



भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन - I प्रभाग
Power System Planning & Appraisal - I Division

To

-As per list enclosed-

विषय: पश्चिमी क्षेत्र विद्युत समिति (पारेषण योजना) (WRPCTP) की पहली बैठक का एजेंडा

Subject: Agenda note of the 1st meeting of Western Region Power Committee (Transmission Planning) (WRPCTP)

Sir/ Madam,

The agenda note for the 1st meeting of Western Region Power Committee (Transmission Planning) (WRPCTP) scheduled to be held on 10.01.2020 is available on CEA website (www.cea.nic.in) at the link: <http://cea.nic.in/compsplanningwr.html> i.e. Home page - Wings - Power Systems -PSP&A-1 - Standing Committee on Power System Planning Western Region.

The venue details of the meeting would be intimated in due course.

Yours faithfully,


(Goutam Roy) 17/1/2020

Chief Engineer (PSP&A-I)

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List of Addressees:

1.	Member (Power System), Central Electricity Authority, Sewa Bhawan, RK Puram, Sec-1, New Delhi - 110066	2.	Member Secretary, WRPC, F-3, MIDC Area, Andheri (East), Mumbai – 400093 Fax – 022-28370193	3.	COO (CTU) POWERGRID, Saudamini, Plot no. 2, Sector -29, Gurgaon-122 001 Fax-0124-2571809
4.	Director (System Operation), POSOCO B-9, Qutub Institutional Area, Katwaria Sarai New Delhi – 110010	5.	Chief Electrical Engineer, Vidyut Bhawan, 3rd Floor, Panaji, Goa - 403001	6.	Managing Director, GETCO, Sardar Patel Vidyut Bhawan, Race Course, Vadodara-390007
7.	Managing Director, MPPTCL, Block no -2, Shakti Bhawan, Rampur, Jabalpur – 482008 (M.P)	8.	Chairman & Managing Director, MSETCL, Prakashganga, Plot No.C-19, E-Block, Bandra-Kurla Complex, Bandra (E), Mumbai - 400051	9.	Secretary (Power), Administration of Daman & Diu (U.T.), Fort Area, Moti Daman-396220
10	Secretary (Power), UT of Dadra & Nagar Haveli, Secretariat, Amli, Silvassa - 396230	11	Managing Director, CSPTCL, Dangania, Raipur (CG)-492013	12.	Chairman & Managing Director (NTPC), NTPC Bhawan, SCOPE Complex, Institutional Area, Lodhi Road, New Delhi - 110003
13	Chairman & Managing Director (NHPC), N.H.P.C Office Complex, Sector-33, Faridabad - 121003 (Haryana)	14	Managing Director (SECI), 1st Floor, D-3, A Wing, Prius Platinum Building District Centre, Saket, New Delhi - 110017		

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Agenda note for 1st meeting of Western Region Power Committee (Transmission Planning) (WRPCTP)

1. Confirmation of Minutes of 2nd meeting of Western Region Standing Committee on Transmission (WRSCT)

- 1.1. The minutes of the 2nd meeting of WRSCT held on 21.05.2019 were issued vide CEA File No.CEA-PS-11-23(19)/1/2019-PSPA-I Division/I/5728/2019 dated 29.06.2019.
- 1.2. MPPTCL and GETCO vide their letter nos. 04-02/N-171/1445 dated 03.07.2019 and ACE(R&C)/STU/511/1228 dated 04.07.2019 respectively, have requested for corrigendum in the minutes of the 2nd WRSCT meeting. The corrigendum to the 2nd meeting of WRSCT has been issued vide CEA File No.CEA-PS-11-23(19)/1/2019-PSPA-I Division/I/6347/2019 dated 05.08.2019.
- 1.3. Members may confirm the minutes of the 2nd meeting of WRSCT issued vide letter dated 29.06.2019 with the corrigendum to the 2nd meeting of WRSCT issued vide letter dated 05.08.2019.

2. Constitution of Western Region Power Committee (Transmission Planning) (WRPCTP)

- 2.1. Ministry of Power vide order no. 15/3/2017-Trans dated 04.11.2019 (copy enclosed as Annexure-I) has constituted five Regional Power Committees (Transmission Planning) (RSCTPs) namely Eastern Region Power Committee (Transmission Planning) (ERPCTP), Western Region Power Committee (Transmission Planning) (WRPCTP), Northern Region Power Committee (Transmission Planning) (NRPCTP), Southern Region Power Committee (Transmission Planning) (SRPCTP) and North Eastern Region Power Committee (Transmission Planning) (NERPCTP) in supersession of MoP's order of even number dated 13.04.2018.
- 2.2. The Terms of Reference (ToR) of the RPCTPs are given below:
 - (i) Carry out quarterly review of the Transmission system in the region; assess the growth in generation capacity and demand in various parts of the region; and draw up proposals for strengthening inter-Regional transmission system. The transmission planning is required to keep in mind the areas where the generation is likely to grow and areas where load demand will grow so that transmission system at any point of time is capable to meet the demand in every corner of the country and comply with the mandate under the Tariff Policy of developing transmission system ahead of the generation for ensuring smooth operation of the grid.
 - (ii) Assess the transmission system requirements in the near, medium and long term and draw up transmission schemes to meet these requirements. While doing this a perspective plan for the next 15-20 years may also kept in mind and accordingly the requisite allowance/ margin may be factored in the system during the planning process.

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- (iii) Examine applications for connectivity and access and ensure that these are granted speedily, provided that the requisite fees/charges are paid.
- (iv) Review the upstream and downstream network associate with transmission schemes/
- (v) Examine and evaluate the intra-state transmission proposals.
- (vi) Review and facilitate the construction of the inter-regional grid strengthening schemes.

2.3. Members may pl. note.

3. Associated Transmission System for evacuation of power from Solar Parks proposed to be developed by M/s RUMS Ltd. at Agar (550MW) and Shajapur (450MW) districts of Madhya Pradesh – Agenda by MPPTCL

3.1. MPPTCL vide their letter no. 04-02/N-171/2218 dated 30.10.2019 (attached as Annexure-II) has intimated that M/s Rewa Ultra Mega Solar Ltd. (RUMSL) is planning to set up the Solar Parks in Agar (550MW) and Shajapur (450MW) districts of Madhya Pradesh (Totaling to 1000MW) for which Government of Madhya Pradesh had agreed for procurement of entire power by the state.

3.2. In the 40th meeting of Standing Committee on Power System Planning of Western Region (SCPSP-WR) held on 01.06.2016, Associated Transmission System for Solar Parks at Mandsaur, Neemuch, Agar, Rajgarh, Chhatarpur and Morena in Madhya Pradesh was discussed and approved which is given below:

S. No.	Solar Park	Capacity (MW)	Proposed Transmission System
i	Suwasara Distt Mandsaur considering	250	<u>Intra-State Scheme</u> MPPTCL scope (already under implementation by MPPTCL under Green Energy Corridor Phase-I): (i) 400/220kV Sitamau (Mandsaur) substation (ii) Mandsaur - Nagda 400kV D/c line (100kM)

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			<p>SPPD scope:</p> <p>Interim Arrangement (Required due to mismatch in the Implementation schedule of 400/220kV Sitamau S/s (2018-19) and Suwasara Solar park (Mar 2017))</p> <p>(i) 220kV D/c line from Solar Park Pooling station to crossing point of Bhanpura- Badod 220kV line – 13 km</p> <p>Connectivity System</p> <p>(i) Extension of 220kV D/c line from crossing point of Bhanpura-Badod 220kV line upto Sitamau(Mandsaur) – 37 km</p> <p>(ii) Associated 220kV line bays</p>
ii	<p>Neemuch Solar Park</p> <p>Comprises of three solar parks:</p> <p>(i) Rampura Solar Park (150 MW)</p> <p>(ii) Singoli Solar Park (200 MW)</p> <p>(iii) Jeeran Solar Park (150 MW).</p>	500	<p><u>Intra-State Scheme</u></p> <p>MPPTCL scope:</p> <p>Already under implementation by MPPTCL under Green Energy Corridor Phase-I</p> <p>(i) 400/220kV Sitamau (Mandsaur) substation</p> <p>(ii) Mandsaur - Nagda 400kV D/c line (100km)</p> <p>(iii) 220 kV Ratangarh Pooling station</p> <p>Additional system (may be reviewed by MPPTCL)</p> <p>(iv) Establishment of 1x500 MVA (3rd), 400/220 kV transformer at Sitamau (Mandsaur)</p> <p>Connectivity System - SPPD Scope</p> <p>(i) Rampura SP – Sitamau (Mandsaur) 220 kV D/c line - 60 km</p> <p>(ii) Jeeran SP - Sitamau (Mandsaur) 220 kV D/C line - 60 km</p> <p>(iii) Singoli SP – Ratangarh 220 kV D/C line – 30 km</p>
iii	<p>Agar (250 MW), Rajgarh (250 MW) and Shajapur (Moman Badodiya 250 MW) solar parks</p> <p>Agar comprises of two solar parks:</p> <p>(i) Agar Solar Park (125 MW)</p> <p>(ii) Susner Solar Park (125 MW)</p> <p>Rajgarh comprises of two solar parks:</p> <p>(i) Jeerapur Solar Park (125 MW)</p>	750	<p><u>Inter-state transmission system</u></p> <p>TBCB/ POWERGRID scope:</p> <p>(i) Establishment of 2x500 MVA, 400/220 kV Pooling station at/near Jeerapur</p> <p>(ii) LILO of both circuits of RAPP –Shujalpur 400 kV D/c at Jeerapur Pooling station</p> <p>(iii) 1X125 Mvar, 420 kV Bus Reactor at Jeerapur Pooling station</p> <p>(iv) 220kV line bays (10 nos) for solar park interconnections</p> <p>MPPTCL scope:</p> <p>(i) Shujalpur (PG) -Shujalpur (MP) 2nd 220 kV D/C line or another 220kV outlet from Shujalpur (PG) towards Ashta/other load center</p> <p>Connectivity System – SPPD scope</p> <p>(i) Agar SP – Jeerapur Pooling station 220 kV D/c</p>

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	(ii) Khilchipur Solar Park (125 MW)		– 35 km (ii) Susner SP – Jeerapur Pooling station 220 kV D/c – 20 km (iii) Jeerapur SP – Jeerapur Pooling station 220 kV D/c (iv) Khilchipur SP– Jeerapur Pooling station 220 kV D/c – 20 km (v) Moman Badodiya SP – Jeerapur Pooling station 220 kV D/c – 45 km
iv	Chhatarpur Solar park As informed by MoP/MNRE the capacity of the solar park is 250 MW. However, as per the information given by Madhya Pradesh the solar park has potential for 500 MW capacity. Therefore, for evacuation purpose 500 MW capacity has been considered.	500	Intra State Transmission system strengthening in Chhatarpur area in Madhya Pradesh (i) 2 nd circuit stringing of 220kV Tikamgarh – Chhatarpur line. (ii) LILO of Tikamgarh - Chhatarpur 220 kV D/c line (both circuits) at Bijawar PS (60 km) Connectivity System – SPPD Scope (i) Solar park to Bijawar 400/220 kV substation 220 kV lines along with the 220 kV bays.
v	Morena	250	<u>Intra-State Scheme</u> Connectivity System – SPPD Scope Alternative I (i) 220kV Morena SP - Morena S/s (MPPTCL) D/c line – 22 km Alternative II (i) 220kV Morena SP – Morena 400/220 substation (ISTS) D/c line – 35 km (ii) Two nos. of 220 kV bays at Morena 400/220 substation (ISTS)

3.3. Subsequently, in the 42nd meeting of Standing Committee on Power System Planning of Western Region (SCPSP-WR) held on 17.11.2017, it was decided that Evacuation system for solar parks at Neemuch, Rajgarh, Shajapur and Agar would be reviewed after receipt of connectivity / LTA application from RUMSL.

Also, the Inter State Transmission system strengthening in Chhatarpur area in Madhya Pradesh was agreed to be put on hold till there was clarity on time-frame of requirement of Bijawar S/s from MPPTCL. In the 2nd meeting of WRSCT, the scheme was agreed to be dropped.

3.4. Further, M/s RUMS has applied for the grant of Stage-I connectivity for Agar SP (550 MW) and Shajapur SP (500 MW) to CTU and the issue was discussed in

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the 32nd meeting of WR constituents for Connectivity & LTA Applications held on 26.11.2018, wherein, it was agreed to discuss the issue separately with CEA, CTU, MPPTCL and RUMS.

Subsequently, a meeting was held in CEA on 04.02.2019 to discuss the connectivity of Agar Solar Park (550 MW) and Shajapur Solar Park (450 MW) of M/s RUMS in Madhya Pradesh, wherein it was agreed that the connectivity of Agar (550 MW) and Shajapur (450 MW) solar parks would be finalized by MPPTCL in consultation with M/s RUMS and accordingly RUMS would close their Stage-I connectivity applications with the CTU.

It was also agreed that MPPTCL would take up the necessary intra- state system strengthening, if any, for evacuation of the power from proposed solar parks of M/s RUMS at Agar and Shajapur.

3.5. Accordingly, MPPTCL has proposed the following transmission system, as a part of their intra-state system, for evacuation of power from upcoming solar parks in Agar (550MW) and Shajapur (450MW) districts of MP (Totalling to 1000MW :

- (i) Construction of 400/220kV Pooling S/s at Agar Solar Park with 3x500MVA, 400/220kV Transformer and 1x125MVAR bus reactor
- (ii) 400kV D/C line (Quad Moose) from Agar 400kV Pooling S/s to Ujjain 400kV S/s (approx-60Km)
- (iii) 2 Nos. 400kV Feeder Bay at Ujjain 400kV S/s

The above external power evacuation system shall be developed by MPPTCL.

The internal power evacuation arrangement from 33/220kV pooling stations at Solar parks to Agar 400/220kV Pooling S/s shall be developed by M/s Rewa Ultra Mega Solar Ltd. (RUMSL) and are as under:

- (i) 220kV D/C line (Zebra ACSR) from Agar Solar Park (200MW) to Agar 400/220kV Pooling S/s.
- (ii) 220kV D/C line (High Capacity Conductor) from Susner Solar Park (350MW) to Agar 400/220kV Pooling S/s.
- (iii) 220kV D/C line (High Capacity Conductor) from Shajapur (Moman Badodia) Solar Park (325MW) to Agar 400/220kV Pooling S/s.
- (iv) 220kV D/C line (Zebra ACSR) from South Shajapur Solar Park (125MW) to Ujjain 400/220kV S/s.
- (v) 2 Nos. 220kV Feeder Bay at Ujjain 400kV S/s.

MPPTCL may present the study details.

3.6. Members may deliberate.

4. Review of the transmission system for 17.5 GW RE projects in WR under Phase-II and immediate connectivity to Dholera UMSP

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4.1. The scope of works for the Transmission system associated with RE generations (9.5 GW= 6.5 GW wind + 3 GW solar) in Western Region under Phase-I is as given below:

i) WRSS -21 Part-A - Transmission System strengthening for relieving over loadings observed in Gujarat Intra-state system due to RE injections in Bhuj PS:

Sl. No.	Scope of the Transmission Scheme	Capacity /km
a	Establishment of 2x1500 MVA, 765/400kV Lakadia PS with 765kV (1x330MVAR) & 400kV (125 MVAR) bus reactor <u>Future provisions:</u> Space for 765/400kV ICTs along with bays: 2 nos. 400/220kV ICTs along with bays : 8 nos. 765kV line bays:8 nos. 400kV line bays: 6 nos. 220kV line bays: 16 nos 765kV bus reactor along with bays : 1no 400kV bus reactor along with bays: 1no	2x1500MVA, 765/400kV 400kV ICT bay-2 765kV ICT bay-2 400kV line bay-4 765kV line bay-2 1x330MVA, 765 kV, 1x125MVA, 420 kV 765kV Reactor bay- 1 400kV Reactor bay -1 1x500 MVA, 765/400 kV, 1-ph ICT (spare unit) 1x110 MVAR, 765 kV, 1 ph Reactor (spare unit) <i>(for both 1x330MVA bus reactor under Part A and 1x330MVA line reactor on Lakadia – Vadodara line under Part B)</i>
b	LILO of Bhachau – EPGL 400kV D/c (triple) line at Lakadia PS	10km
c	Bhuj PS – Lakadia PS 765kV D/c line	100km
d	2 nos of 765kV bays at Bhuj PS for Bhuj PS – Lakadia PS 765kV D/c line*	765kV line bay-2

Note:

*POWERGRID to provide space for 2 nos of 765kV bays at Bhuj PS for Bhuj PS – Lakadia PS 765kV D/c line

Implementation time frame i.e. December 2020.

ii) WRSS -21 Part-A (RTM)- Conversion of existing 2x63MVAR line reactors at Bhachau end of Bhachau – EPGL 400kV D/c line to switchable line reactors

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Sl. No	Scope of the Transmission Scheme	Capacity /ckm
a	Conversion of existing 2x63MVAR line reactors at Bhachau end of Bhachau – EPGL 400kV D/c line to switchable line reactors	400kV Reactor bay -2

POWERGRID to provide space for Conversion of existing 2x63MVAR line reactors at Bhachau end of Bhachau – EPGL 400kV D/c line to switchable line reactors

Implementation time frame is December 2020

iii) WRSS -21 Part-B- Transmission System strengthening for relieving over loadings observed in Gujarat Intra-state system due to RE injections in Bhuj PS:

Sl. No.	Scope of the Transmission Scheme	Capacity /km
a	Lakadia – Vadodara 765kV D/c line	350km
b	330MVAR switchable line reactors at both ends of Lakadia – Vadodara 765kV D/c line\$	330 MVAR line reactor -4 no. 765kV Reactor bay -4 no. 1x110 MVAR, 765 kV, 1 ph. switchable line Reactor (spare unit) At Vadodara end
c.	2 nos of 765kV bays at both Vadodara and Lakadia S/Ss for Lakadia – Vadodara 765kV D/c line\$\$	765kV line bays- 4

Note:

\$ POWERGRID to provide space for 2 nos of 765kV bays and space for 2 nos. of 330MVAR switchable line reactors at Vadodara for Lakadia – Vadodara 765kV D/c line

\$\$ Developer of Lakadia S/s to provide space for 2 nos of 765kV bays and space for 2 nos. of 330MVAR switchable line reactors at Lakadia for Lakadia – Vadodara 765kV D/c line

Implementation time frame is December 2020.

iv) Transmission system associated with RE generations at Bhuj –II, Dwarka & Lakadia:

Sl. No.	Scope of the Transmission Scheme	Capacity /km
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a	Lakadia PS – Banaskantha PS 765kV D/c line #	200km
b	765kV Bays at Lakadia and Banaskantha for Lakadia PS – Banaskantha PS 765kV D/c line ##	4 nos. 765kV Bays
c	240MVAR switchable Line reactor at Lakadia PS end of Lakadia PS – Banaskantha PS 765kV D/c line ##	2x240 MVAR 765kV reactor Bays -2 1x80 MVAR, 765 kV, 1 ph switchable line Reactor (spare unit) At Lakadia end

Note:

POWERGRID to provide space for 2 nos of 765kV bays at Banaskantha S/s for Lakadia – Banaskantha 765kV D/c line

Developer of Lakadia S/s to provide space for 2 nos of 765kV bays and space for 2 nos. of 240MVAR switchable line reactors at Lakadia for Lakadia – Banaskantha 765kV D/c line

Implementation time frame is June 2021.

v) Transmission System for providing connectivity to RE projects at Bhuj-II (2000MW) in Gujarat:

Sl. No.	Scope of the Transmission Scheme	Capacity /ckm
a	Establishment of 2x1500MVA (765/400kV), 4x500MVA(400/220kV) Bhuj-II PS (GIS) with 765kV (1x330MVAR) and 400kV (125 MVAR) bus reactor <u>Future provisions:</u> Space for 765/400kV ICTs along with bays: 2 nos. 400/220kV ICTs along with bays: 5 nos. 765kV line bays: 4 nos. 400kV line bays: 6 nos. 220kV line bays: 9 nos 765kV bus reactor along with	2x1500MVA, 765/400kV, 4x500MVA (400/220kV) 400kV ICT bay-6 765kV ICT bay-2 220kV ICT bay- 4 765kV line bay-4 220kV line bays -7 1x330MVAR, 765kV, 1x125MVAR, 420kV 765kV reactor Bays -1 400kV reactor Bays -1

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	bays: 1no 400kV bus reactor along with bays: 1no	1x500 MVA, 765/400 kV, 1-ph ICT (spare unit) 1x110 MVAR, 765 kV, 1 ph Reactor (spare unit)
b	Reconfiguration of Bhuj PS – Lakadia PS 765kV D/c line so as to establish Bhuj-II –Lakadia 765 kV D/C line as well as Bhuj-Bhuj-II 765kV D/C line	20 km
c	1X240MVAr switchable Line reactor for each circuit at Bhuj II PS end of Bhuj-II – Lakadia 765 kV D/c line	2x240 MVAR, 765 kV with 400 ohm NGR 765 kV Reactor Bays-2no. 1x80 MVAR, 765 kV, 1 ph switchable line Reactor (spare unit) at Bhuj II end

Implementation time frame is December 2020

vi) Jam Khambaliya Pooling Station and Interconnection of Jam Khambaliya Pooling Station for providing connectivity to RE projects (1500 MW) in Dwarka (Gujarat) & Installation of 400/220 kV ICT along with associated bays at M/s CGPL Switchyard

Sl. No.	Scope of the Transmission Scheme	Capacity /ckm
	Jam Khambaliya Pooling Station	
a	Establishment of 4x500MVA, 400/220kV Jam Khambhaliya PS (GIS) alongwith 1x125MVAr, 420kV Bus reactor <u>Future provisions:</u> Space for 400/220kV ICTs along with bays: 4 nos. 400kV line bays: 8 nos. 220kV line bays: 9 nos 400kV bus reactor along with bays: 1no	4x500MVA, 400/220kV 400kV ICT bay-4 220kV ICT bay- 4 400kV line bay-1 220kV line bay-7
b	1 no 400kV line bay for M/s Vaayu 1 no of 220kV bay for M/s Air power 5 nos of 220kV bay for future developers	
c	1x125MVAr, 420kV Bus reactor at Jam Khambhaliya PS (GIS) along with reactor	1x125MVAr, 420kV

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	bay	400kV reactor Bays -1
Interconnection of Jam Khambaliya Pooling Station for providing connectivity to RE projects (1500 MW) in Dwarka (Gujarat)		
d	Extension of Essar–Lakadia/Bhachau 400kV D/c (triple) line up to Jam Khambhaliya PS	40km
e	63MVAr switchable Line Reactor at both ends of Lakadia/Bhachau - Jam Khambhaliya 400kV D/c line	4x 63 MVAr 400kV reactor Bays -4
f	2 no. 400 kV line bays at Jam Khambhaliya PS for termination of Lakadia/Bhachau - Jam Khambhaliya 400kV D/c line	400kV line bay-2
Installation of 400/220 kV ICT along with associated bays at M/s CGPL Switchyard		
g	1x500 MVA, 400/220 ICT at CGPL Mundra switchyard.+	1x500 MVA, 400/220 kV 400 kV ICT bay-1 220 kV ICT bay-1

Note:

+ M/s CGPL to provide space for ICT and creation of 220kV level at CGPL Mundra UMPP switchyard.

+ 1x500 MVA, 400/220 kV ICT at CGPL Mundra would be charged from 400 kV side and kept isolated from 220 kV side.

Implementation time frame is March 2021.

vii) Name of Scheme: 400kV line bay at Solapur PS for St-II connectivity to M/s Toramba

Sl. No.	Scope of the Transmission Scheme	Capacity /km
a	1 nos. of 400kV bay at Solapur (PG) for St-II connectivity to M/s Toramba	400kV line bay -1

viii) Name of Scheme: Transmission System for providing connectivity to RE projects in Gujarat [Lakadia (2000MW)]:

Sl. No.	Scope of the Transmission Scheme	Capacity /ckm
a	Establishment of 4x500MVA,	4x500MVA, 400/220kV

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	400/220kV ICTs at Lakadia PS (GIS)	400kV ICT bay-4 220kV ICT bay- 4 220kV line bays -7
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Under Bidding

ix) Name of Scheme: Transmission system associated with RE generations from potential wind energy zones in Osmanabad area of Maharashtra (1 GW)

Sl. No.	Scope of the Transmission Scheme	Capacity /ckm
a	Establishment of 2x500MVA, 400/220kV near Kallam PS	2x500MVA, 400/220kV 400kV ICT bay-2 220kV ICT bay-2 400kV line bay-4 220kV line bay- 4
b	1x125MVA bus reactor at Kallam PS	1x125 MVA 400kV reactor bay -1
c	LILO of both circuits of Parli(PG) – Pune(GIS) 400kV D/c line at Kallam PS @	10km
d	Conversion of 50MVA fixed Line Reactors on each ckt of Parli (PG) – Pune (GIS) 400kV D/c line at Parli (PG) end into switchable. ^	400kV Reactor bays -2
e	Provision of new 50MVA switchable line reactor at Kallam PS end of Kallam – Pune(GIS) 400kV D/c line	2x50 MVA 400kV Reactor bays -2

Note:

@The line lengths mentioned above are approximate as the exact length shall be obtained after the detailed survey.

^ Powergrid to provide space at Parli (PG) for Conversion of 50MVA fixed Line Reactors on each ckt of Parli (PG) – Pune (GIS) 400kV D/c line at Parli (PG) end into switchable.

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x) Name of Scheme: Transmission system associated with RE generations from potential Solar Energy Zone in Maharashtra (1000 MW under Ph-I)

Sl. No.	Scope of the Transmission Scheme	Capacity /km
a	Establishment of 400/220 kV, 2x500 MVA at Solapur PP (near Mohol) Space for 8 nos. of 220 kV line bays for interconnection of wind & solar projects	500MVA, 400/220kV ICT -2 400kV ICT bay -2 220kV ICT bay -2 400kV line bay -2
b	Solapur pooling point - Solapur (PG) 400 kV D/c line (twin HTLS)	50km
c	2 nos. of 400kV bays at Solapur PS for Solapur pooling point - Solapur (PG) 400 kV D/c line	400kV line bay -2
d	1x125 MVAR, 420 kV Bus Reactor at Solapur PP	1x125 MVAR, 420kV bus reactor 420kV reactor bay

4.2. The transmission system for 17.5 GW RE projects in WR under Phase-II and immediate connectivity to Dholera UMSP was agreed in the 2nd WRSCT meeting held on 21.05.2019. The corrigendum to the 2nd meeting of WRSCT has been issued vide CEA File No.CEA-PS-11-23(19)/1/2019-PSPA-I Division/I/6347/2019 dated 05.08.2019. The details of the transmission scheme technically agreed by the members is as given below:

A. Gujarat REZs [8GW Solar + 0.5GW Wind]

(a) Kutch (Rapar) SEZ 5000 MW (3000MW near Rapar and 2000MW near Lakadia (S/s augmentation at Lakadia already planned in the 1st WRSCT)) & Banskantha SEZ 2500 MW

Estimated cost: ~Rs. 5250Cr.

- i) Establishment of 765/400 kV, 3x1500 MVA & 400/220kV, 6x500MVA Kutch(Rapar) SEZ Pooling Point
- ii) Augmentation of transformation capacity at Lakadia PS by 1x1500MVA, 765/400kV and 4x500MVA, 400/220kV ICTs for interconnection with SEZ in case of injection from RE projects are at 220 kV level at Lakadia
- iii) Augmentation of transformation capacity at Radhanesda PS by 4x500 MVA, 400/220kV ICTs for interconnection with SEZ
- iv) Establishment of 765/400kV, 2X1500 MVA at suitable location near Ahmedabad (towards eastern side of Ahmedabad)

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- v) Radhanesda PS - Banaskantha 400 kV D/c line (Twin HTLS) and Banaskantha – Zerda 400 kV D/c line
- vi) Kutch (Rapar) SEZ PP - Ahmedabad 765kV D/c line
- vii) LILO of Lakadia – Banaskantha 765kV D/c line at Kutch (Rapar) SEZ PP
- viii) LILO of Pirana(T) – Pirana(PG) 400kV D/c line at Ahmedabad with twin HTLS along with reconductoring of Pirana – Pirana(T) line with twin HTLS conductor
- ix) Ahmedabad – Indore 765 kV D/c line
- x) 220 kV line bays for interconnection of solar projects(25 nos)
- xi) Associated Reactive Compensation (Line + Bus)
- xii) Spare reactors and transformers

(b) Jamnagar SEZ 2500 MW**Estimated cost: ~Rs. 1300Cr.**

- i) Establishment of 400/220 kV, 5X500 MVA at Lalpur (Jamnagar) SEZ PP
- ii) Establishment of 400kV switching station at Rajkot
- iii) Lalpur (Jamnagar) SEZ PP - Rajkot 400 kV 2xD/c line (Twin HTLS)
- iv) Lalpur (Jamnagar) SEZ PP – Jam Khamabliya PS 400 kV D/c line (Twin HTLS)
- v) LILO of CGPL- Jetpur 400 kV D/C(triple) at Rajkot
- vi) Rajkot – Ahmedabad 400 kV D/c line (Twin HTLS)
- vii) 220 kV line bays for interconnection of solar projects (8 nos)
- viii) Associated Reactive Compensation (Line + Bus)

B. Maharashtra SEZs [4GW Solar]**(a) Solapur SEZ 2500 MW (Phase-I (1000MW) + Phase-II (1500MW) under ISTS)****Estimated cost: ~Rs. 400Cr.****Phase-I (1000MW)**

- i) Toramba – Solapur (PG) 400kV S/c line (dedicated line, of M/s TREPL with St-I connectivity of 900MW & St-II connectivity of 300MW)*

Phase-II (1500MW) (under ISTS)

- i) Establishment of 400/220 kV, 2X500 MVA at Solapur PP*
- ii) Augmentation of 400/220 kV, Solapur PP with 1x500MVA, 400/220kV transformer
- iii) Solapur PP – Solapur(PG) 400 kV D/c line (Twin HTLS)*
- iv) 220 kV line bays for interconnection of solar projects(8 nos)*
- v) 1x125 MVAR, 420 kV Bus Reactor at Solapur PP*

*Already agreed in the 1st WRSCCT

Parli(PG) - Parli(MSETCL) 400kV D/c line is observed to be overloaded under N-1 condition. Line reconductoring may be considered.

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(b) Wardha SEZ 2500 MW**Estimated cost: ~Rs. 500Cr.**

- i) Establishment of 400/220 kV, 5X500 MVA at Wardha SEZ PP
- ii) LILO of Wardha - Warora Pool 400 kV D/c (Quad) line at Wardha SEZ PP
- iii) 220 kV line bays for interconnection of Solar projects (8 nos)
- iv) 1x125MVA bus reactor at Wardha SEZ PP

C. Madhya Pradesh SEZs [5GW Solar]**(a) Rajgarh 2500 MW****Estimated cost: ~Rs. 800Cr.**

- i) Establishment of 400/220 kV, 5X500 MVA at Rajgarh SEZ PP
- ii) Rajgarh SEZ PP -Bhopal (Sterlite) 400 kV D/c line (HTLS)
- iii) Rajgarh SEZ PP – Shujalpur 400 kV D/c line (HTLS)
- iv) 220 kV line bays for interconnection of solar & wind projects (8 nos)
- v) 1X125 MVAR, 420 kV Bus Reactor at Rajgarh SEZ PP

** Shujalpur(PG) - Shujalpur(MPPTCL) 220kV D/c line is observed to be overloaded under N-1 condition.Line reconductoring or 2nd 220 kV DC line may be considered.*

(b) Khandwa SEZ: 2500 MW**Estimated cost: ~Rs. 700Cr.**

- i) Establishment of 400/220 kV, 5X500 MVA at Khandwa SEZ PP
- ii) Khandwa SEZ PP - Khandwa Pool 2XD/c line (Twin HTLS)
- iii) Augmentation of 1X1500 MVA, 765/400kV ICT at Khandwa Pool (Sterlite)
- iv) 220 kV line bays for interconnection of solar projects (8 nos)
- v) Associated Reactive Compensation

D. Dholera UMSP : The transmission system for providing immediate connectivity to Dholera UMSP broadly agreed:

- (i) Power injection from the Solar Park at 400kV level.
- (ii) Establishment of 765/400kV Dholera Pooling station
- (iii) LILO of Lakadia – Vadodara 765 kV D/c line at Dholera UMSP
- (iv) Dholera UMSP – Ahmedabad 765kV D/c line

CERC has already granted the regulatory approval the above scheme vide their order dated 10th October, 2019 in the petition No. 197/MP/2019

- 4.3.** Out of 66.5 GW potential RE zones, 16 GW potential RE zones have been identified in Gujarat. Out of 16 GW potential RE zones, transmission system for evacuation of 5.5 GW RE potential and 10.5 GW RE potential has been planned under Phase-I and under Phase-II respectively. The transmission system planned under phase-I is under implementation by December' 2020/March 2021/June 2021. Transmission Scheme for providing connectivity to RE project in Gujarat

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{Lakadia (2000 MW)} planned under phase-I is currently under bidding. Bidding for transmission system planned under Phase-II is yet to be started.

Govt. of Gujarat has recently proposed for allocation of land to RE projects beyond SECI IV wind ISTS bids in Khavda area, instead of near pooling stations, which has already been planned and agreed in the WRSCT and NCT. Regulatory approval of the schemes has also been obtained from CERC.

- 4.4. Under Phase-I, transmission system for 5.5 GW (Bhuj II-2GW, Lakadia-2GW, Jam Khambhaliya-1.5GW) RE potential has already been awarded and are under implementation except for Lakadia 400/220 kV which is under bidding. The rest 10 GW solar capacity (out of 10.5 GW RE) that has been planned beyond December' 2021 are likely to be allocated land in Khavda region instead of near pooling stations which has already been planned.
- 4.5. With implementation of schemes for 5.5 GW, evacuation of total 10 GW power is possible from Gujarat. Total out of 10 GW, LTA for 4375 MW has already been granted. In the system under implementation, additional LTA application of about 5.6 GW (10-4.4 GW) can be accommodated.

Pooling station	IC (MW)	LTA (MW)	Balance LTA	Pooling station
Bhuj Pool	4000	3725	275	Bhuj Pool
Bhuj II	2000	600	1400	Bhuj II
Lakadia	2000	0	2000	Lakadia
Jam Khambhaliya	2000	50.6	1950	Jam Khambhaliya
	10000	4375.6	5625	

- 4.6. Out of the 10 GW RE potential capacity that is likely to be shifted in Khavda region, 5.6 GW RE could be evacuated through Transmission system being implemented under Phase-I along with some additional transmission system. For balance 3.5 GW additional transmission, system needs to be evolved. The following revised system is system is proposed for RE projects in Gujarat under Phase-II:

Proposed Transmission system for Potential RE zones from Khavda Region:

Phase I (5.6 GW)

- (i) Bhuj pool ,765/400/220 kV, 9x500 MVA 400/220 kV : 500 MW capacity can be injected at 220 kV at Bhuj through dedicated transmission lines of RE developers in Khavda
- (ii) Bhuj-II pooling station: 2x1500 MVA 765/400 kV, 4x500 400/220 kV is the capacity under implementation. Future provisions is there for additional 2000 MW injection. LTA received at this pooling station is 650 MW. Therefore,

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- 1350 MW capacity can be injected at 220 kV at Bhuj-II through dedicated transmission lines of RE developers in Khavda.
 - 2000 MW capacity can be injected at 400 kV level through dedicated transmission line of RE developers in Khavda. The necessary augmentation of 765/400 kV ICT at Bhuj-II needs to be up as additional system.
- (iii) 1750 MW capacity to be evacuated with following additional transmission system
- a) Establishment of 2x1500 MVA, 765/400 KV Khavda S/s pooling station (**Note: 400 kV bays, 400/220 kV ICTs and 220 kV bays would be implemented based on the RE application received**)
 - b) Khavda-Bhuj II 765 kV D/c line.

Phase II (4.4 GW)

- a) Augmentation of Khavda pooling station by 2x1500 MVA,765/400 KV ICT Khavda S/s (*400 kV bays, 400/220 kV ICTs and 220 kV bays would be implemented based on the RE application received*)
- b) Khavda-Lakadia 765 kV D/c line
- c) Lakadia-Ahmedabad 765 kV D/c line
- d) Establishment of 2x1500 MVA, 765/400 kV Ahmedabad S/s alongwith 400 kV interconnections through LILO of both circuits of Pirana(PG)-Pirana(T) 400 kV D/c line at Ahmedabad S/s
- e) Ahmedabad-Indore 765 kV D/c line
- f) Ahmedabad-Vadodara 765 kV D/c line

Proposed Transmission system for DHOLERA UMSP:

The revised transmission system for evacuation of power from Dholera UMSP (Phase I – 2GW and Phase II – 2GW) is as given below:

- a) Establishment of 400kV Dholera Pooling station (Injection of power from the Solar Park at 400kV level)
- b) LILO of both circuits of Vadodara- Pirana (PG) 400 kV DC line at Dholera pooling station.

The above transmission system would be adequate for Phase-I of Dholera UMSP. Any additional transmission system under Phase II, if required would be taken up subsequently.

4.7. Members may deliberate.

5. Establishment of the proposed Kistampeth – Sironcha 132 kV SCDC line as ISTS – Agenda by MSETCL

5.1. In the 1st meeting of WRSCCT held on 05.09.2018, the following proposal of MSETCL was taken up for approval as it involved a 132 kV line between two states and two regions also:

- a. Establishment of 2x25 MVA, 132/33 kV substation at Sironcha
- b. 132 kV SCDC line from Kistampeth (Telangana State) with end bays each at Kistampeth and Sironcha S/s – 32 km

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In the meeting, MSETCL had informed that Telangana State Transmission Company Limited (TSTCL) have already given their in-principle consent to extend supply from 132 kV Kistampeth S/s to the proposed 132 kV Sironcha S/s. Accordingly, the following was agreed in the 1st meeting of Western Region Standing Committee on Transmission:

- (i) The proposed 132 kV line was a natural interstate line, which would facilitate MSETCL in providing reliable supply to Sironcha area and the line should be operated in radial mode.
- (ii) MSETCL should not take up conversion of this to an ISTS line in future.
- (iii) In view of the in principle consent given by TSTCL to extend supply to 132 kV Sironcha S/s from their 132 kV Kistampeth S/s, MSETCL proposal was agreed by the members with the conditions that Sironcha 132/33 kV substation would operate in radial mode from 132 kV Kistampeth S/s.
- (iv) MSETCL needs to finalize the implementation and operational modalities with TSTCL and submit a proposal to CEA so that the same could be referred to Southern Region Standing Committee on Transmission for the approval of Southern Region constituents.

Subsequently, in the 2nd meeting of WRSCT held on 21.05.2019, MSETCL requested to convert the Kistampeth- Sironcha 132 kV SCDC line to ISTS which would provide flexibility to source the power and would facilitate in energy accounting and other related issues. In the meeting it was agreed that if MSETCL wants an ISTS scheme to feed Sironcha area, **MSETCL needs to submit a detailed proposal, which needs to be studied in coordination with Telangana.** The proposal needs to include existing Intra-state substations of MSETCL in vicinity of Sironcha area and difficulties in extending the supply to Sironcha area.

5.2. MSETCL vide its letter dated 25.10.2019 (attached as Annexure-III) has submitted the following proposal:

- A. Under ISTS: Establishment of Sironcha (WR-Maharashtra) – Kistampeth(SR-Telangana) 132 kV SCDC line as an ISTS line.
- B. As a part of STU system :
Sironcha 132/33 kV substation would be established by MSETCL with the following scope:

1. Subject	Establishment of 132/33 kV S/S at Sironcha, Dist.-Gadchiroli.
2. MVA Added	50 MVA
3. Scope of Work	1) 25 MVA, 132/33kV transformer with bays - 02 nos. 2) 33kV outlet – 04 Nos.
4. Area to be served	Sironcha, Dist. Gadchiroli
5. Objective of Scheme	To increase the redundancy of supply, improve voltage profile and quality of power supply in Gadchiroli District.
6. Land Availability	Land is available in existing 66 kV sub-station at Sironcha.

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- C. The installed capacity and loading details of Existing 66 kV Sironcha S/s is as follows:

Sr. No.	Name of substation	Capacity of existing T/F	Loading in MVA	Existing Line	Loading in MW
1	66kV Sironcha	10 MVA, 66/33 kV	6.17	66 kV Allapalli - Sironcha	5.54
		5 MVA, 66/11 kV	1.84		
		10 MVA, 66/11 kV	1.59		
		5 MVA, 66/33 kV	No Load		

The list of 33 kV feeders existing and proposed on 132 kV Sironcha S/s is as follows:

Sr. No.	Existing 33 kV feeder	MVA Capacity	Present feeder Length (Km)	Proposed 33 kV feeder	MVA Capacity	Present feeder Length (Km)
1	Ankisa	5	26	Sironcha	20	0.2
2	Bamni	5	22	Assaralli	5	7
3	-----	-----	-----	Reguntha	5	35
	TOTAL	10		TOTAL-P	30	
GRAND TOTAL = 40						

Intrastate S/s of MSETCL in Vicinity of Sironcha:

Sr. No.	Name of Substation	Installed Capacity	(MVA)	Total Load	Line Length from Sironcha (Km)
1	132 kV Ashti	132/33	45	32	132
		132/66	25	17	
2	132 kV Alapalli	132-66/33	25	7	78
		66/33	10		
3	66 kV Etapalli	132-66/33	25	4	98
		66/33	5		
4	66 kV Jimalgatta	66/11	10	2	40

D. Technical benefits:

- Improve voltage profile and quality of power supply in Gadchiroli District.
- Strengthening the network and will help to eliminate 132 km lengthy 66 kV feeder
- To cater future load growth.

5.3. MSETCL to present the details of their proposal.

5.4. Members may deliberate.

6. Requirement of Transformer Augmentation and reactors to control high voltage in Western Region

6.1. Requirement of Transformer Augmentation :

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6.1.1. In the 2nd meeting of WRSCT, it was deliberated that as per the operational feedback report of NLDC (January, 2019), several 400/220kV ICTs in WR were critically loaded in current time frame. CTU had carried out the preliminary studies in 2022-23 time frame considering all existing and planned systems and the list of transformers with high anticipated loadings and which violate n-1 criteria was presented during the 2nd WRSCT as below:

SI. / TRANSFORMER			EXISTING /PLANNED TRANSFORMERS (MVA)	CURRENT TIME FRAME	2022-23 TIME FRAME	
				PEAK LOADING (MW)	PEAK LOADING (MW)	N-1 Outage loading (MW)
1	Bhatapara	400/220kV	2x315	2x215	2x200	1x290
2	Raigarh*	400/220kV	2x315	2x200	2x208	1x322
3	Morena	400/220kV	2x315	2x220	2x240	1x346
4	Seoni	400/220kV	2x315	2x190	2x220	1x345
5	Satna	765/400/220 kV	2x315+1x500	2x200+1x320	2x203+1x322 #	2x315 (500MVA ICT out)#
6	Padghe(GIS)	765/400kV	2x1500	2x550	2x1050	1565

**Additional outlets from Raigarh (PG) substation need to be planned by CSPTCL in addition to Raigarh(PG) – Raigarh(CSPTCL) 220kV D/c line in order to avoid overloading on this line in future*

6.1.2. In addition to this, POSOCO has also submitted that due to increased drawl from the Grid by Chhattisgarh, 400/220kV ICTs at Bhatapara PG, Raigarh PG, NSPCL and Raita are highly loaded and reported N-1 non-compliance.

6.1.3. In the 2nd meeting of WRSCT, MPPTCL stated that the loadings on the Satna ICTs get reduced after the implementation of Rewa Pooling Station – Rewa 220 kV D/c line. After the deliberations, it was decided that the issue of provision of additional ICTs may be deliberated in a separate meeting among CEA, CTU, POSOCO and STUs for finalization of additional ICTs at existing 400/220 kV substations with high loadings, wherein STU needs to intimate their future plans regarding additional 220 kV outlets associated with the additional ICT. STU also needs to intimate the schemes proposed in vicinity of the 400/220 kV substation where high loadings are observed.

6.1.4. A joint study meeting was held on 11.11.2019 at CEA where only CTU has participated. In the meeting, it was decided to carry out studies in 2022-23 time frame considering evening peak scenario (30% Wind & 0 Solar) with all existing and planned systems (PSS@E case file would be circulated with the agenda). The studies were carried out and the list of transformers with high loadings is given below:

SI. / TRANSFORMER		EXISTING /PLANNED TRANSFORMERS (MVA)	2021-22 TIME FRAME		Constraint, if any, reported in operational feedback report
			PEAK LOADING (MW)	N-1 Outage loading (MW)	

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1	Wardha	400/22 0kV	2x315	2x254	1x340	Oct, 2019: ICTs become N-1 non-compliant when total loading is above 420MW. For 77% of the time ICTs were N-1 non-compliant in previous quarter. However due to monsoon, loading of ICTs were above 420MW for very less time in the quarter.
2	Morena	400/22 0kV	2x315	2x223	1x311	Jan, 2019: ICTs become N-1 non-compliant when total loading is above 440MW. For about 10% of the time ICTs were N-1 non-compliant in the month of Dec'18.
3	Seoni	400/22 0kV	2x315	2x200	1x307	Jan, 2019: ICTs becomes N-1 non-compliant when total loading is above 380MW.
4	Satna	765/40 0/220k V	2x315+1x50 0	2x214+1x3 41	2x312 (500M VA ICT out)#	Jan, 2019: ICTs becomes N-1 non-compliant when total loading is above 730MW. For about 30% of the time ICTs were N-1 non-compliant in the month of Oct'18, Nov'18 & about 8% of the time in Dec'18.
5	Padghe(G IS)	765/40 0kV	2x1500	2x1018	1487	-
6	Bhatapar a*	400/22 0kV	2x315	2x202	1x286	Oct, 2019: ICTs become N-1 non-compliant when total loading is above 420MW. For 28% of the time ICTs were N-1 non-compliant during the quarter.

*Loading on Bhatapara (PG) – Bhatapara (CSPTCL) 220kV S/c line is observed to be on higher side (226MW) which further would aggravate to more than 250MW with 3rd 400/220kV ICT (if proposed)

6.1.5. The above loading on Satna ICTs were observed without considering the Chattarpur 400/220kV substation which was planned in the 40th WR SCM and subsequently put on hold in the 42nd WR SCM held on 17.11.2017 till there is clarity on time-frame of requirement of Bijawar S/s from MPPTCL.

6.2. Reactors to control high voltage:

6.2.1. The issue of high voltages observed in WR during the off peak hours was discussed in the 2nd WRSCT meeting held on 21.05.2019 wherein it was decided to study the same separately with POSOCO. A joint study meeting was held on 11.11.2019 at CEA where only CTU has participated. In the meeting, studies were carried out for the Off-peak scenario (night) with 15% Wind and 0 Solar for 2021-22 time-frame and the high voltage nodes identified were Vadodara 765 kV, Jabalpur PS 765 kV, Khandwa New 765 kV, Indore 765 kV, Warora PS 400 kV and Shujalpur 400 kV (PSS@E case file would be circulated with the agenda).

6.2.2. The transmission lines carrying very less power and having switchable line reactor near to the above buses are given below:

- (i) Jabalpur – Dharamjaigarh_ 765 kV D/c line - having 1x330 MVAR switchable reactor at both ends
- (ii) Ahmedabad – Indore 765 kV D/c line - having 1x330 MVAR switchable reactor at both ends

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- (iii) Lakadia – Vadodara 765 kV D/c line - having 1x330 MVAR switchable reactor at both ends
- (iv) Rapar – Ahmedabad 765 kV D/c line - having 1x240 MVAR switchable reactor at both ends
- (v) Khandwa New – Dhule 765 kV D/c line - having 1x240 MVAR switchable reactor at both ends
- (vi) Warora Pool – Parli New 765 kV D/c line - having 1x330 MVAR switchable reactor at Warora Pool end and 1x330 MVAR fixed reactor at Parli New end

The studies were carried out by opening the one circuit of the above lines and taking into service the switchable line reactor to as bus reactor. The improvement in voltage profile is tabulated below:

Sl. No.	Name of the Substation	Existing Bus Reactor(s) (MVAR)	Proposed Bus Reactor (MVAR)	Voltage in 2021-22 time frame (Off peak)	
				With all lines in service	With one ckt. of the above lines opened
1	Vadodara 765kV	1x240	1x330	804	764
2	Jabalpur PS 765kV	2x240	1x330	805	789
4	Khandwa New 765kV	1x240	1x240	812	767
5	Indore 765kV	2x240	1x240	809	769
8	Warora PS 400kV	-	1x125	419	413
9	Shujalpur 400kV	1x63+1x125	1x125	421	410

6.3. Members may deliberate.

7. Grant of ISTS connectivity to LARA STPP Stage-II (2x800MW) of NTPC Ltd. for its Lara STPP-I generation project (2x800MW) located in Chhattisgarh

7.1. In the 2nd meeting of WRSCT, the issue of connectivity of LARA STPP Stage-II was deliberated and following was agreed by the members:

- I. Connectivity system for NTPC Lara STPP 2x800MW stage-II generation project:
 - (A) Under ISTS
 - (i) Reconductoring of Lara STPP I – Raigarh (Kotra) 400kV D/c line with HTLS conductor (Quad Moose capacity)
 - (B) Under the scope of NTPC Ltd
 - (i) Shifting of Lara STPP I - Raigarh (Kotra) 400kV D/c line to Lara STPP-II bus so as to form Lara STPP II – Raigarh (Kotra) 400kV D/c line along with associated bays at generation end
 - (ii) Lara STPP-I & Lara STPP-II buses to be kept disconnected from each other under normal operating conditions
- II. Revised connectivity system for NTPC Lara STPP 2x800MW stage-I generation project:
 - (i) Lara STPP I – Champa PS 400kV D/c (quad) line

7.2. Now, NTPC vide its letter dated 12.09.2019 has raised the following points:

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- (i). 400kV switchyards of Lara-I and II are not adjacent and are in different directions. In order to shift Kotra line from Stage-I to Stage-II generation bus, a 400kV Tie Line is proposed to be constructed between stage-I and Stage-II switchyard such that shifting of Kotra line is possible within the available space inside the plant boundary. Proposed 400KV scheme for Lara-II is enclosed for reference (Annexure-IV).
- (ii). This Tie line arrangement has been planned in such a manner that it would enable us to draw startup from existing Lara-I 400kV switchyard.
- (iii). Shifting and re-conductoring of Raigarh line is proposed to be completed before synchronization of 1st Unit of Lara-II.
- (iv). However, as the connectivity for stage-II is explicitly granted through Raigarh line only it will not be possible to connect Lara-II with stage-I for drawal of startup power and re-conductoring of Raigarh line would need to be completed 15 months prior to synchronization of 1st Unit of Lara-II.

NTPC has requested that interim connectivity for Lara-II may also be granted from Lara stage-I switchyard only for drawal of startup power. Re-conductoring of Raigarh line as per final connectivity and LTA shall be required to be completed in matching time frame with synchronization of 1st Unit i.e 44 months from Investment approval. LTA on behalf of beneficiaries would be applied after Investment approval of the project.

7.3. Members may deliberate.

8. Progress of downstream network whose terminating bays are under construction by PGCIL

The 5.4. Proviso (iii) of Indian Electricity Grid Code (IEGC) (Fourth Amendment) Regulations, 2016, of CERC dated 06.04.2016 is as follows:

“Where the transmission system executed by a transmission licensee is required to be connected to the transmission system executed by any other transmission licensee and both transmission systems are executed in a manner other than through tariff based competitive bidding, the transmission licensee shall endeavor to match the commissioning of its transmission system with the transmission system of the other licensee as far as practicable and shall ensure the same through an appropriate Implementation Agreement.”

The status of the 220 kV line bays from various 400/220 kV substations as well as execution of downstream network is indicated in the table below:

Sl. No	ISTS S/s	Voltage ratio, Trans. Cap	Unutilised bays	Status of ISTS bay	Lines for unutilised bays	Status of Lines
WR						
1	Mapusa (PG)	400/220kV (3x315 MVA)	2	Existing bay	Mapusa – Cuncolin 220 kV D/c line	Anticipated DOCO Sep'20(As per WRPC held on 28.6.19)
			2		Mapusa–Tuem 220 kV D/c line	The agency has been finalized for carrying out work from Mapusa

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						to Tuem D/C line with GIS S/s at Tuem. The work will be awarded after the receipt of approval from the Govt. The completion period will be 20 months from the date of award (As per 2nd WRSCT Minutes).
2	Pirana	400/220kV (2x315MVA)	2	Existing bay	Pirana – Barjadi 220 kV D/c line	Mar'20
3	Wardha	400/220 kV (2x315 MVA)	2	Existing bay	Wardha – Yavatmal 220 kV D/c line	Under construction, May 20
4	Solapur	400/220 kV (2x315 +1x500 MVA)	2	Existing bay	Solapur – Bale (M) 220kV D/c line	Mar'20
			2		Solapur – Narangwadi 220 kV D/c line	Mar'20
5	Betul GIS	400/220 kV (2x315 MVA)	2	Existing bay	LILO of Sarni - Pandhurna 220kV line at Betul GIS (PGCIL)	Dec'19
6	Navi Mumbai	400/220 kV (2 x 315 MVA)	4	Existing bay	LILO of Apta – Taloja and Apta - Kalwa section of the Apta-Taloja/Kalwa 220 kV D/c line at Navi Mumbai (PG)	Agreed to be implemented under ISTS. Comm. Sch. - 30 months from date of transfer of SPV
7	Indore (PG)	400/220 kV (2 x 500 MVA)	2	Existing bay	LILO portion of 220kV line for Indore(NZ) 220kV S/S upto Indore(PGCIL) 765kV S/s	2 years after award of the contract
8	Parli (PG)	400/220 kV (2x500 MVA)	2	Existing bay	LILO of Parli – Harangul 220 kV S/c line	Dec'19
9	Vadodara GIS	400/220 kV (2 x 500 MVA)	2	Existing bay	220 kV Jhambua – Vadodara D/C Line	Dec'19
10	Navsari	400/220 kV (2x315MVA + 1x500 MVA)	2	Existing bay	Navsari – Bhestan 220kV D/c line	M/s DGENTPL is not taking up the implementation of the scheme. Agreed to be taken up as separate ISTS scheme.
11	Rewa PS	400/220kV (3x500 MVA)	6	Existing bay	Rewa UMSPP – Rewa PS 220kV 3xD/c line	220kV 3xD/c – completed & synchronized with Rewa PS

400 kV line bays:

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S. No.	ISTS Substation	Proposed Bays	Commissioning Schedule	Lines emanating from Substation	Latest available status
1	Indore (PG)	2	Jul, 2018	Indore (PG) – Ujjain 400 kV D/c line	Dec, 2019

The current status of the various substations and associated downstream system may be updated by STUs.

9. Connectivity of 50 MW solar park being established by South East Central (SEC) Railways for meeting its RPO obligations as a distribution licensee and change of its connectivity agreed at Raipur (Kumhari) 400/220 kV PGCIL substation from bulk consumer to Licensee

9.1. Connectivity to Railways at Raipur (Kumhari-POWERGRID) 400/220 kV substation at 220 kV level was agreed in the 29th meeting of Standing Committee on Power System Planning of Western Region held on 10.09.2009. The connectivity line along with the two nos. of 220 kV bays at Raipur 400/220 kV substation of POWERGRID was agreed to be implemented by Railways and CTU has already granted connectivity for a quantum of 100MW to SEC Railways as a Bulk Consumer at Raipur (Kumhari-POWERGRID) vide intimation dated 29.05.2012.

9.2. Railway Board vide its letter dated 22.01.2019 has requested CEA to include, the following two issues as an agenda in the Western Region Standing Committee on Transmission :

- (i) Connectivity of 50 MW solar park being established by South East Central (SEC) Railways for meeting its RPO obligations as a distribution licensee
- (ii) Change of its connectivity agreed at Raipur (Kumhari) 400/220 kV PGCIL substation from bulk consumer to Licensee.

To deliberate on the issue two meetings (on 28.02.2019 and 20.03.2019) were held at CEA, New Delhi under the Chairmanship of Chief Engineer (PSPA-1), CEA and subsequently the matter was also discussed in the 2nd WRSCT held on 21.05.19 wherein, the following was concluded:

- (i) Technically, the connectivity of 50 MW Solar Plant with the 220/132 kV Kumhari GSS of Railway is an optimal solution
- (ii) Railways' request of changing the already granted connectivity at Raipur (Kumhari) 400/220 kV PGCIL S/s as a bulk consumer to that of a Licensee was noted by the members.
- (iii) Railways' may approach appropriate forum for scheduling, dispatch and energy accounting for the proposed arrangement.

9.3. Subsequently, SEC Railways vide letter dated 23.10.2019 has intimated the following:

- REMCL has issued LOA to SPD firm M/s Refex Energy Ltd. Chennai on 09.09.2019 and it has been proposed that the solar plant may get connected directly to ISTS Grid (Raipur S/s).

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- Accordingly, Sherisha Agro Pvt. Ltd. (SPV of Reflex Energy Ltd.) has applied for Stage-I connectivity in the month of Sep'19 for processing by CTU and has intimated that the earlier proposed connectivity scheme of 50MW Solar power plant through Railway GSS may be dropped.
- Further, the 2 nos. 220kV bays already allocated to Railways may be kept spare for usage of Railways and may not be used for granting the above connectivity applied by Sherisha Agro.

9.4. The application of Sherisha Agro Pvt. Ltd. was discussed during the 41st WR Conn/LTA meeting held on 24.10.2019 wherein it was deliberated and agreed to grant connectivity to Sherisha Agro Pvt. Ltd. at Raipur S/s through 220kV S/c line. Regarding the issue of bay allocation to SEC Railway, it was deliberated that Railways' request of changing the already granted connectivity at Raipur (Kumhari) 400/220 kV PGCIL S/s as a bulk consumer to that of a Licensee was noted by the members in the 2nd WRSCT. However, the issue of allocation of bays to Railways and to Sherisha Agro Pvt. Ltd. needs to be deliberated in the next WRSCT.

9.5. Members may deliberate

10. Augmentation of transmission system for evacuation of power from M/s Essar Power M.P. Limited (EPMPL)

10.1. In the 42nd WRSCM held on 17.11.2017, extension of LILO arrangement of Vindhyachal–Korba STPP 400 kV S/C line at Mahan STPS was discussed and it was informed that the LILO at Mahan STPS would be essential to take care of contingency of outage of one ckt of Mahan SPTS–Bilaspur Pooling Station 400 kV D/C line for reliable evacuation of power from 2x600 MW units of Mahan TPS under full dispatch. Subsequently, CTU vide response dated 26.03.2018 in respect of petition No.132/MP/2018, regarding continuation of LILO of 400kV S/c Vindhyachal – Korba line at Mahan STPS, had submitted vide affidavit the following:

- a) In the event of completion of 400kV D/c Mahan-Sipat power evacuation line by 31.03.2018, continuation of the LILO till finalization of suitable alternatives(if any) as may be identified through system studies to address the high short circuit level issue.
- b) In event of disconnection of the LILO on account of non-completion of 400 kV D/c Mahan-Sipat power evacuation line by 31.03.2018, reconnection and continuation of LILO from such date as Essar Power Transmission Company Ltd(EPTCL) achieves commissioning of 400kV D/c Mahan-Sipat power evacuation line, till such time and subject to system studies as described in (a) above.

400kV D/c Mahan-Sipat has been subsequently commissioned in the month of September,2018.

As per the studies carried out by CTU, it has been observed that in case the dedicated line upto WR Pool(Bilaspur) along with the interim arrangement of LILO of one circuit of Vindhyachal-Korba D/c at Mahan TPS is kept in service, power can be reliably evacuated from both the units of Mahan TPS. However, the fault level at Vindhyachal crosses 40kA in 2021-22 time frame, with a

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significant contribution from Mahan TPS. Further, in case the dedicated line upto WR Pool along-with the interim LILO of one circuit of Vindhyachal – Korba STPP 400kV D/c line at Mahan TPS, is kept in service with the Mahan TPS-Vindhyachal 400kV section kept under open condition, no constraints are observed in respect of both power evacuation considering N-1 contingency conditions and stability issues.

Presently, the entire LTA quantum of 1200 MW granted to M/s EPMPPL has been relinquished (i.e. LTA quantum of 750 MW has been relinquished w.e.f 12.04.2017 & 450 MW w.e.f 04.05.2018). Also, the average generation schedule of M/s EPMPPL(as per WRLDC website) usually ranges between 250MW to 300MW with a maximum of around 450MW.

10.2.CTU has proposed the following :

- Considering that presently there is no LTA for M/s EPMPPL and that schedule under short term remains usually below 450MW, the LILO may usually be kept bypassed with suitable bypass arrangement.
- The constraints are observed only under conditions of high/full generation dispatch of both units of M/s EPMPPL. Accordingly, in case of high dispatch schedule for EPMPPL, the dedicated line upto WR Pool along-with the interim LILO of one circuit of Vindhyachal – Korba STPP 400kV D/c line at Mahan TPS, may be kept in service with the Mahan TPS-Vindhyachal 400kV section kept under open condition.
- Decision regarding dispatch conditions to be considered beyond which the LILO is to be taken into service and schematic/mechanism for the bypass arrangement may be decided vide a meeting amongst the stakeholders.
- Further, subsequent to receipt of LTA application from M/S EPMPPL, system studies would be carried out to finalize the transmission system augmentation required for enabling the LTA including re-configuration of the LILO as may be required.

10.3.Members may deliberate.

11. Summary of the connectivity and LTA granted in the connectivity and LTA meetings of WR

11.1.The details of stage-II connectivity granted to RE applicants from 30th to 41st Connectivity & Long-term Access applications in Western Region is tabulated below:

S r. No.	Name of Applicant(O rganization)	Stage-II Application number	Stage-II Quant um(M W)	Date: Stage-II Connecti vity required	LOA Details (As applicab le)	Proposed location for grant of Stage-II Connecti vity	Trans. System for stage-II connectivity (Under scope of applicant)
1	Adani Green Energy MP Limited	1200001 652	75	01/12/19	MSEDC LOA	Bhuj PS	<ul style="list-style-type: none"> • Establishment of 220kV Pooling Stations at Dayapar/Ratadiya for pooling of power from projects from projects at Dayapar, Chhugar and Murchbana/Mokhra.

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							<ul style="list-style-type: none"> Dayapar Pooling Station - Bhuj PS 220kV D/c line [with capacity of at least 725MW (375MW per ckt) at nominal voltage] along-with associated line bays at both ends (To be shared with AGEMPL projects with application nos. 1200001363 & 1200001484) 															
2	Srijan Energy Systems Private Limited	1200001686	300	31/03/20	NA	Bhuj PS	<ul style="list-style-type: none"> SESPL switchyard - Bhuj PS 220kV D/c line along with line bays at both ends - to be developed by SESPL The above line from SESPL switchyard upto Bhuj PS would be implemented as follows: <table border="1"> <thead> <tr> <th>Section</th> <th>Tower configuration</th> <th>Approx. Line length</th> </tr> </thead> <tbody> <tr> <td>Srijan-1 to Common Point</td> <td>D/c towers</td> <td>22km</td> </tr> <tr> <td>Srijan-2 to Common Point</td> <td>D/c towers</td> <td>12km</td> </tr> <tr> <td>Common point to INOX M/c tower near Bhuj</td> <td>D/c towers</td> <td>30km</td> </tr> <tr> <td>M/c tower stretch till respective gantry of Bays # 206 & 207 at Bhuj PS</td> <td>M/c towers</td> <td>2km</td> </tr> </tbody> </table> <p>Additional Transmission system under ISTS:</p> <ul style="list-style-type: none"> Installation of 2x500MVA (400/220kV), ICTs at Bhuj PS(Under implementation) 	Section	Tower configuration	Approx. Line length	Srijan-1 to Common Point	D/c towers	22km	Srijan-2 to Common Point	D/c towers	12km	Common point to INOX M/c tower near Bhuj	D/c towers	30km	M/c tower stretch till respective gantry of Bays # 206 & 207 at Bhuj PS	M/c towers	2km
Section	Tower configuration	Approx. Line length																				
Srijan-1 to Common Point	D/c towers	22km																				
Srijan-2 to Common Point	D/c towers	12km																				
Common point to INOX M/c tower near Bhuj	D/c towers	30km																				
M/c tower stretch till respective gantry of Bays # 206 & 207 at Bhuj PS	M/c towers	2km																				
3	Sitac Kabini Renewables Private Limited	1200001734	300	16/03/20	A(SECI-V)	Bhuj-II PS	<ul style="list-style-type: none"> Sitac Kabini Renewables Private Limited – Bhuj II PS 220kV S/c line along with associated line bays at generation end Bays at ISTS sub-station under the scope of Transmission Licensee owing the ISTS sub-station subject to compliance of relevant provisions of the tariff 															

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							<p>policy</p> <p>Additional Transmission system under ISTS:</p> <ul style="list-style-type: none"> Establishment of 1x1500MVA (765/400kV), 1x500MVA (400/220kV) Bhuj-II PS Reconfiguration of Bhuj PS – Lakadia PS 765kV D/c line so as to establish Bhuj-II –Lakadia 765 kV D/c line as well as Bhuj – Bhuj-II 765kV D/c line
4	Adani Green Energy Limited	1200001759	300	01/07/20	A(SECI-V)	Bhuj-II PS	<ul style="list-style-type: none"> Adani Green Energy Limited – Bhuj II PS 220kV S/c line along with associated line bays at generation end(under the scope of applicant) Bays at ISTS sub-station under the scope of Transmission Licensee owing the ISTS sub-station subject to compliance of relevant provisions of the tariff policy <p>Additional Transmission system under ISTS:</p> <ul style="list-style-type: none"> Establishment of 1x1500MVA (765/400kV), 1x500MVA (400/220kV) Bhuj-II PS Reconfiguration of Bhuj PS – Lakadia PS 765kV D/c line so as to establish Bhuj-II – Lakadia 765 kV D/c line as well as Bhuj –Bhuj-II 765kV D/c line
5	Netra Wind Private Limited	1200001775	300	31/03/20	A-(SECI-V)	Bhuj-II PS	<ul style="list-style-type: none"> Netra Wind Private Limited - Bhuj-II PS 220kV S/c line along with associated line bays at generation end (under the scope of applicant). Bays at ISTS sub-station shall be under the scope of Transmission Licensee owing the ISTS sub-station subject to compliance of relevant provisions of the tariff policy <p>Additional Transmission system under ISTS:</p>

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							<ul style="list-style-type: none"> Establishment of 1x1500MVA (765/400kV), 1x500MVA (400/220kV) Bhuj-II PS Reconfiguration of Bhuj PS – Lakadia PS 765kV D/c line so as to establish Bhuj-II – Lakadia 765 kV D/c line as well as Bhuj –Bhuj-II 765kV D/c line
6	POWERICA Ltd.	1200001924	50.6	30/09/20	B	Jam Khambhaliya PS (GIS) (New)	<ul style="list-style-type: none"> POWERICA Ltd. – Jam Khambhaliya PS 220kV S/c along with associated line bays at generation end (under the scope of applicant). The above single circuit line form POWERICA switchyard upto Jam Khambhaliya PS would be implemented on double circuit towers. Bays at ISTS sub-station under the scope of Transmission Licensee owing the ISTS sub-station subject to compliance of relevant provisions of the tariff policy <p>Additional Transmission system under ISTS:</p> <ul style="list-style-type: none"> Establishment of Jam Khambhaliya PS (GIS) 400/220kV PS(GIS) alongwith 1x500MVA 400/220kV ICT Extension of Bhachau/Lakadia-Essar 400kV D/c (Triple) line upto Jam Khambhaliya PS
7	Sprng Vayu Vidyut Private Limited	1200001936	200	30/05/20	A-NTPC LOA	400/220kV Rajgarh Substation (existing)	<ul style="list-style-type: none"> Sprng Vayu Vidyut Private Limited - Rajgarh 220kV S/c line along with associated line bays at both ends(under the scope of applicant)
8	Adani Green Energy Five Limited	1200002219	130	01/03/21	A(SECI-VII)	Bhuj-II PS (GIS)	<ul style="list-style-type: none"> Adani Green Energy Five Limited - Bhuj-II PS 220kV S/c line along with associated line bays at generation end (under

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							<p>the scope of applicant).</p> <ul style="list-style-type: none"> • Bays at ISTS substation end shall be under the scope of ISTS <p>Additional transmission system under ISTS:</p> <ul style="list-style-type: none"> • Establishment of 1x1500MVA (765/400kV), 1x500MVA (400/220kV) Bhuj-II PS • Reconfiguration of Bhuj PS – Lakadia PS 765kV D/c line so as to establish Bhuj-II – Lakadia 765 kV D/c line as well as Bhuj –Bhuj-II 765kV D/c line.
9	Adani Green Energy Three Limited	1200002 217	250	01/03/21	A(SECI-VI)	Bhuj-II PS New	<ul style="list-style-type: none"> • Adani Green Energy Three Limited - Bhuj-II PS 220kV S/c line along with associated line bays at generation end (under the scope of applicant). • Bays at ISTS substation end shall be under the scope of ISTS. <p>Additional transmission system under ISTS:</p> <ul style="list-style-type: none"> • Establishment of 1x1500MVA (765/400kV), 1x500MVA (400/220kV) Bhuj-II PS • Reconfiguration of Bhuj PS – Lakadia PS 765kV D/c line so as to establish Bhuj-II – Lakadia 765 kV D/c line as well as Bhuj –Bhuj-II 765kV D/c line.
10	CLP India Private Limited	1200002 281	250.8	31/03/21	A (SECI-VIII)	Jam Khambhaliya PS (GIS)	<ul style="list-style-type: none"> • CLP India Private Limited - Jam Khambhaliya PS 220kV S/c line along-with associated bays at generation end (under the scope of applicant). • Bays at ISTS substation end shall be under the scope of ISTS. <p>Additional transmission system to be required under ISTS:</p> <ul style="list-style-type: none"> • Establishment of Jam Khambhaliya 400/220kV PS (GIS) along with

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							1x500 MVA, 400/220kV ICT
							<ul style="list-style-type: none"> Extension of Bhachau/Lakadia - Essar 400kV D/c (triple) line upto Jam Khambhaliya PS
11	Avikiran Energy India Private Limited	1200002273	190	01/04/21	A (SECI-VIII)	Jam Khambhaliya PS (GIS)	<ul style="list-style-type: none"> Avikiran Energy India Private Limited - Jam khambhaliya 220kV S/c line along-with associated bays at generation end (under the scope of applicant). Bays at ISTS substation end shall be under the scope of ISTS. <p>Additional transmission system to be required under ISTS:</p> <ul style="list-style-type: none"> Establishment of Jam Khambhaliya 400/220kV PS (GIS) along with 1x500 MVA, 400/220kV ICT Extension of Bhachau/Lakadia - Essar 400kV D/c (triple) line upto Jam Khambhaliya PS

11.2. The details of LTA granted to RE applicants from 30th to 41st Connectivity & Long-term Access applications in Western Region is tabulated below:

Sr No.	Name of Applicant (Organization)	Stage-II Connectivity Quantum (MW)	LOA Quantum	Seeking LTA for (MW)	Date from which LTA required	Date upto which LTA Required	LTA Application number	LTA Processed for
1	Avikiran Solar India Private Limited	1200001423	285MW: SECI T5	285	29/02/20	28/02/45	1200001618	100MW: MSEDCL 185MW: MPPMCL
2	Adani Green Energy (MP) Limited	1200001484	300MW: SECI T4	300	03/12/18	28/02/45	1200001791	300MW: MSEDCL
3	Adani Green Energy MP Ltd. (AGEMPLD Dayapa)	1200001652	75MW: MSE DCL	75	03/12/18	18/01/45	1200001790	75MW: MSEDCL
4	Adani Green Energy MP Ltd.	1200001363	250MW: SE	250	27/11/19	24/11/44	1200001786	150MW: WR

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	(AGEMLDayapar/Ratadiya)		CI T3					Target 50MW: ER Target 50MW: Goa
5	Netra Wind Pvt Ltd (NWPL)	1200001 775	300M W:SE CI T5	300	150M W- 25/03/ 20 150M W- 15/07/ 20	24/07/ 45	1200001 819	300MW: NR Target
6	Adani Green Energy Limited (AGEL)	1200001 759	300M W:SE CI T5	300	22/07/ 20	21/07/ 45	1200001 826	175MW: NR Target 125MW: ER Target
7	Sprng Vayu Vidyut Private Limited	1200001 936	200M W:NT PC	200	30/05/ 20	30/05/ 45	1200002 001	200MW: NR Target
8	POWERICA Ltd.	1200001 924	NA	50.6	01/03/ 21	28/02/ 46	1200002 188	50.6MW: NR Target
9	Srijan Energy Systems Pvt Ltd	1200000 312	Deemed	125	30/11/ 20	30/11/ 45	1200002 251	125MW: MPPTCL
				50	31/12/ 20	31/12/ 45	1200002 256	50MW: UPPCL
				125	30/11/ 20	30/11/ 45	1200002 257	125MW: WR Target

Transmission System for LTA:

Sr. no. 1- Augmentation in transformation capacity at Bhuj PS (Under POWERGRID

Scope):

- 6x500MVA, 400/220kV ICTs [in addition to 2x500MVA, 400/220kV ICTs which are under implementation]
- 2x1500MVA, 765/400kV ICTs [in addition to 2x1500MVA, 765/400kV ICTs which are under implementation]

Sr. no 2,3,4- Under the scope of POWERGRID

- Installation of additional 3x500 MVA, 400/220 kV ICTs (3rd, 4th, 5th) along with 400 kV AIS & 220 kV AIS bays at Bhuj PS
- Installation of additional 3x500 MVA, 400/220 kV ICTs (6th, 7th, 8th) along with 400 kV GIS & 220 kV AIS bays at Bhuj PS
- Installation of additional 2x1500 MVA, 765/400 kV ICTs (3rd & 4th) along with 765 kV AIS & 400 kV GIS bays at Bhuj PS

Under the scope of TBCB

- Establishment of 2x1500MVA, 765/400kV substation at Lakadia

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- Lakadia – Vadodara 765kV D/c line
- Bhuj PS – Lakadia PS 765kV D/c line
- LILO of Bhachau – EPGL 400kV D/c (triple) line at Lakadia PS

Sr. No. 5,6 Transmission system strengthening at Bhuj-II PS (Under TBCB Scope):

- Establishment of 2x1500MVA (765/400kV), 4x500MVA (400/220kV) Bhuj-II PS (GIS)
- Reconfiguration of Bhuj PS – Lakadia PS 765kV D/c line at Bhuj-II PS so as to establish Bhuj II – Lakadia 765 kV D/c line and Bhuj PS -Bhuj II PS 765 kV D/c line.

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- Establishment of 2x1500MVA, 765/400kV Lakadia PS
- Bhuj PS – Lakadia PS 765kV D/c line
- LILO of Bhachau – EPGL 400kV D/c (triple) line at Lakadia PS

PART-B

- Lakadia – Vadodara 765kV D/c line

Sr. no. 7- LTA of 200MW was granted to Sprng Vayu Vidyut Private Limited at Rajgarh S/s

with existing transmission system

Sr. No. 8- Connectivity System for RE projects (1500 MW) in Dwarka (Gujarat) Under TBCB Scope

- Establishment of 4x500MVA, 400/220kV Jam Khambhaliya PS (GIS)
- Extension of Essar–Lakadia/ Bhachau 400kV D/c (triple snowbird) line upto Jam Khambhaliya PS

Sr. No. 9- Common Strengthening Scheme required for LTA(Common for sr. no. 8 & 9)

Under TBCB Scope

- Establishment of 2x1500MVA, 765/400kV Lakadia PS
- LILO of Bhachau – EPGL 400kV D/c (triple) line at Lakadia PS
- Bhuj PS – Lakadia PS 765kV D/c line **OR** Lakadia – Vadodara 765kV D/c line **OR** Lakadia – Banaskantha 765kV D/c line

