551.6633	-12414.3643	-2.1
BARH SG1_U2_INFIRM	0	-3003.66	-3003.66	0
BARH-I	357660.5185	341552.2422	-13410.63408	-3.75
BSPHCL	-2106625.349	-2119010.522	-12385.17369	0.59
BRBCL	586983.4914	580482.2488	-6501.242587	-1.11
CHUKHA	16635.5	82500.64675	65865.14675	395.93
CHUZACHEN	18099.405	18311.1648	211.7598	1.17
DARLIPALI	845025.6075	841401.438	-3624.169458	-0.43
DIKCHU	19600.17	19884.54532	284.375317	1.45
DVC	1212024.699	1214020.727	1996.027951	0.16
NR	-1835922.508	-3119220.684	-1283298.176	69.9
NER	115367.85	-294237.3606	-409605.2106	-355.04
SR	-629488.1416	-1903735.743	-1274247.601	202.43
WR	-3578452.723	-502021.1368	3076431.586	-85.97
FSTPP - I & II	495079.1733	483789.6611	-9837.505613	-1.99
FSTPP-III	293632.862	287135.2038	-3807.517283	-1.3
GMRKEL	317171.8725	313040.6514	-4131.221095	-1.3
HVDC ALIPURDUAR	-364.662824	-354.3006	10.362224	-2.84
HVDC SASARAM	-607.985272	-544.245017	63.740255	-10.48
JBVNL	-563462.5981	-587355.0045	-23892.40644	4.24
JITPL	571272.9025	568522.6853	-2750.217238	-0.48
JORETHANG HEP	18412.71	21377.312	2964.602	16.1
KHSTPP-I	502277.2993	475440.7515	-26836.5478	-5.34
KHSTPP-II	839074.1963	804122.6709	-26212.41503	-3.12
KURICHU	6960	10543.7124	3583.7124	51.49
MANGDECHU	58601.575	42150.6177	-16450.9573	-28.07
MPL	705737.795	669410.4661	3286.897067	0.47
MTPS-II	253331.2856	248553.18	1688.14369	0.67
NVVN-NEPAL	176388.875	163839.8529	-12549.0221	-7.11
NVVN_BHUTAN	206896.275	230092.1858	23195.91078	11.21
NKSTPP_U1_INFIRM	0	-1830.43581	-1830.43581	0
NPGC	948283.7707	914444.2818	-10985.12846	-1.16
GRIDCO	-873341.4835	-880509.6069	-7168.123418	0.82
RANGIT	26452	26906.7792	454.7792	1.72
RONGNICHU HEP	13294	17036.64	3742.64	28.15
SIKKIM	-43019.18059	-47658.21863	-4639.038037	10.78
TALCHER SOLAR	1142.435	1151.9151	9.4801	0.83
TALA	124699.2	94897.20893	-29801.99108	-23.9
TUL	305126.2575	305096.2877	-29.969755	-0.01
TEESTA	146814	150880.544	4130.734636	2.81
THEP	11773.28	17676	5902.72	50.14
TPTCL	41400	29354.41001	-12045.58999	-29.1
TSTPP	614962.3841	614686.4768	-275.90727	-0.04
VAE_ER	47468.4575	0	-47468.4575	-100
WBSETCL	136471.078	136886.1628	415.084786	0.3
NKSTPP_U1_INFIRM	0	-611.345309	-611.345309	0
Total	**539080.1249**	**381632.2208**	**-67895.0296**	**-12.59%**

Dec-22

Constituents	Total Scheduled (MWH)	Total Actual (MWH)	Deviation(MWH)	% of Deviation from Schedule
APNRL	298934.0675	299447.997	513.929507	0.17
NVVN-BD	-593963.0086	-591976.5031	1986.505574	-0.33
BARH-II	834780.0448	822722.9336	-9466.807604	-1.13
BARH SG1_U2_INFIRM	0	-2471.2488	-2471.2488	0
BARH-I	348067.0612	345864.449	-3536.109139	-1.02
BSPHCL	-2197513.079	-2194123.161	3389.91856	-0.15
BRBCL	604137.9019	597953.1577	-6184.744172	-1.02
CHUKHA	1874.125	42925.56935	41051.44435	2190.43
CHUZACHEN	11246.9925	11173.1136	-73.8789	-0.66
DARLIPALI	1065747.523	1063553.378	-2194.145506	-0.21
DIKCHU	11772.765	12028.36361	255.598613	2.17
DVC	1285499.478	1287552.361	2052.883056	0.16
NR	-1479472.102	-2885667.241	-1406195.139	95.05
NER	-1743.351239	626.732577	2370.083816	-135.95
SR	-782786.3293	-2102926.508	-1320140.179	168.65
WR	-3318347.194	-640990.4537	2677356.741	-80.68
FSTPP - I & II	648120.8893	636916.5518	-10329.29896	-1.59
FSTPP-III	128153.5247	130761.8405	3733.720351	2.91
GMRKEL	376161.3175	374519.1963	-1642.12119	-0.44
HVDC ALIPURDUAR	-457.617415	-330.6036	127.013815	-27.76
HVDC SASARAM	-605.621584	-532.346588	73.274996	-12.1
JBVNL	-624548.3958	-627898.322	-3349.926225	0.54
JITPL	709708.2548	710267.2656	559.010804	0.08
JORETHANG HEP	13871.9575	13952.992	81.0345	0.58
KHSTPP-I	480222.136	478960.494	-1261.642034	-0.26
KHSTPP-II	636695.5491	629903.4977	-3881.662213	-0.61
KURICHU	0	-3553.3656	-3553.3656	0
MANGDECHU	4619.735	-23543.99975	-28163.73475	-609.64
MPL	713174.5475	676155.4477	-22736.34156	-3.19
MTPS-II	253581.021	248027.22	-4108.370598	-1.62
NVVN-NEPAL	-29116.82319	-37871.5633	-8754.740113	30.07
NVVN_BHUTAN	36506.2675	34895.37238	-1610.895124	-4.41
NKSTPP_U1_INFIRM	0	3225.927439	3225.927439	0
NPGC	820049.6334	802840.9738	-10959.74093	-1.34
GRIDCO	-982227.157	-939712.3783	42514.77877	-4.33
RANGIT	15353	15170.538	-182.462	-1.19
RONGNICHU HEP	10352.9	10614.88	261.98	2.53
SIKKIM	-55927.01693	-55587.17385	339.843084	-0.61
TALCHER SOLAR	1107.615	1127.5395	19.9245	1.8
TALA	30012.4075	19067.16838	-10945.23912	-36.47
TUL	210606.7675	211475.1974	868.429949	0.41
TEESTA	96687.0025	98312.94449	1639.805087	1.7
THEP	13356.3	15231.776	1875.476	14.04
TPTCL	21363.12	21169.09133	-194.028672	-0.91
TSTPP	678272.2853	674165.8031	-4106.482226	-0.61
VAE_ER	5197.34	0	-5197.34	-100
WBSETCL	3821.101232	36590.12836	32769.02713	857.58
NKSTPP_U1_INFIRM	0	4889.999823	4889.999823	0
Total	**302346.9347**	**224905.0322**	**-49283.29317**	**-16.30%**

Jan-23

Constituents	Total Scheduled (MWH)	Total Actual (MWH)	Deviation(MWH)	% of Deviation from Schedule
APNRL	264382.35	293459.2	29076.85	0.109980299
NVVN-BD	-523825.9034	-581630.98	-57805.0766	0.110351696
BARH-II	737647.987	802679.74	65031.75295	0.088160958
BARH SG1_U2_INFIRM	0	-3072.84	-3072.84	0
BARH-I	300494.4422	335157.08	34662.63782	0.11535201
BSPHCL	-2368140.56	-2569747.51	-201606.9498	0.085133017
BRBCL	492684.0287	535606.32	42922.29128	0.087119307
CHUKHA	0	-5110.02	-5110.02	0
CHUZACHEN	6053.375	6974.62	921.245	0.152187003
DARLIPALI	953584.7019	1049586.52	96001.81806	0.100674663
DIKCHU	7215.425	8205.09	989.665	0.137159627
DVC	1221220.482	1334107.45	112886.9679	0.092437827
NR	-1355461.309	-2756099.76	-1400638.451	1.033329717
NER	-10295.30301	345972.93	356268.233	-34.60492933
SR	-824232.0392	-2052336.98	-1228104.941	1.489999032
WR	-2406574.399	-786087.1	1620487.299	-0.673358488
FSTPP - I & II	753645.8431	818696.87	65051.02686	0.086315114
FSTPP-III	265329.34	276106.13	10776.79	0.040616654
GMRKEL	414723.9025	459328.8	44604.8975	0.107553235
HVDC ALIPURDUAR	-372.79637	-325.75	47.04637	-0.126198573
HVDC SASARAM	-490.15039	-547.9	-57.74961	0.117820186
JBVNL	-617786.8824	-663620.67	-45833.78756	0.074190289
JITPL	650080.16	728144.65	78064.49	0.120084406
JORETHANG HEP	8645.4	9816.77	1171.37	0.13549055
KHSTPP-I	386685.9657	432474.61	45788.64434	0.118412998
KHSTPP-II	671696.3531	718403.75	46707.39687	0.069536475
KURICHU	0	-13087.53	-13087.53	0
MANGDECHU	5523.5	-52307.49	-57830.99	-10.46999004
MPL	417317.46	441530.58	24213.12	0.058020865
MTPS-II	230410.9532	248141.03	17730.07682	0.0769498
NVVN-NEPAL	-172595.1669	-199688.07	-27092.90313	0.156973707
NVVN_BHUTAN	-74817.68213	-73358.26	1459.422125	-0.01950638
NKSTPP_U1_INFIRM	92652.5	99273.71	6621.21	0.071462832
NPGC	930844.699	991449.26	60604.56099	0.065107059
GRIDCO	-918535.3905	-912583.04	5952.350541	-0.006480263
RANGIT	3716.25	4393.36	677.11	0.182202489
RONGNICHU HEP	6688.38	7714.29	1025.91	0.153386919
SIKKIM	-54752.14901	-58645.39	-3893.24099	0.071106633
TALCHER SOLAR	994.1375	1053.49	59.3525	0.059702506
TALA	0	-2853.22	-2853.22	0
TUL	137250.8	154996	17745.2	0.129290321
TEESTA	65802.5	74930.58	9128.08	0.13871935
THEP	8317.23	9572.35	1255.12	0.150906011
TPTCL	14304.28	16083.79	1779.51	0.124404025
TSTPP	611204.6638	672281.71	61077.04616	0.09992896
VAE_ER	-4990.5975	0	4990.5975	-1
WBSETCL	-58275.06261	13294.89	71569.95261	-1.228140295
Total	**267971.7182**	**158333.06**	**-109638.6582**	**-0.409142647**

Feb-23

Constituents	Total Scheduled (MWH)	Total Actual (MWH)	Deviation(MWH)	% of Deviation from Schedule
APNRL	283413.52	282905.09	-508.43	-0.18%
NVVN-BD	-562028.49	-562114.9	-86.41	0.02%
BARH-II	802958.38	784794.32	-5308.68	-0.66%
BARH SG1_U2_INFIRM	0	-5066.44	-5066.44	0.00%
BARH-I	250810.39	244143.75	-5587.11	-2.23%
BSPHCL	-2200939.2	-2185285.29	15653.91	-0.71%
BRBCL	453902.2	451532.58	-2369.62	-0.52%
CHUKHA	25	-20759.13	-20784.13	-83136.52%
CHUZACHEN	3031.78	3021.14	-10.64	-0.35%
DARLIPALI	933166.34	930762.53	-2403.81	-0.26%
DIKCHU	5982.94	5913.73	-69.21	-1.16%
DVC	1360333.46	1357763.79	-2569.67	-0.19%
NR	-1481343.25	-2642059.6	-1160716.35	78.36%
NER	58522.86	386861.91	328339.05	561.04%
SR	-1161433.31	-1926230.39	-764797.08	65.85%
WR	-2376418.14	-845708.88	1530709.25	-64.41%
FSTPP - I & II	871765.84	850536.32	-11133.84	-1.28%
FSTPP-III	303114.48	296131.81	-1718.5	-0.57%
GMRKEL	416999.27	412601.96	-4397.31	-1.05%
HVDC ALIPURDUAR	-386.92	-309.87	77.05	-19.91%
HVDC SASARAM	-434.4	-504.33	-69.93	16.10%
JBVNL	-598911.58	-575471.64	23439.93	-3.91%
JITPL	617239.14	619440.65	2201.51	0.36%
JORETHANG HEP	5839.98	6204.32	364.34	6.24%
KHSTPP-I	369296.8	363852.44	-5444.36	-1.47%
KHSTPP-II	883764.39	856371.65	-9534.73	-1.08%
KURICHU	0	-13101.83	-13101.83	0.00%
MANGDECHU	4638.75	-57397.96	-62036.71	-1337.36%
MPL	328784.27	315685.83	2326.36	0.71%
MTPS-II	238207.14	232454.18	-665.47	-0.28%
NVVN-NEPAL	-194006.51	-204999.49	-10992.98	5.67%
NVVN_BHUTAN	-111015.96	-105792.43	5223.53	-4.71%
NKSTPP_U1_INFIRM	80750	84720.11	3970.11	4.92%
NPGC	1204712.07	1175018.82	-3684.65	-0.31%
GRIDCO	-797737.92	-770341.06	27396.86	-3.43%
RANGIT	0	-447.91	-447.91	0.00%
RONGNICHU HEP	3171	3318.14	147.14	4.64%
SIKKIM	-41126.99	-49631.95	-8504.96	20.68%
TALCHER SOLAR	1161.22	1212.22	51	4.39%
TALA	0	-14533.51	-14533.51	0.00%
TUL	126594.05	127377.74	783.7	0.62%
TEESTA	68909.5	70959.96	1826.68	2.65%
THEP	6920.2	7428.9	508.7	7.35%
TPTCL	11948.02	12181.53	233.51	1.95%
TSTPP	596959.67	589697.48	-2666.56	-0.45%
VAE_ER	2011.03	0	-2011.03	-100.00%
WBSETCL	-493651.2	-402453.24	91197.97	-18.47%
Total	**275499.82**	**90683.05**	**-86771.26**	**-31.50%**

Mar-23

Constituents	Total Scheduled (MWH)	Total Actual (MWH)	Deviation(MWH)	% of Deviation from Schedule
APNRL	216282.53	212948.51	-3334.02	-1.54%
NVVN-BD	-647789.09	-645057.23	2731.86	-0.42%
BARH-II	526784.67	502650.64	-12957.33	-2.46%
BARH SG1_U2_INFIRM	0	-8243.07	-8243.07	0.00%
BARH-I	385930.38	383518.6	-1181.27	-0.31%
BSPHCL	-2535319.86	-2514828.02	20491.83	-0.81%
BRBCL	530540.62	528136.94	-2403.68	-0.45%
CHUKHA	86.25	-19548.5	-19634.75	-22764.93%
CHUZACHEN	10191.14	10288.44	97.3	0.95%
DARLIPALI	1040821.78	1039201.69	-1620.09	-0.16%
DIKCHU	15423.73	14749.36	-674.36	-4.37%
DVC	1435499.62	1421886.01	-13613.61	-0.95%
NR	-1573748.33	-2123197.75	-549449.42	34.91%
NER	-51388.13	277138.47	328526.6	-639.30%
SR	-1364535.48	-2087470.86	-722935.39	52.98%
WR	-1814550.12	-866251.96	948298.16	-52.26%
FSTPP - I & II	783539.19	756339.82	-14422.63	-1.84%
FSTPP-III	327991.36	318457.81	-1304.18	-0.40%
GMRKEL	450623.13	449333.38	-1289.76	-0.29%
HVDC ALIPURDUAR	-409.5	-346.77	62.73	-15.32%
HVDC SASARAM	-429.36	-583.34	-153.98	35.86%
JBVNL	-707064.98	-688424.3	18640.68	-2.64%
JITPL	702861.24	708727.56	5866.32	0.83%
JORETHANG HEP	9129.65	10403.39	1273.75	13.95%
KHSTPP-I	330260.19	325536.14	-4724.06	-1.43%
KHSTPP-II	838963.05	818651.72	-7198.28	-0.86%
KURICHU	0	-8376.72	-8376.72	0.00%
MANGDECHU	10951.75	-49824.11	-60775.86	-554.94%
MPL	639005.97	619614.1	6129.71	0.96%
MTPS-II	252572.08	245849.45	-441.48	-0.17%
NVVN-NEPAL	-213667.74	-225336.94	-11669.2	5.46%
NVVN_BHUTAN	-95303.68	-90384.74	4918.94	-5.16%
NKSTPP_U1_INFIRM	382691.15	377754.43	-4936.72	-1.29%
NPGC	1324542.62	1296673.84	-1070.41	-0.08%
GRIDCO	-1082466.66	-1053808.36	28658.29	-2.65%
RANGIT	11884	12435.84	551.84	4.64%
RONGNICHU HEP	9731.35	10315.84	584.49	6.01%
SIKKIM	-36794.41	-49490.75	-12696.34	34.51%
TALCHER SOLAR	1062.6	1047.55	-15.05	-1.42%
TALA	0	-12635.4	-12635.4	0.00%
TUL	162799.78	164003.93	1204.14	0.74%
TEESTA	100419	103250.22	1971	1.96%
THEP	2817.88	3123.41	305.53	10.84%
TPTCL	12189.46	12975.87	786.41	6.45%
TSTPP	674413.7	658295.76	-3230.74	-0.48%
VAE_ER	-70078.56	0	70078.56	-100.00%
WBSETCL	-834612.63	-736346.36	98266.27	-11.77%
Total	**161851.34**	**103153.54**	**58456.61**	**36.12%**

	Annexure-XX-B
Actual injection/Drawal(in MWH) during FY 2022-23	
Constituents	**Total**
APNRL	3205858.376
NVVN-BD	-7547707.851
BARH-II	8555528.134
BARH SG1_U2_INFIRM	-54138.142
BARH-I	3810048.204
BSPHCL	-35114281.21
BRBCL	6395143.21
CHUKHA	1548254.431
CHUZACHEN	492592.176
DARLIPALI	10611290.64
DIKCHU	537442.1931
DVC	14081177.1
NR	-32164394.59
NER	-75443.64196
SR	-18621844.48
WR	659590.4019
FSTPP - I & II	8862813.738
FSTPP-III	2565598.395
GMRKEL	4383614.437
HVDC ALIPURDUAR	-6301.4962
HVDC SASARAM	-6377.187698
JBVNL	-8150379.93
JITPL	7375099.806
JORETHANG HEP	431532.288
KHSTPP-I	4819962.803
KHSTPP-II	9648852.747
KURICHU	184248.9328
MANGDECHU	2068472.778
MPL	7129953.362
MTPS-II	2705158.014
NVVN-NEPAL	480107.4888
NVVN_BHUTAN	6346530.576
NKSTPP_U1_INFIRM	562136.6142
NPGC	12168754.36
GRIDCO	-16492683.87
RANGIT	322797.7482
RONGNICHU HEP	429118.598
SIKKIM	-569872.4143
TALCHER SOLAR	13042.0005
TALA	2545554.444
TUL	6103417.613
TEESTA	2836208.36
THEP	443240.9343
TPTCL	422433.8696
TSTPP	7014281.245
VAE_ER	0
WBSETCL	-12307226.06
TOTAL	**8649205.15**

Annexure-XXI-A

	Constituents	Apr_22	May_22	Jun_22	Jul_22	Aug_22	Sep_22	Oct_22	Nov_22	Dec_22	Jan_23	Feb_23	Mar_23	TOTAL(MWH)
INJECTION	APNRL	274640.43	353257.45	329284.14	221207.93	295539.71	274091.92	230661.23	138414.76	299448.00	293459.20	282905.09	212948.51	3205858.38
	BARH-II	848819.00	814114.72	750748.62	808720.51	757970.65	712018.73	377736.60	572551.66	822722.93	802679.74	784794.32	502650.64	8555528.13
	BARH-I	354042.74	367828.02	402483.46	308364.59	75910.90	302250.82	348931.56	341552.24	345864.45	335157.08	244143.75	383518.60	3810048.20
	BRBCL	588189.74	543689.59	581318.47	482212.29	450171.20	536814.98	519035.70	580482.25	597953.16	535606.32	451532.58	528136.94	6395143.21
	CHUKHA	146815.82	95492.16	231168.11	229368.85	263874.61	255503.30	246023.01	82500.65	42925.57	0.00	0.00	0.00	1593672.08
	CHUZACHEN	40206.36	44530.99	71910.27	76473.58	79375.87	76672.57	53654.04	18311.16	11173.11	6974.62	3021.14	10288.44	492592.18
	DARLIPALI	905039.25	509383.76	773867.01	912631.80	847968.94	870966.33	866927.99	841401.44	1063553.38	1049586.52	930762.53	1039201.69	10611290.64
	DIKCHU	57683.00	62734.27	73908.45	66632.38	77091.64	75945.00	62666.36	19884.55	12028.36	8205.09	5913.73	14749.36	537442.19
	DVC	1392548.30	1262495.19	1221109.65	1197788.92	1038844.74	580894.02	772165.95	1214020.73	1287552.36	1334107.45	1357763.79	1421886.01	14081177.10
	NER	375342.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	626.73	345972.93	386861.91	277138.47	1385942.49
	WR	228593.73	701904.99	1114086.25	1062707.39	800520.78	496242.36	0.00	0.00	0.00	0.00	0.00	0.00	4404055.50
	FSTPP - I & II	704109.27	666800.78	856243.10	856358.14	806016.48	819773.80	607232.95	483789.66	636916.55	818696.87	850536.32	756339.82	8862813.74
	FSTPP-III	325399.30	299451.83	176382.42	0.00	57742.45	157375.36	240654.24	287135.20	130761.84	276106.13	296131.81	318457.81	2565598.39
	GMRKEL	356408.21	424812.87	315110.18	233211.71	367364.80	298340.80	379541.89	313040.65	374519.20	459328.80	412601.96	449333.38	4383614.44
	JITPL	678566.90	613682.16	334352.43	437593.67	694553.81	675063.67	606184.36	568522.69	710267.27	728144.65	619440.65	708727.56	7375099.81
	JORETHANG HEP	19439.17	27828.99	59360.42	67465.06	69350.66	67388.99	58944.22	21377.31	13952.99	9816.77	6204.32	10403.39	431532.29
	KHSTPP-I	521891.12	412448.70	386791.80	419250.17	383295.99	296981.63	323038.95	475440.75	478960.49	432474.61	363852.44	325536.14	4819962.80
	KHSTPP-II	863240.86	894762.78	922312.57	851602.11	826550.21	807961.14	654969.79	804122.67	629903.50	718403.75	856371.65	818651.72	9648852.75
	KURICHU	9911.01	22242.23	35591.21	32204.96	36213.89	37326.68	38334.69	10543.71	0.00	0.00	0.00	0.00	222368.38
	MANGDECHU	156127.23	152452.14	354800.58	366838.58	451761.92	442609.01	284806.25	42150.62	0.00	0.00	0.00	0.00	2251546.34
	MPL	612257.38	609097.70	666981.05	633359.12	654650.10	627806.07	603405.52	669410.47	676155.45	441530.58	315685.83	619614.10	7129953.36
	MTPS-II	241967.58	237149.49	208928.56	109896.56	224638.68	229592.27	229959.83	248553.18	248027.22	248141.03	232454.18	245849.45	2705158.01
	NVVN-NEPAL	0.00	0.00	189031.71	243318.18	240436.51	261988.80	264975.05	163839.85	0.00	0.00	0.00	0.00	1363590.10
	NVVN_BHUTAN	384040.53	396661.28	989836.63	1099235.40	1293060.66	1270600.40	917643.54	230092.19	34895.37	0.00	0.00	0.00	6616066.01
	NKSTPP_U1_INFIRM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3225.93	99273.71	84720.11	377754.43	564974.18
	NPGC	874959.30	785670.44	992518.24	1039136.72	1099043.77	1107857.55	1089141.15	914444.28	802840.97	991449.26	1175018.82	1296673.84	12168754.36
	RANGIT	24348.81	33005.18	40254.69	41147.07	39991.43	41567.91	44024.04	26906.78	15170.54	4393.36	0.00	12435.84	323245.66
	RONGNICHU HEP	27644.43	45291.07	67989.73	52204.58	62682.79	73313.54	50992.67	17036.64	10614.88	7714.29	3318.14	10315.84	429118.60
	TALCHER SOLAR	1175.55	1325.97	1095.73	881.45	879.13	990.02	1101.43	1151.92	1127.54	1053.49	1212.22	1047.55	13042.00
	TALA	71186.47	126474.75	368276.73	470823.02	541210.24	535161.41	348479.59	94897.21	19067.17	0.00	0.00	0.00	2575576.57
	TUL	412281.74	497220.43	831106.03	943584.86	907705.37	875292.57	673277.45	305096.29	211475.20	154996.00	127377.74	164003.93	6103417.61
	TEESTA	266654.71	285086.98	346244.47	386265.12	365585.12	353271.49	334766.21	150880.54	98312.94	74930.58	70959.96	103250.22	2836208.36
	THEP	17470.39	20563.49	61983.20	74633.86	77605.47	77156.58	60795.52	17676.00	15231.78	9572.35	7428.90	3123.41	443240.93
	TPTCL	15794.39	17330.44	53332.57	60501.47	67662.83	62488.27	53559.22	29354.41	21169.09	16083.79	12181.53	12975.87	422433.87
	TSTPP	644975.50	569630.57	581662.51	665137.88	397260.61	310435.93	636051.02	614686.48	674165.80	672281.71	589697.48	658295.76	7014281.25
	WBSETCL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	136886.16	36590.13	13294.89	0.00	0.00	186771.18
	TOTAL													**146529971.08**

Annexure-XXI-B

	Constituents	Apr_22	May_22	Jun_22	Jul_22	Aug_22	Sep_22	Oct_22	Nov_22	Dec_22	Jan_23	Feb_23	Mar_23	TOTAL(MWH)
DRAWL	NVVN-BD	-661789.52	-658482.03	-660289.81	-596524.72	-677467.92	-654024.14	-663919.48	-594430.61	-591976.50	-581630.98	-562114.90	-645057.23	-7547707.85
	BARH-II	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	BARH SG1_U2_INFIRM	-2519.48	-2900.91	-3076.52	-7333.91	-7100.12	-6235.65	-3114.28	-3003.66	-2471.25	-3072.84	-5066.44	-8243.07	-54138.14
	BARH-I	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	BSPHCL	-3254731.55	-3184855.62	-3325067.76	-3719313.39	-3687329.75	-3367489.64	-2992499.01	-2119010.52	-2194123.16	-2569747.51	-2185285.29	-2514828.02	-35114281.21
	CHUKHA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-5110.02	-20759.13	-19548.50	-45417.65
	NR	-1691998.16	-2260928.11	-3367901.10	-2644063.64	-2868927.11	-3073967.96	-2730363.47	-3119220.68	-2885667.24	-2756099.76	-2642059.60	-2123197.75	-32164394.59
	NER	0.00	-83462.12	-104246.68	-336752.37	-204649.40	-238125.95	-199912.25	-294237.36	0.00	0.00	0.00	0.00	-1461386.13
	SR	-1808029.06	-1260221.19	-1272919.66	-1002444.62	-842072.99	-974618.13	-1388838.34	-1903735.74	-2102926.51	-2052336.98	-1926230.39	-2087470.86	-18621844.48
	WR	0.00	0.00	0.00	0.00	0.00	0.00	-103405.56	-502021.14	-640990.45	-786087.10	-845708.88	-866251.96	-3744465.09
	HVDC ALIPURDUAR	-510.52	-562.07	-679.88	-777.46	-758.38	-699.33	-646.58	-354.30	-330.60	-325.75	-309.87	-346.77	-6301.50
	HVDC SASARAM	-279.85	-296.34	-638.48	-636.98	-616.05	-601.89	-595.43	-544.25	-532.35	-547.90	-504.33	-583.34	-6377.19
	JBVNL	-763685.92	-709313.43	-718800.21	-791001.59	-685453.07	-677469.46	-661886.32	-587355.00	-627898.32	-663620.67	-575471.64	-688424.30	-8150379.93
	KURICHU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-3553.37	-13087.53	-13101.83	-8376.72	-38119.45
	MANGDECHU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-23544.00	-52307.49	-57397.96	-49824.11	-183073.56
	NVVN-NEPAL	-124952.00	-90634.54	0.00	0.00	0.00	0.00	0.00	0.00	-37871.56	-199688.07	-204999.49	-225336.94	-883482.61
	NVVN_BHUTAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-73358.26	-105792.43	-90384.74	-269535.43
	NKSTPP_U1_INFIRM	0.00	0.00	0.00	0.00	0.00	0.00	-1007.13	-1830.44	0.00	0.00	0.00	0.00	-2837.56
	GRIDCO	-1560997.09	-1677894.78	-1955418.03	-1874047.71	-1954366.55	-1541577.66	-1371427.61	-880509.61	-939712.38	-912583.04	-770341.06	-1053808.36	-16492683.87
	RANGIT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-447.91	0.00	-447.91
	SIKKIM	-47118.55	-46599.75	-44189.45	-43463.24	-43188.46	-44614.93	-39684.55	-47658.22	-55587.17	-58645.39	-49631.95	-49490.75	-569872.41
	TALA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-2853.22	-14533.51	-12635.40	-30022.13
	WBSETCL	-1909362.71	-1404923.39	-1733478.83	-2127449.99	-1875484.81	-1568072.54	-736425.36	0.00	0.00	0.00	-402453.24	-736346.36	-12493997.24
TOTAL														**-137880765.9**

Annexure-XXII

STATUS OF REACTIVE ENERGY CHARGES ACCOUNT

RECEIVABLE IN/PAYABLE BY ER POOL AS PER PUBLISHED A/C FROM 01.04.2022 TO 31.03.2023 (2022 -23)

Constituents	Amount Recievable in the Pool (Rs.)	Amount Received in the Pool (Rs.)	Amount Payable by pool(Rs.)	Amount paid by pool(Rs.)	Total Outstanding (Rs.)
BSPHCL	799.41	50.97	0.00	7.54	0.00
JUVNL	1116.67	128.11	0.00	3.54	15.57
DVC	267.90	6.67	0.00	9.41	2.67
GRIDCO	515.06	19.61	0.00	35.30	4.65
SIKKIM	0.00	0.00	27.54	5.45	0.00
WBSETCL	398.37	39.99	0.00	18.41	22.06
TOTAL	**3097.42**	**245.35**	**27.54**	**79.65**	**44.95**

Annexure-XXIII

Compensation received by various generating stations during the year 2022-23		
Sl.no.	Station	Compensatio(Rs. Cr.)
1	BARH-II	0.00
2	BARH-I	0.00
3	BRBCL	0.00
4	DARLIPALI	0.00
5	FSTPP - I & II	204.02
6	FSTPP-III	0.00
7	KHSTPP-I	69.13
8	KHSTPP-II	0.00
9	MPL	0.00
10	MTPS-II	0.00
11	NPGC	0.00
12	TSTPP	0.00

Annexure-XXIV

EASTERN REGIONAL POWER COMMITTEE, KOLKATA

AGC Settlement Account by ERPC from 01-04-2022 to 31-03-2023

Payments to the AGC Provider(s) from the DSM pool

Sr. No	AGC Provider	UP Regulation due to AGC (MWh)	Down Regulation due to AGC (MWh)	Net Energy (MWh)	Variable Charges (Rs.)	Markup Charges as per CERC Order (Rs.)	Total Charges (Rs.)
1	BARH	49252.0246	96496.0887	-47244.0641	-146498821	72874057	**-73624764**
2	FSTPP I & II	54922.1347	79650.9838	-24728.8491	-88930350	67286559	**-21643791**
3	FSTPP-III	8606.2844	20630.2131	-12023.9287	-41686310	14618249	**-27068061**
4	KHSTPP-II	45774.0982	144818.6571	-99044.5589	-326583537	95296378	**-231287159**
5	MPL	22232.1873	277460.9423	-255228.755	-685536272	149846565	**-535689707**
6	NPGC	53530.2664	175756.3565	-122226.0901	-329048865	114643311	**-214405554**
7	Teesta_V	1601.0774	2156.4581	-555.3807	-645907	1878768	**1232861**
8	MTPS-II	12517.4341	27514.201	-14996.7669	-42848464	20015818	**-22832646**
9	BARH-I	6677.1444	14489.2462	-7812.1018	-26750754	10583195	**-16167559**
Total		**255112.6515**	**838973.1468**	**-583860.4953**	**-1688529280**	**547042900**	**-1141486380**

Notes :

A) (+) means payable from DSM Pool to AGC provider. (-) means payable to DSM Pool by AGC provider.

B) AGC settlement account for the week 01-04-2022 to 31-03-2023 has been prepared based on the CERC order inpetition No.79/RC/2017, dated 06.12.2017.

C) The markup rate has been calculated at the rate of 50 Paise/Kwh for Up & Down regulation.

D) Variable Charges for AGC provider has been calculated as per the rate furnished by the respective RRAS providers in Format AS-I and the same published in

Payments to the SRAS Provider(s) from the DSM pool(period:05.12.2022 to 31.03.2023)

Sr.No.	SRAS Provider	UP Regulation due to SRAS (MWh)	Down Regulation due to SRAS (MWh)	Net Energy (MWh)	Energy Charges/ Compensation Charges (Rs.)	Incentive Charges (Rs.)	Total Charges (Rs.)
1	BARH	12445.1119	57713.6804	-45268.5685	-149427255	33456993	**-115970262**
2	BARH-I	8038.1022	7007.1666	1030.9356	4016521	6885673	**10902194**
3	FSTPP I & II	16757.7022	50654.8663	-33897.1641	-120114477	26956726	**-93157751**
4	FSTPP-III	6385.202	23844.6981	-17459.4961	-59879669	14736694	**-45142975**
5	KHSTPP-II	18212.1491	70352.0423	-52139.8932	-178902654	43057313	**-135845341**
6	MPL	9101.4319	107082.1885	-97980.7566	-269187954	57775084	**-211412870**
7	MTPS-II	2197.3782	22855.4479	-20658.0697	-55808733	10370870	**-45437863**
8	NPGC	10449.2617	95020.8151	-84571.5534	-225859046	43726410	**-182132636**
9	Teesta_V	1546.7899	359.4312	1187.3587	1380899	721029	**2101928**
10	TSTPP-I	660.7786	18879.2652	-18218.4866	-31365913	8007482	**-23358431**
	Total	**85793.9077**	**453769.6016**	**-367975.6939**	**-1085148281**	**245694274**	**-839454007**

Notes :

1. (+) means payable from Deviation & AS Pool to SRAS provider. (-) means payable to Deviation & AS Pool by SRAS provider.

2. Variable Charges for SRAS provider has been calculated as per the rate furnished by the respective RRAS providers in Format AS-I and the same published in ERPC website as format AS-3.

3. The Incentive has been calculated based on actual performance of SRAS providers.

Annexure- XXV

Month-wise merit order of all Central sector Generating stations

APRIL _2022

Name of Plant	Total cost	%Despatch
TSTPP-I	2.74	97.96%
Darlipalli	2.83	99.99%
KHSTPP-II	4.25	96.08%
FSTPP I & II	4.31	95.38%
KHSTPP-I	4.38	94.93%
NPGC	4.43	95.37%
BRBCL	4.49	93.73%
BARH-II	4.72	95.19%
FSTPP-III	4.92	96.11%
BARH-I	5.21	95.19%
MTPS-II	5.59	95.45%

MAY _2022

Name of Plant	Total cost	%Despatch
TSTPP-I	2.59	95.53%
Darlipalli	2.95	97.45%
NPGC	4.36	95.09%
BRBCL	4.59	89.65%
BARH-II	4.65	89.83%
KHSTPP-II	4.69	89.59%
KHSTPP-I	4.85	93.63%
FSTPP I & II	4.99	87.16%
BARH-I	5.35	84.71%
FSTPP-III	5.58	88.11%
MTPS-II	5.62	82.62%

JUNE _2022

Name of Plant	Total cost	%Despatch
TSTPP-I	2.89	96.68%
Darlipalli	2.91	97.45%
BRBCL	4.60	80.95%
FSTPP I & II	4.67	81.45%
KHSTPP-II	4.72	94.74%
KHSTPP-I	4.87	87.39%
BARH-II	4.92	93.17%
NPGC	5.25	77.32%
FSTPP-III	5.26	93.17%
MTPS-II	5.58	87.36%
BARH-I	5.58	84.94%

JULY _2022

Name of Plant	Total cost	%Despatch
Darlipalli	2.83	99.35%
TSTPP-I	3.45	94.54%
NPGC	5.32	77.32%
MTPS-II	5.80	87.36%
BRBCL	5.26	90.76%
BARH-I	5.86	84.94%
KHSTPP-II	4.88	61.41%
FSTPP-III	5.82	0.00%
FSTPP I & II	5.23	74.36%
BARH-II	5.88	86.23%
KHSTPP-I	5.04	82.01%

AUGUST _2022

Name of Plant	Total cost	%Despatch
Darlipalli	2.77	98.50%
TSTPP-I	3.35	93.18%
MTPS-II	5.69	86.78%
NPGC	5.05	85.70%
BARH-I	5.87	87.69%
BRBCL	5.75	89.21%
KHSTPP-II	4.77	76.84%
KHSTPP-I	4.93	80.76%
FSTPP-III	5.16	73.19%
FSTPP I & II	4.56	75.74%
BARH-II	5.64	82.55%

SEPTEMBER _2022

Name of Plant	Total cost	%Despatch
Darlipalli	2.70	99.18%
TSTPP-I	3.21	94.11%
KHSTPP-II	4.90	94.93%
KHSTPP-I	5.07	86.27%
FSTPP I & II	5.22	91.00%
NPGC	5.46	84.36%
MTPS-II	5.66	79.57%
FSTPP-III	5.80	77.48%
BARH-I	5.83	79.97%
BRBCL	6.00	78.56%
BARH-II	6.22	76.44%

OCTOBER _2022

Name of Plant	Total cost	%Despatch
Darlipalli	2.88	98.21%
TSTPP-I	2.95	89.27%
MTPS-II	5.57	93.21%
NPGC	5.19	97.47%
BRBCL	6.11	78.60%
BARH-II	5.90	41.98%
BARH-I	5.81	78.09%
KHSTPP-II	4.50	78.22%
KHSTPP-I	4.64	55.24%
FSTPP-III	5.93	65.90%
FSTPP I & II	5.35	54.44%

NOVEMBER _2022

Name of Plant	Total cost	%Despatch
TSTPP-I	2.53	98.30%
Darlipalli	2.88	97.17%
KHSTPP-II	4.60	93.94%
FSTPP I & II	4.61	94.54%
NPGC	4.69	64.15%
KHSTPP-I	4.75	93.71%
BARH-II	5.04	92.38%
BRBCL	5.07	90.82%
FSTPP-III	5.21	90.04%
MTPS-II	5.51	82.89%
BARH-I	5.70	49.71%

DECEMBER _2022

Name of Plant	Total cost	%Despatch
TSTPP-I	2.60	97.52%
Darlipalli	2.80	95.44%
KHSTPP-II	4.37	91.32%
FSTPP I & II	4.41	91.87%
KHSTPP-I	4.51	89.82%
NPGC	4.78	87.56%
BARH-II	4.87	89.29%
FSTPP-III	5.01	87.75%
BRBCL	5.02	88.47%
MTPS-II	5.40	36.67%
BARH-I	5.58	61.04%

JANUARY _2023

Name of Plant	Total cost	%Despatch
TSTPP-I	2.73	95.95%
Darlipalli	2.76	98.85%
FSTPP I & II	4.19	82.88%
KHSTPP-II	4.63	78.83%
FSTPP-III	4.79	83.17%
KHSTPP-I	4.79	79.80%
NPGC	5.14	92.99%
BRBCL	5.27	92.15%
BARH-II	5.37	89.59%
MTPS-II	5.38	92.23%
BARH-I	5.72	87.13%

FEBRUARY _2023

Name of Plant	Total cost	%Despatch
TSTPP-I	2.68	96.55%
Darlipalli	2.79	96.99%
FSTPP I & II	4.11	95.62%
NPGC	4.37	95.13%
KHSTPP-II	4.45	95.17%
KHSTPP-I	4.59	94.65%
FSTPP-III	4.72	89.49%
BARH-II	5.17	91.68%
MTPS-II	5.40	91.91%
BARH-I	5.53	93.99%
BRBCL	5.64	94.68%

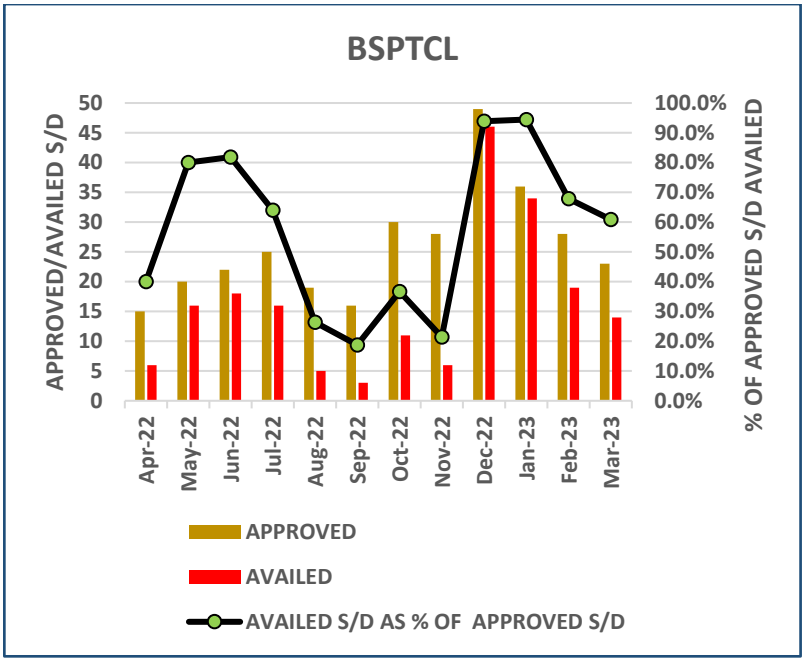
MARCH_2023

Name of Plant	Total cost	%Despatch
TSTPP-I	2.61	96.01%
Darlipalli	2.73	95.05%
FSTPP I & II	4.19	92.09%
KHSTPP-II	4.31	91.83%
KHSTPP-I	4.44	89.34%
NPGC	4.67	80.62%
FSTPP-III	4.80	89.60%
BARH-II	5.31	90.03%
BARH-I	5.43	91.18%
MTPS-II	5.47	89.84%
BRBCL	5.85	74.10%

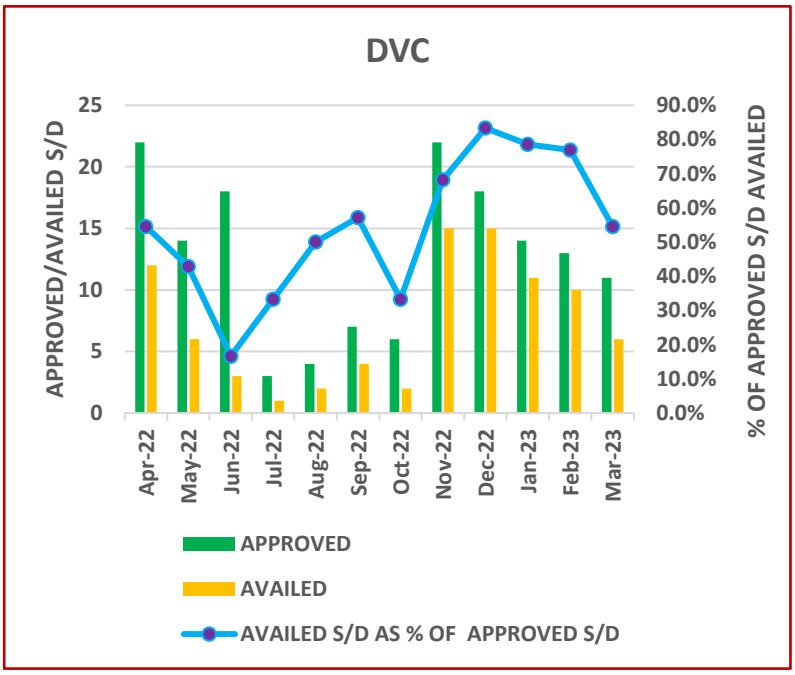
ANNEXURE XXVI

Constituent wise details of Line Shutdown approved vs availed in FY 2022-23

BSPTCL	APPROVED	AVAILED	AVAILED S/D AS % OF APPROVED S/D
Apr-22	15	6	40.0%
May-22	20	16	80.0%
Jun-22	22	18	81.8%
Jul-22	25	16	64.0%
Aug-22	19	5	26.3%
Sep-22	16	3	18.8%
Oct-22	30	11	36.7%
Nov-22	28	6	21.4%
Dec-22	49	46	93.9%
Jan-23	36	34	94.4%
Feb-23	28	19	67.9%
Mar-23	23	14	60.9%
Total	**311**	**194**	**62.4%**



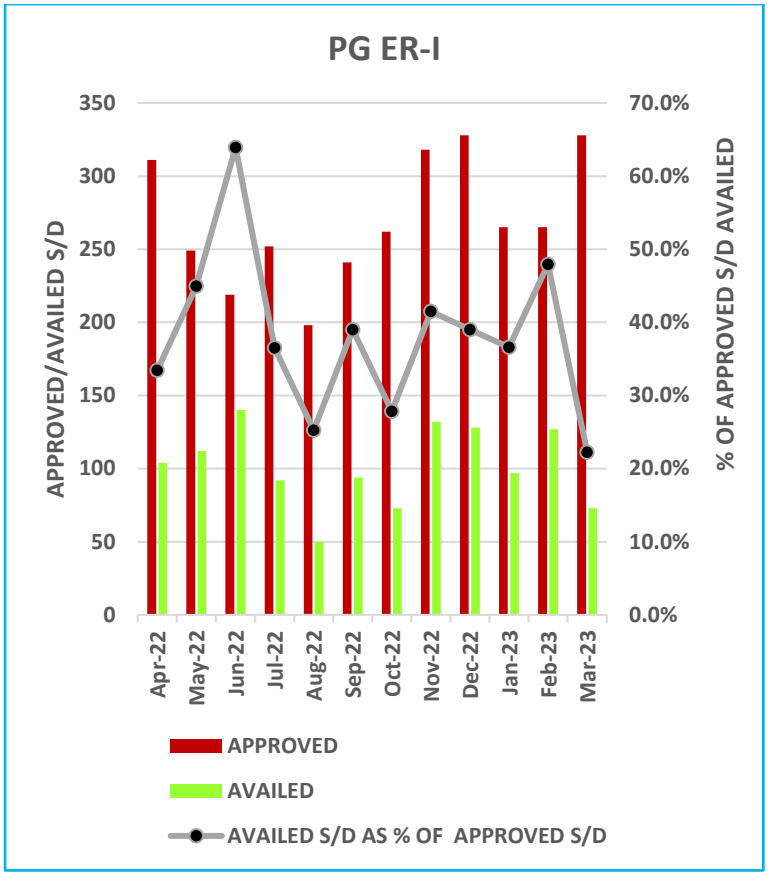
DVC	APPROVED	AVAILED	AVAILED S/D AS % OF APPROVED S/D
Apr-22	22	12	54.5%
May-22	14	6	42.9%
Jun-22	18	3	16.7%
Jul-22	3	1	33.3%
Aug-22	4	2	50.0%
Sep-22	7	4	57.1%
Oct-22	6	2	33.3%
Nov-22	22	15	68.2%
Dec-22	18	15	83.3%
Jan-23	14	11	78.6%
Feb-23	13	10	76.9%
Mar-23	11	6	54.5%
Total	**152**	**87**	**57.2%**



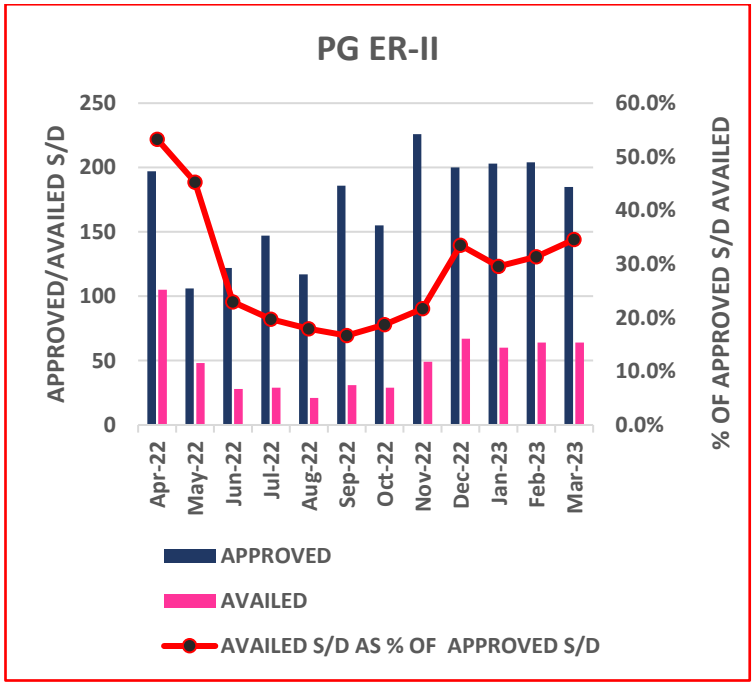
ANNEXURE XXVI

Constituent wise details of Line Shutdown approved vs availed in FY 2022-23

PG ER-I	APPROVED	AVAILED	AVAILED S/D AS % OF APPROVED S/D
Apr-22	311	104	33.4%
May-22	249	112	45.0%
Jun-22	219	140	63.9%
Jul-22	252	92	36.5%
Aug-22	198	50	25.3%
Sep-22	241	94	39.0%
Oct-22	262	73	27.9%
Nov-22	318	132	41.5%
Dec-22	328	128	39.0%
Jan-23	265	97	36.6%
Feb-23	265	127	47.9%
Mar-23	328	73	22.3%
Total	**3236**	**1222**	**37.8%**

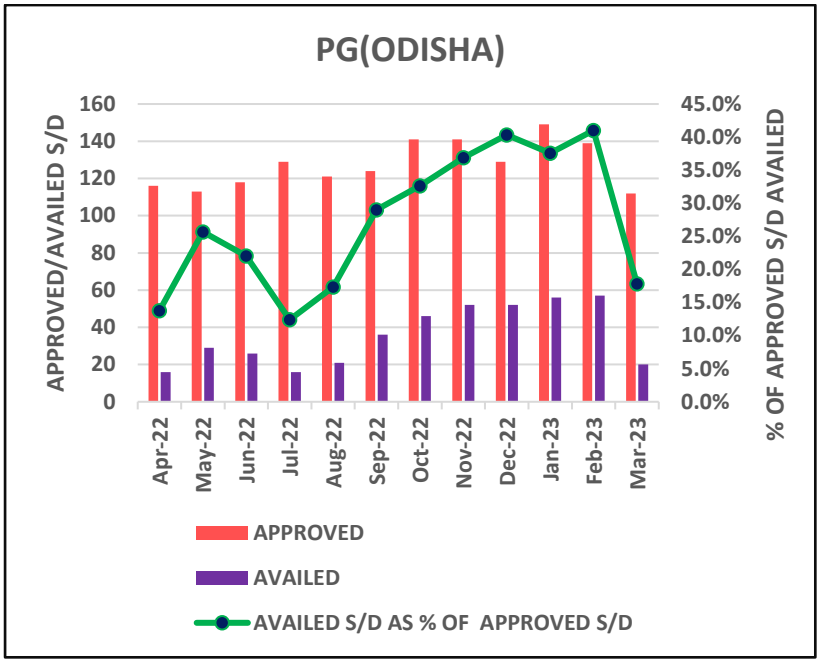


PG ER-II	APPROVED	AVAILED	AVAILED S/D AS % OF APPROVED S/D
Apr-22	197	105	53.3%
May-22	106	48	45.3%
Jun-22	122	28	23.0%
Jul-22	147	29	19.7%
Aug-22	117	21	17.9%
Sep-22	186	31	16.7%
Oct-22	155	29	18.7%
Nov-22	226	49	21.7%
Dec-22	200	67	33.5%
Jan-23	203	60	29.6%
Feb-23	204	64	31.4%
Mar-23	185	64	34.6%
Total	**2048**	**595**	**29.1%**

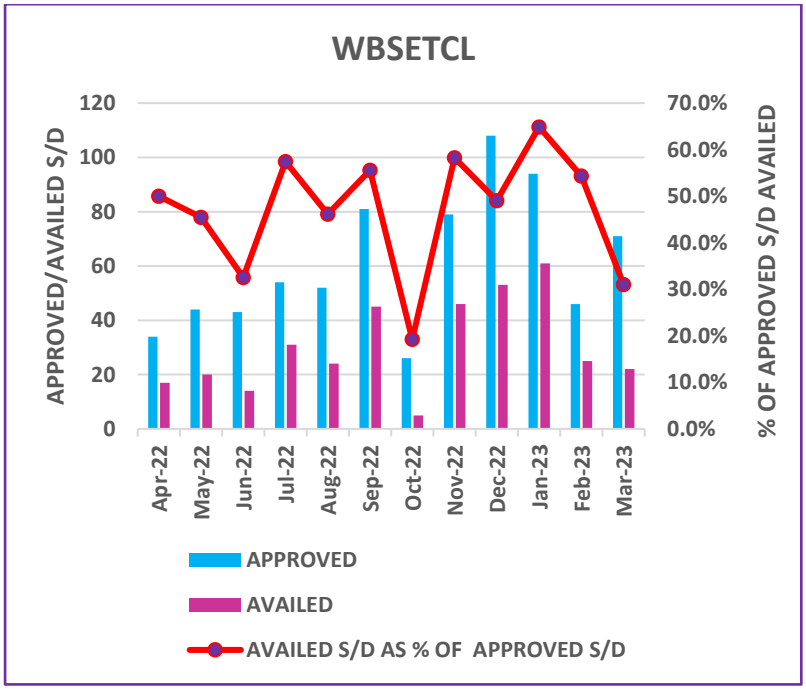


ANNEXURE XXVI
Constituent wise details of Line Shutdown approved vs availed in FY 2022-23

PG (ODISHA)	APPROVED	AVAILED	AVAILED S/D AS % OF APPROVED S/D
Apr-22	116	16	13.8%
May-22	113	29	25.7%
Jun-22	118	26	22.0%
Jul-22	129	16	12.4%
Aug-22	121	21	17.4%
Sep-22	124	36	29.0%
Oct-22	141	46	32.6%
Nov-22	141	52	36.9%
Dec-22	129	52	40.3%
Jan-23	149	56	37.6%
Feb-23	139	57	41.0%
Mar-23	112	20	17.9%
Total	**1532**	**427**	**27.9%**



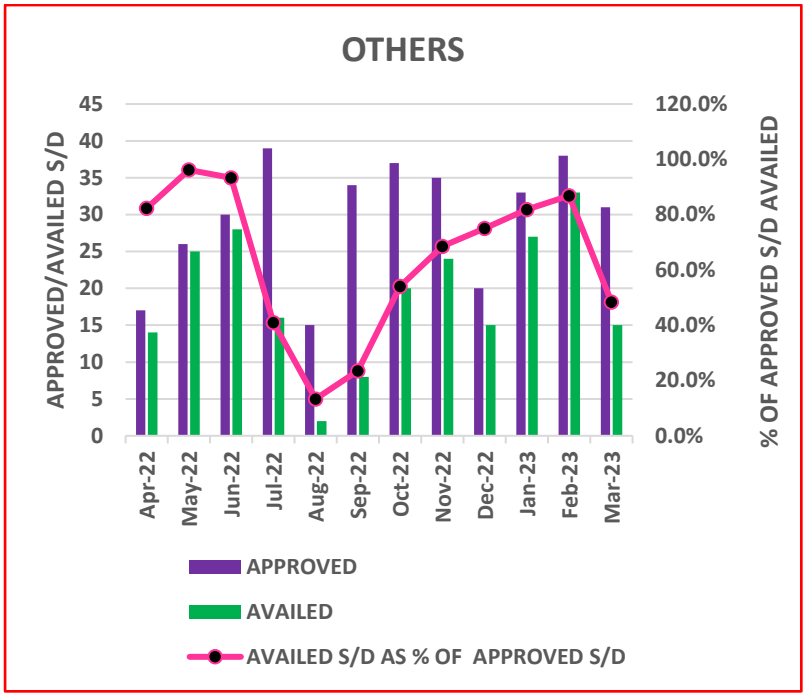
WBSETCL	APPROVED	AVAILED	AVAILED S/D AS % OF APPROVED S/D
Apr-22	34	17	50.0%
May-22	44	20	45.5%
Jun-22	43	14	32.6%
Jul-22	54	31	57.4%
Aug-22	52	24	46.2%
Sep-22	81	45	55.6%
Oct-22	26	5	19.2%
Nov-22	79	46	58.2%
Dec-22	108	53	49.1%
Jan-23	94	61	64.9%
Feb-23	46	25	54.3%
Mar-23	71	22	31.0%
Total	**732**	**363**	**49.6%**



ANNEXURE XXVI

Constituent wise details of Line Shutdown approved vs availed in FY 2022-23

Others	APPROVED	AVAILED	AVAILED S/D AS % OF APPROVED S/D
Apr-22	17	14	82.4%
May-22	26	25	96.2%
Jun-22	30	28	93.3%
Jul-22	39	16	41.0%
Aug-22	15	2	13.3%
Sep-22	34	8	23.5%
Oct-22	37	20	54.1%
Nov-22	35	24	68.6%
Dec-22	20	15	75.0%
Jan-23	33	27	81.8%
Feb-23	38	33	86.8%
Mar-23	31	15	48.4%
Total	**355**	**227**	**63.9%**



 # Others includes Indigrid,MPL,GMR, MBPCL,NKTL ,Dikchu HEP,TUL,TPTL,JUSNL,NRTS,WRTS,NERTS,NTPC plants-Barh,KHSTPP,TSTPP,FSTPP,NPGCL,BRBCL

Annexure-XXVII

State wise ICTs at various voltages in ER

State Wise ICT	315 MVA 400/220 kV	500 MVA 400/220 kV	315 MVA 400/132 kV	200 MVA 400/132 kV	270 MVA 400/132 kV	250 MVA 400/220 kV	1500 MVA 765/400 kV	255 MVA 765/132 kV	Cold Spare Availability
Bihar	6	27	3	15			5		
Jharkhand	15	6				1	2		
Sikkim	5				1				
Odisha	30	5					8	2	
West Bengal	38	5					4		

Utility wise ICTs detail at various voltage level in ER

Utility	315 MVA 400/220 kV	500 MVA 400/220 kV	315 MVA 400/132 kV	200 MVA 400/132 kV	270 MVA 400/132 kV	250 MVA 400/220 kV	1500 MVA 765/400 kV	255 MVA 765/132 kV	Cold Spare Availability
PGCIL	47	27	3				15		
Other ISTS (NKTL, PMJTL, PMTL, DMTCL)		8		2			4		
IPP (Dikchu)					1				
NTPC/NPGC/BRBCL	4			9				2	
WBSETCL/WBPDCL/CESC	22			4					
OPTCL/SEL	11	2							
DVC	10								
BGCL		4							
JUSNL/TTPS		2				1			

Utility wise number of substations with ICTs in ER

Utility Substation with ICTs	Number of Substation
PGCIL ERTS 1	15
PGCIL ERST 2	8
PGCIL Odisha	10
WBSETCL	5
WBPDCL	2
OPTCL	5
BGCL	2
DVC	5
JUSNL	1
ISTS (NKTL/DMTCL/PMTL/PMJTL)	7
NTPC	7

Annexure-XXVII

State	PGCIL ERTS 1	PGCIL ERTS 2	PGCIL Odisha	DVC	WBSETCL	OPTCL	Other ISTS	BGCL	JUSNL	NTPC	Others
Bihar	9						4	2		4	
Jharkhand	6			3			1		1		
Sikkim		1									
Odisha			10			5				2	1
West Bengal		6		2 + 1 (MTPS)	5		2			1	2

Present Situation of spare ICTS

Utility	500 MVA 400/220 kV	315 MVA 400/220 kV	160 MVA 220/132 kV
PGCIL ERTS 1	1: Under procurement; will be put at Sasaram	1: Muzaffarpur (released with ICT upgradation) 1: Bihar Sharif 1 : Under Procurement	1: Purnea 1: Daltonganj
PGCIL ERTS 2	1 : Under procurement will be put at either Malda or Shubhasgram	1 : Malda (released with ICT upgradation) 1: Durgapur (released with ICT upgradation)	1 : Silliguri
PGCIL Odisha	1: Under procurement and will be put at Pandiabili	1: Will be procured	1 : Baripada
OPTCL	1: Under procurement	Under discussion with management	Not available
DVC	Not available	1 will be spare in future as per new approved plan	Not available
WBSETCL	No detail	No detail	Not available

Annexure-XXVII

Present status available at ERLDC on ERS is provided in the attached table.

Sl	Utility	voltage levels	Number of ERS towers available	Location of ERS situated	Type of ERS (Suspension/ Tension/ any other)
1	OPTCL	400 kV	14	Mancheswar Grid - 4 nos. (Hitech)	Can be used for both suspension and Tension
				Mancheswar store - 8 nos. (Hitech)	
				Mancheswar store - 2 nos. (Lindsey)	
			18 (Newly procured)	Mancheswar store - 18 nos. (Hitech)	
		220 kV	42	Budhipadar - 14 nos. (Lindsey)	
				Mancheswar grid – 14 Nos. (Lindsey)	
				Chatrapur - 14 nos. (Lindsey)	
2	PGCIL ERTS 1	765 kV -24 sets	24 Sets	GAYA	15 Suspension & 9 Tension tower
		400 KV -30 sets	30 Sets	Jamshedpur, Purnea, Lakhisarai	Total 20 nos. Suspension & 10 nos. Tension ERS towers

Annexure-XXVII

Sl	Utility	voltage levels	Number of ERS towers available	Location of ERS situated	Type of ERS (Suspension/ Tension/ any other)
3	Adani transmission limited (ATL)	400 KV	1 set (12 Column). Nos of ERS towers shall depend on line configuration, type of tower and extension of towers. Approximate 6 suspension towers/ set for 400kV D/C twin conductor.	Central India (Koradi, Maharashtra)- **48 Hours**	Modular aluminum guyed towers- Suspension tower
4	PGCIL (Odisha)	400 KV ERS - 3	3	Rourkela	Suspension - 2 & Tension-1
		765 KV ERS - 24	24	Rengali	Suspension - 15 & Tension-9
5	PGCIL ERTS 2	400 KV	1 Set (consisting of 10 towers) -400 KV Voltage level	Durgapur	7 Set-Suspension 03 Set-Tension
6	WBSETCL	400, 220, 132 kV	05+05set (can be used with 400/220/132 kV level) 6 used for Durgapur - asansol line diversion. 4 available	at Arambagh & Gokarno	Can be used for both suspension and Tension

Annexure-XXVII

Sl	Utility	voltage levels	Number of ERS towers available	Location of ERS situated	Type of ERS (Suspension/ Tension/ any other)
7	TPTL		MoU with PGCIL Tie up with Supreme Industry in progress	-	-
8	CBPTCL		No ERS	PTC does not own any ERS, however, in case of any such requirement for deployment of ERS, CPTC has an existing agreement with POWERGRID for deployment of ERS.	-
9	PMTL	-	No ERS	-	-
10	PMJTL	765 kV	NO ERS	-	-
11	PTL	400 kV	07 towers set ERS structures suitable for Twin Moose Configuration 400 or 220 kV.	Siliguri (W.B.)	Lindsey Manufacturing Company Ltd USA Model 600
			07 towers set ERS structures suitable for Twin Moose Configuration 400 or 220 kV.	Muzaffarpur (Bihar)ER1	
12	Indigrid (ENICL, OGPTL & PKTCL)	400 KV & 765 KV Line	765 KV- 6 Sets / 400 KV- 8 Sets	Siliguri, WB.	For 765 KV- 4 Suspension & 2 Tension. For 400 KV- 6 Suspension & 2 Tension.

Annexure-XXVII

Sl	Utility	voltage levels	Number of ERS towers available	Location of ERS situated	Type of ERS (Suspension/ Tension/ any other)
13	DMTCL	400 kV Lines	Arrangement of ERS with M/s Supreme Engineering at Kolkata.	Can be Dispatched in 2–3-weeks periods	-
14	BSPTCL	220 kV & 132 kV	38 ERS which can be used for 220 and 132 kV	18 Towers in use for 132 kV Kishanganj-Barsoi ckt 4 towers for 220 kv BTPS-Hazipur ckt 4 towers for 220 kV Bodhgaya- Chandauti Purnea : 1 Dehri on sone: 2 Sultanganj: 2 Fatuah: 2 Muzaffarpur : 4	Can be used for both suspension and Tension
15	BGCL	-	No ERS	No ERS	-
16	JUSNL	220 kV	Total 8 ERS	Hatia: 3 Jamshedpur: 2 Dumka: 3	Details awaited
17	DVC	400 kV and 220 kV	400 kV: 7 (under procurement) 220 kV: 2 set Pilon structure	400 kV: **Under procurement** 220 kV: 1 at putki and 1 at Maithon	-
18	Sikkim Power Department		Details awaited	Details awaited	Details awaited

Annexure-XXVII

Status of ERS towers in BIHAR

Location	Status	Usage	Type	Quantity
Kishanganj-Barsoi Line	engaged	220/132 KV	Suspension/Tension	18
BTPS-Hajipur Line	engaged	220/132 KV	Suspension/Tension	4
Bodh Gaya-Chandauti	to be engaged	220/132 KV	Suspension/Tension	4
Purnea	**Spare**	220/132 KV	Suspension/Tension	**1**
Dehri	**Spare**	220/132 KV	Suspension/Tension	**2**
Fatuha	**Spare**	220/132 KV	Suspension/Tension	**3**
Mujaffarpur	**Spare**	220/132 KV	Suspension/Tension	**4**
Sultanganj	**Spare**	220/132 KV	Suspension/Tension	**2**
Total				**38**

ANNEXURE XXVIII

IMPORTANT MEETING HELD DURING 2022-23

A. ERPC MEETING

S.No.	Description	Date	Venue
1.	46th ERPC Meeting	06.08.2022	Mayfair Tea Resort, Sukna, Siliguri
2.	47th ERPC Meeting	25.11.2022	Taj City Centre, New Town, Kolkata
3.	48th ERPC Meeting	20.02.2023	MS Teams (Online)
4.	49th ERPC Meeting	24.03.2023	Chintan Bhawan, Gangtok

B. TCC MEETING

S.No.	Description	Date	Venue
1.	46th TCC Meeting	05.08.2022	Mayfair Tea Resort, Sukna, Siliguri
2.	47th TCC Meeting	24.11.2022	Taj City Centre, New Town, Kolkata
3.	48th TCC Meeting	17.02.2023	MS Teams (Online)
4.	49th TCC Meeting	23.03.2023	Chintan Bhawan, Gangtok

C. OPERATION COORDINATION SUB-COMMITTEE (OCC) MEETING

S.No.	Description	Date	Venue
1.	190th OCC Meeting	21.04.2022	Powergrid ER-II Regional HQ, Newtown, Kolkata
2.	191st OCC Meeting	20.05.2022	Gangtok
3.	192nd OCC Meeting	21.06.2022	MS Teams (Online)
4.	193rd OCC Meeting	20.07.2022	MS Teams (Online)
5.	194th OCC Meeting	23.08.2022	MS Teams (Online)
6.	195th OCC Meeting	21.09.2022	MS Teams (Online)
7.	196th OCC Meeting	19.10.2022	ERPC, Kolkata
8.	197th OCC Meeting	17.11.2022	ERPC, Kolkata
9.	198th OCC Meeting	22.12.2022	MS Teams (Online)
10.	199th OCC Meeting	20.01.2023	MS Teams (Online)
11.	200th OCC Meeting	24.02.2023	OPTCL Training Centre, Bhubaneshwar
12.	201st OCC Meeting	16.03.2023	MS Teams (Online)

D. COMMERCIAL SUB-COMMITTEE (CC) MEETING

S.No.	Description	Date	Venue
1.	46th CC Meeting	06.07.2022	ERPC, Kolkata and MS Teams (Online)
2.	47th CC Meeting	11.11.2022	ERPC, Kolkata
3.	48th CC Meeting	14.03.2023	ERPC, Kolkata

E. PROTECTION COORDINATION SUB-COMMITTEE (PCC) MEETING

S.No.	Description	Date	Venue
1.	113th PCC Meeting	12.04.2022	MS Teams (Online)
2.	114th PCC Meeting	13.05.2022	ERPC, Kolkata and MS Teams (Online)
3.	115th PCC Meeting	20.06.2022	MS Teams (Online)
4.	116th PCC Meeting	18.07.2022	ERPC, Kolkata
5.	117th PCC Meeting	22.08.2022	MS Teams (Online)
6.	118th PCC Meeting	20.09.2022	MS Teams (Online)
7.	119th PCC Meeting	18.10.2022	ERPC, Kolkata
8.	120th PCC Meeting	16.11.2022	MS Teams (Online)
9.	121st PCC Meeting	16.12.2022	MS Teams (Online)
10.	122nd PCC Meeting	16.01.2023	MS Teams (Online)
11.	123rd PCC Meeting	21.02.2023	ERPC Kolkata
12.	124th PCC Meeting	17.03.2023	MS Teams (Online)

F. LOAD GENERATION BALANCE REPORT(LGBR) MEETING

S.No.	Description	Date	Venue
1.	LGBR Meeting for 2022-23	11.01.2022	MS Teams (Online)

G. OCC SHUTDOWN MEETING

S.No.	Description	Date	Venue
1.	190th OCC Shutdown Meeting	18.04.2022	MS Teams (Online)
2.	191st OCC Shutdown Meeting	17.05.2022	MS Teams (Online)
3.	192nd OCC Shutdown Meeting	17.06.2022	MS Teams (Online)
4.	193rd OCC Shutdown Meeting	15.07.2022	MS Teams (Online)
5.	194th OCC Shutdown Meeting	16.08.2022	MS Teams (Online)
6.	195th OCC Shutdown Meeting	16.09.2022	MS Teams (Online)
7.	196th OCC Shutdown Meeting	17.10.2022	MS Teams (Online)
8.	197th OCC Shutdown Meeting	14.11.2022	MS Teams (Online)
9.	198th OCC Shutdown Meeting	15.12.2022	MS Teams (Online)
10.	199th OCC Shutdown Meeting	13.01.2023	MS Teams (Online)
11.	200th OCC Shutdown Meeting	17.02.2023	MS Teams (Online)
12.	201st OCC Shutdown Meeting	15.03.2023	MS Teams (Online)

H. TELECOMMUNICATIONS, SCADA AND TELEMETRY (TeST) MEETING

S.No.	Description	Date	Venue
1.	11th TeST Meeting	08.04.2022	MS Teams (Online)
2.	12th TeST Meeting	09.11.2022	ERPC Kolkata
3.	13th TeST Meeting	13.03.2023	ERPC Kolkata

I. SPECIAL MEETING

S.No.	Description	Date	Venue
1.	4th NPC Joint Committee Meeting on TS of 5/15 minute IEMs with AMR, MDP system	06.04.2022	MS Teams (Online)
2.	Special Meeting to live to URJA portal for ER	15.04.2022	MS Teams (Online)
3.	Special Meeting on Issues related to M/s Chemtrols	26.04.2022	ERPC Kolkata
4.	Special meeting to discuss extension of SCADA/EMS contract from 2023 to 2025	14.06.2022	ERPC Kolkata
5.	Special meeting to discuss extension of SCADA/EMS contract from 2023 to 2025	14.07.2022	ERPC Kolkata
6.	Workshop on Draft IEGC 2022 and GNA regulations 2022	25.07.2022 to 26.07.2022	ERPC Kolkata
7.	12th NPC Meeting	17.10.2022	MS Teams (Online)
8.	Special Meeting on “Power Assistance from M/s JUSNL through 132 k V Patratu(DVC)-PTPS(JUSNL) tie line.”	03.01.2023	MS Teams (Online)
9.	Special Meeting related to 132 k V Barhi – Biharsharif line crossing in area of under construction Mahabodhi Cultural Centre, Bodhgaya.	09.01.2023	MS Teams (Online)
10.	Special Meeting related to Auto-Recloser in non-auto mode for Teesta III- Rangpo and Rangpo-Kishangunj -II for live line OPGW installation	24.01.2023	ERPC Kolkata
11.	Review Meeting of National Surplus Power Portal	14.02.2023	MS Teams (Online)

EXHIBIT - I

Organisation Chart of ERPC Secretariat, Kolkata
(As on 31.03.2023)