No. 15/3/2018-Trans-Pt(1)
Government of India
Ministry of Power
Shram Shakti Bhawan, Rafi Marg, New Delhi-110001
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Dated, 8th Jan, 2019

OFFICE MEMORANDUM

Subject: Minutes of the 3rd meeting of the Empowered Committee on Transmission (ECT) held on 21.12.2018- reg.

The undersigned is directed to forward herewith the Minutes of the 3rd meeting of the Empowered Committee on Transmission (ECT) held on 21.12.2018 under the chairmanship of Secretary (Power), for information and further necessary action.

(Bihari Lal)
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To

1. The Chairperson, CEA, New Delhi.
2. Member (PS), CEA, New Delhi.
3. Joint Secretary (Trans), MoP, New Delhi.
4. CMD, POWERGRID, Gurugram.
5. COO, CTU-Plg, POWERGRID.
6. CEO, RECTPCL, New Delhi.
7. CEO, PFCCL, New Delhi.

Copy to: PPSs/PSs to Secretary(Power)/ JS(Trans)/ Director(Trans), M/o Power.

Minutes of the 3rd meeting of Empowered Committee on Transmission (ECT)

Venue: Shram Shakti Bhawan, New Delhi Date: 21.12.2018Time 12.00 PM

Welcoming the participants, Secretary(P) requested Joint Secretary (Transmission) and Convener, ECT to put forth the agenda. JS(T) explained the recommendations of NCT in brief and stated that broadly the transmission schemes, which the NCT has planned, pertains to the providing connection for the Renewable generation capacity in Solar & Wind Energy Zones. These Renewable Energy Sources (RESs) are from bidding by SECI/ NTPC, from individual application to CTU as well as RES potential zones. JS(T) requested CEA and CTU to explain the individual transmission schemes as per the agenda. Details of deliberations and decisions taken are as below:

A: Confirmation of the minutes of the 2nd meeting of ECT

In regard to ATS of Arun-III, based on the request of SJVN, NCT in its 2nd meeting held on 4th December, 2018 decided to deliberate the matter in its next meeting. ECT agreed with the decision of NCT and confirmed the minutes of the 2nd meeting of the Empowered Committee on Transmission.

B: DELIBERATIONS ON THE NEW TRANSMISSION SCHEMES

B1. Transmission Schemes in Western Region:

The power map of the scheme in Western Region is at **Annexure-I**. Scheme wise details are as below:

1. **Additional 1x500MVA 400/220kV (9th) ICT at Bhuj Pooling Station**: This ICT is planned for injection from any additional RE project (other than 4000MW injection under SECI bids upto Tranche IV) at Bhuj PS.

S. No.	Scope of the Transmission Scheme	Capacity /ckm	Estd. Cost (Rs. Cr.)
1.	Additional 1x500MVA 400/220kV (9th) ICT, for injection from any additional RE project (other than 4000MW injection under SECI bids upto Tranche IV) in existing Bhuj PS with associated 400 kV GIS bay and 220kV AIS bay.	1x500MVA, 400/220kV 400kV ICT bay-1 220kV ICT bay-1	37
2.	3 nos. of 220kV line bays(hybrid/MTS) for termination of dedicated lines of RE developers with Stage-II connectivity	220kV bays -3	19.3
		Total (Rs. Cr.)	**56.3**

1.1 CTU stated that connectivity for 5000MW has been granted at Bhuj PS out of which about 3100 MW LTA has already been granted through the augmentation of transformation capacity at Bhuj PS (agreed in the 2nd ECT meeting held on 06.08.2018) and additional applications for 925 MW has been received in Bhuj are seeking LTA progressively from the period Nov 2019 to March 2020. Therefore, implementation of 9th 400/220 kV 500 MVA ICT along with 3 no. 220 kV line bays needs to be taken up. As POWERGRID is already implementing 8 no. of 400/220 kV 500 MVA ICT under RTM and scheme also

involves construction of hybrid/MTS 220 kV bays, NCT had recommended the above scheme for implementation through **RTM**.

1.2 ECT concurred the recommendations of NCT. However, implementation to be taken up in case there is injection requirement beyond 4000 MW at Bhuj PS at 220 kV level.

2. **WRSS-21 Part-A (TBCB)**: "Transmission System strengthening for relieving over loadings observed in Gujarat Intra-state system due to RE injections in Bhuj PS". Details of the scheme is as below:

S. No.	Scope of the Transmission Scheme	Capacity /km	Estd. Cost (Rs. Cr.)
1.	Establishment of 2x1500MVA, 765/400kV Lakadia PSwith 765kV (1x330MVAR) & 400kV (1x125 MVAR) bus reactor Future provisions: Space for: i) 765/400kV ICTs along with bays: 2 nos. ii) 400/220kV ICTs along with bays: 8 nos. iii) 765kV line bays:4 nos. iv) 400kV line bays: 6 nos. v) 220kV line bays: 16 nos vi) 765kV bus reactor along with bays: 1no vii)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 1x330MVAr, 765 kV, 1x125MVAr, 420 kV 765kV Reactor bay- 1 400kV Reactor bay -1	319
2.	LILO of Bhachau – EPGL 400kV D/c (triple) line at Lakadia PS	10km (approx.)	37
3.	Bhuj PS – Lakadia PS 765kV D/c line	100km (approx.)	463
4.	2 nos of 765kV bays at Bhuj PS for Bhuj PS – Lakadia PS 765kV D/c line	765kV line bay-2	37
		Total (Rs. Cr.)	**856**

Note:

POWERGRID to provide space for2 nos of 765kV bays at Bhuj PS for Bhuj PS – Lakadia PS 765kV D/c line

2.1 NCT had recommended the above scheme for implementation through **TBCB by December 2020** and suggested that BPCs may be requested to complete the bidding process in 140 days.

2.2 ECT concurred the recommendations of NCT.

WRSS-21 Part-A (RTM)

S. No.	Scope of the Transmission Scheme	Capacity /km	Estd. Cost (Rs. Cr.)
1.	Conversion of existing 2x63MVAR line reactors at Bhachau end of Bhachau – EPGL 400kV D/c line to switchable line reactors	400kV Reactor bay -2	19
		Total (Rs. Cr.)	**19**

2.3 It was deliberated that above part involves change in configuration therefore, ECT recommended the above scheme to be implemented **through RTM** by owner of existing sub-station i.e. by POWERGRID by Dec. 2020.

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

S. No.	Scope of the Transmission Scheme	Capacity /km	Estd. Cost (Rs. Cr.)
1.	Lakadia–Vadodara 765kV D/c line	350km (apprx.)	1619
2.	330MVAr switchable line reactors at both ends of Lakadia–Vadodara 765kV D/c line	330 MVAR reactor -4 no. 765kV Reactor bay -4 no.	172
3.	2 nos of 765kV bays each at Lakadia and Vadodara S/Ss for Lakadia – Vadodara 765kV D/c line	765kV line bays- 4	74
		Total (Rs. Cr.)	**1865**

Note:

a. *POWERGRID to provide space for 2 nos of 765kV bays and space for 2 nos. of 330MVAr switchable line reactors at Vadodara end for Lakadia – Vadodara 765kV D/c line*

b. *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 end for Lakadia – Vadodara 765kV D/c line*

3.1 NCT had recommended the above scheme for implementation through **TBCB by December 2020** and suggested that BPCs may be requested to complete the bidding process in 140 days.

3.2 ECT concurred the recommendations of NCT as above.

4. **Transmission System associated with RE generations at Bhuj–II, Dwarka & Lakadia:**

4.1 CEA stated that the scheme is required with addition of RE generation projects in the wind potential zones in Gujarat (Bhuj –II, Dwarka & Lakadia). As CTU has received connectivity/LTA applications in Jam Khambaliya and Bhuj area, implementation of the scheme may also be taken up. Details of the scheme are as below:

S. No.	Scope of the Transmission Scheme	Capacity /km	Estd. Cost (Rs. Cr.)
1.	Lakadia PS – Banaskantha PS 765kV D/c line	200km (approx.)	925
2.	765kV Bays at Lakadia and Banaskantha sub-stations for Lakadia PS – Banaskantha PS 765kV D/c line	765kV Bays – 4nos.	74
3.	240MVAr switchable Line reactor at Lakadia PS end of Lakadia PS – Banaskantha PS 765kV D/c line	2x240 MVAR 765kV reactors	76

		along with bays -2	
		Total (Rs Cr.)	**1075**

Note:

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

b. *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*

4.2 NCT recommended the above scheme for implementation through **TBCB by June 2021** or as per the progress of connectivity/LTA applications of RE projects from WEZ in Gujarat.

4.3 ECT concurred the recommendations of NCT as above.

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

S. No.	**Scope of the Transmission Scheme**	**Capacity /ckm**	**Estd. Cost (Rs.) Cr.**
1.	Establishment of 2x1500MVA (765/400kV), 4x500MVA(400/220kV) Bhuj-II PS (GIS) with 765kV (1x330MVAR) and 420kV (1x125 MVAR) bus reactor Future provisions: 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 bays: 1no 400kV bus reactor along with bays: 1no	765/400kV - 2x1500MVA, 400/220kV - 4x500MVA 765kV ICT bay-2 400kV ICT bay-6 220kV ICT bay- 4 765kV line bay-4 220kV line bays -7 1x330MVAr, 765kV, 1x125MVAr, 420kV 765kV reactor Bays -1 420kV reactor Bays -1	552
2.	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 (approx.)	93
		Total Rs (in Crore)	**645**

5.1 In the recently concluded SECI bid Tranche-V for wind RE projects, the injection point for about 1200MW RE projects is Bhuj. As Bhuj-I has become saturated, therefore, another pooling station in Bhuj area i.e. Bhuj-II is required for evacuation of power from these RE projects.

5.2 CTU stated that at Bhuj pooling station, which is currently under implementation, St-II connectivity to the tune of 5000 MW has already been granted and additional St-II connectivity applications for 900 MW has already been received in Bhuj area, which is to be

granted. Therefore, implementation of Bhuj-II Pooling station needs to be taken up immediately.

5.3 NCT recommended the scheme for implementation through TBCB with commissioning schedule of December 2020 or as per progress of connectivity/LTA applications at Bhuj-II.

5.4 ECT concurred the recommendations of NCT for **TBCB** as above.

6. Connectivity System for RE projects (1500 MW) in Dwarka (Gujarat): Transmission system to cater RE injection to the tune of 1500MW in Dwarka area has been planned and as below (power map of the scheme is at Annexure-II):

a. **Jam Khambhaliya Pooling Station** for providing connectivity to RE projects (1500 MW) in Dwarka (Gujarat). This could be utilized for injection of power from wind or solar projects in the area. For any additional RE injection, additional system would need to be planned subsequently. The details are as below:

S. No.	Scope of the Transmission Scheme	Capacity /ckm	Estd. Cost (Rs. Cr.)
1.	Establishment of 4x500MVA, 400/220kV Jam Khambhaliya PS (GIS) Future provisions: 400/220kV ICTs along with bays: 4 nos. 400kV line bays: 8nos. 220kV line bays: 9 nos 420kV 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	209
2.	Bays at Jam Khambhalia PS: 1 no 400kV bay for M/s Vaayu 1 no of 220kV bay for M/s Air power 6 nos of 220kV bay for future developers		
3.	1x125MVAr, 420kV Bus reactor at Jam Khabhaliya PS along with reactor bay	1x125MVAr, 420kV 400kV reactor Bays -1	20
		Total (Rs. Cr.)	**229**

b. Interconnection of Jam Khambhaliya Pooling Station for providing connectivity to RE projects (1500 MW) in Dwarka (Gujarat):

S. No.	Scope of the Transmission Scheme	Capacity /ckm	Estd. Cost (Rs. Cr.)
1.	Extension of Essar–Lakadia/ Bhachau 400kV D/c (triple snowbird) line upto Jam Khambhaliya PS	40km (approx.)	75
2.	2 nos. of 400kV line bays at Jam Khambhaliya PS for termination of Jam Khambhaliya PS-Lakadia 400kV D/c (triple) line	400kV line bay-2	23
3.	63MVAr switchable Line Reactor at both ends	4x 63 MVAr	71

	of Lakadia - Jam Khambhaliya 400kV D/c line	420kV reactor Bays -4	
		Total (Rs. Cr.)	**169**

6.1 CTU stated that St-II connectivity for 550 MW has already been granted from December 2019. Therefore, implementation of Jam Khambhaliya PS needs to be taken up immediately. CEA stated that these developers have already represented to CEA for providing alternative interim arrangements for evacuation of power from their RE projects. NCT recommended the scheme 'Jam Khambhaliya Pooling Station for providing connectivity to RE projects (1500 MW) in Dwarka (Gujarat)' for implementation through TBCB with commissioning schedule of June 2020 (Scheme-a).

6.2 It was informed that connectivity to Jam Khambhaliya PS is to be provided by extending the existing Essar–Bhachau 400kV D/c line, which has been implemented by POWERGRID, upto Jam Khambhaliya PS. Essar generation project has not come up till date and neither there is any possibility in near future, therefore, extension of this line (by about 40km) upto Jam Khambhaliya will be providing connectivity to RE projects in Dwarka. NCT recommended the scheme for implementation through RTM with commissioning schedule of June 2020 (Scheme-b).

6.3 CTU stated that in order to ensure expeditious implementation of Jam Khambhaliya PS & its associated transmission system in matching time-frame (viz. extension of existing Essar – Bhachau 400kV D/c line of POWERGRID), the line extension along with establishment of Jam Khambhaliya PS may be allotted to a single agency (under RTM or TBCB).

6.4 **ECT recommended the both the scheme be implemented through TBCB**.

7. **<u>400kV line bay at Solapur PS for St-II connectivity to M/s Toramba Renwable Energy Pvt. Ltd. (TREPL)</u>**-

7.1 Stage-II connectivity to M/s Torambahas been granted from December' 2019at existing Solapur 400kV S/s of POWERGRID and 1 no 400kV line bay is required for termination of connectivity line of the developer under ISTS. Details of the scheme are as below:

S. No.	Scope of the Transmission Scheme	Capacity /km	Estd. Cost (Rs. Cr.)
1.	1 nos. of 400kV bay at Solapur(PG) for St-II connectivity to M/s Toramba	400kV line bay -1	10
		Total (Rs. Cr.)	**10**

7.2 NCT has recommended the implementation of the scheme through RTM by December 2019.

7.3 ECT concurred the recommendations of NCT for implementation of the scheme through RTM by POWERGRID.

8. <u>Installation of 400/220 kV ICT along with associated bays at M/s CGPL Switchyard - M/s CGPL Switchyard</u>

S. No.	Scope of the Transmission Scheme	Capacity/Ckm	Estd. Cost (Rs. Cr.).

1.	1x500 MVA, 400/220 ICT at CGPL Mundra switchyard.	1x500 MVA, 400/220 kV 400 kV ICT bay-1 220 kV ICT bay-1	37

Note:

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

b. *1x500 MVA, 400/220 kV ICT would be charged from 400 kV side and kept isolated from 220 kV side.*

8.1 The scheme would be providing the startup power to CGPL through Nanikhakhar-CGPL 220 kV S/C line (existing). The line would normally be kept open from CGPL end. NCT recommended the above scheme for implementation through TBCB mode.

8.2 ECT concurred the recommendations of NCT **for implementation through TBCB mode**.

B2: New ISTS Transmission Schemes in Northern Region: The transmission system was technically agreed in NRSCT is proposed to be implemented through following transmission schemes. A schematic showing different parts of Transmission scheme for Rajasthan Solar Energy Zones is at Annexure-III:

1. Name of Scheme: Transmission system associated with LTA applications from Rajasthan SEZ Part-A:

S. No.	Scope of the Transmission Scheme	Capacity /ckm	Estd. Cost (Rs. Cr.)
1.	Establishment of 3x1500MVA (765/400kV), Fatehgarh-2 Pooling station at suitable location near Fatehgarh 400kV S/s in Jaisalmer Distt. with 765kV (2x240MVAR) and 400kV (1x125 MVAR) bus reactor Future provisions: Space for: 765/400kV ICT along with bays: 3nos 400/220kV ICTs along with bays: 10 nos. 765kV line bays: 4nos 400kV line bays: 6nos. 220kV line bays: 18nos 400kV bus reactor along with bays: 1no 765kV bus reactor along with bays: 1no	765/400kV – 3x1500 MVA, 765kV ICT bay-3 400kV ICT bay-3 400kV line bay-2 765kV line bay-2 240 MVAr 765 kV reactor-2 no. 125 MVAr400 kV reactor-1 no. 765kV reactor bay-2 400kV reactor bay-1	369
2.	LILO of Fatehgarh (TBCB) – Bhadla (PG) D/c (765kV line op. at 400kV) line at Fatehgarh-2 so as to establish Fatehgarh (TBCB) – Fatehgarh -2 400kV D/c line (765kV line op. at 400 kV) and Fatehgarh -2-Bhadla 400kV D/c line (765kV line op. at 400 kV) * Charging of Fatehgarh-2 –Bhadla section at 765kV level	10km (approx)	106

3.	2 no of 765kV bays at Bhadla for charging of Fatehgarh-2 –Bhadla section at 765kV level	765kV line bay-2	37
4.	Establishment of 765/400kV, 2x1500MVA (765/400kV) Bhadla-2 Pooling station at suitable location near Phalodi/ Bhadla in Jodhpur with 765kV (2x240MVAR) and 400kV (1x125 MVAR) bus reactor Future provisions: Space for: 765/400kV ICT along with bays: 2 nos 400/220kV ICTs along with bays: 9 nos. 765kV line bays: 6nos 400kV line bays: 6nos. 220kV line bays: 16 nos 400kV bus reactor along with bays: 1no 765kV bus reactor along with bays: 1no	765/400kV - 2x1500MVA 765kV ICT bay-2 400kV ICT bay-2 400kV line bay-2 765kV line bay-4 240 MVAr bus reactor-2 125 MVAr bus reactor-1 765kV reactor bay-2 400kV reactor bay-1	333
5.	Bhadla-2 –Bhadla (PG) 400kV D/c Line (Twin HTLS)*	30km (approx)	56
6.	LILO of both ckts. 765kV Ajmer – Bikaner D/c line at Bhadla-2 (765 kV 2xD/C line)	2x135 km route length (approx)	1249
7.	1x240 MVAr Switchable line reactor at Bhadla-2 end for Bikaner-Bhadla-2 765kV line (after LILO)	240 MVAr reactor-2 765kV reactor bay-2	76
8.	1x330 MVAr Switchable line reactor at Bhadla-2 end for each circuit of Ajmer-Bhadla-2 (765kV)D/C line (after LILO)	330 MVAr reactor-2 765kV reactor bay-2	86
9.	Ajmer (PG)– Phagi 765kV D/c line	110km (approx)	509
10.	765kV bays at Ajmer(PG) and Phagi for Ajmer (PG)– Phagi 765kV D/c line	765kV line bay-4	74
		Total (Rs. Cr.)	**2895**

* with charging of Fatehgarh-II –Bhadla section at 765kV level, 2nos. of 400kV bays would be spared at Bhadla S/s, which could be utilized for Bhadla-II – Bhadla (PG) 400kV D/c line.

Note:

a) *POWERGRID and RVPN to provide space for 2 nos. of 765kV bays at Ajmer(PG) and Phagi (RVPN) respectively for termination of Ajmer (PG)– Phagi 765kV D/c line*

1.1. Bhadla Pooling station, Bhadla –Bikaner 765kV D/c line, Bikaner – Moga 765kVD/c line, Bikaner –Ajmer 765kV D/c line and Bhadla (PG) – Bhadla (RVPN) 400kV D/c line are under implementation by Powergrid as a part of Green Energy Corridor. It is expected to be commissioned by March 2019. Establishment of Fatehgarh 400kV pooling station along with Fatehgarh– Bhadla 765kV D/c line (charged at 400kV) is being implemented through TBCB route with commissioning schedule of September 2019.

1.2. LTA of 1000 MW at Fatehgarh and LTA of 2330 MW (1500 MW+ 830 MW) at Bhadla has already been granted with the above-mentioned transmission system under implementation as a part of GEC along with 400/220 kV ICT (5^{th}) at Bhadla. In addition, LTA of 2850 MW

(1200MW LTA at Fatehgarh, 800 MW at Bhadla Pool and 850 MW at Bikaner) has also been granted with the new system agreed technically in 2nd meeting of NRSCT held on 13.11.2018. LTA of 2850 MW has been granted with new system as per the following time lines:

S. No.	LTA Quantum &location	Schedule
1	250 MW at Bhadla	September 2019
2	250 MW at Bikaner	October 2019
3	500 MW at Bhadla	September 2020
4	50 MW at Bhadla	October 2020
5	600 MW at Bikaner	October 2020
6	1200 MW at Fatehgarh	October 2020

1.3. There is evacuation requirement of 6180 (2330+2850)5330 MW beyond Bhadla and with current system under implementation (Bhadla –Bikaner/ Moga 765kV D/c line), evacuation of 3330 MW is only possible. Therefore, the scheme proposed above, out of the total system agreed in 2nd NRSCT for evacuation of power from solar potential zones in Rajasthan, is the minimum system required to be implemented urgently in compressed time schedule. The above transmission system is required from Sep. / Oct. 2019 onwards, however keeping in view the transmission system implementation time and time line for evacuation of major chunk of the generation (1850 MW by Oct. 2020), the transmission system is required to be implemented by September2020 (21 months: 18 months implementation + 3 months bidding).

1.4. NCT recommended the above scheme for implementation through RTM by September 2020 in a compress time schedule of 21 months:(18 months implementation + 3 months bidding). As the transmission scheme for evacuation of power from SEZs in Rajasthan was agreed technically in the 2ndmeeting of NRSCT held on 13.11.2018, therefore, CTU needs to take regulatory approval from CERC for the scheme.

1.5. **ECT concurred the recommendations of NCT for awarding the elements under RTM except element at serial no. (9) and 10 above i.e.** Ajmer (PG)– Phagi 765kV D/c line and associated bays with estimated cost of Rs.583 Crore, which would be **awarded under TBCB**.

2. Transmission system associated with LTA applications from Rajasthan SEZ Part-B:

S. No.	Scope of the Transmission Scheme	Capacity /ckm	Estd. Cost (Rs. Cr.)
1.	Fatehgarh-2 – Bhadla -2 765kV D/c line	130km (approx.)	602
2.	2 no of 765kV bays each at Fatehgarh-2 & Bhadla -2 for Fatehgarh-2 –Bhadla-2 765kV D/c line	765kV line bay-4	74
		Total (Rs. Cr.)	**676**

Note: Developer of Fatehgarh-2 and Bhadla -2 to provide space for 2 nos of 765kV baysatFaetehgarh-2 and Bhadla -2 for termination of Fatehgarh-2 – Bhadla -2 765kV D/c line.

2.1 CTU informed that they are in receipt of Stgae-II connectivity applications for 1100 MW capacity in Fatehgarh complex, however LTA is awaited

2.2 NCT recommended the above scheme for implementation through TBCB route. Time frame to be decided based on connectivity/LTA applications at Fatehgarh-II.

2.3 ECT concurred the decision of NCT for awarding the elements under **TBCB.**

3. Transmission system associated with LTA applications from Rajasthan SEZ Part-C:

S. No.	**Scope of the Transmission Scheme**	**Capacity /ckm**	**Estd. Cost (Rs. Cr.)**
1.	Establishment of 765/400kV, 2x1500 MVA S/s at suitable location near Khetri with 765kV (2x240MVAR) and 400kV (1x125 MVAR) bus reactor <u>Future provisions:</u> Space for: 400/220 kV ICTs along with bays: 4 nos. 765kV line bays: 4nos 400kV line bays: 4nos. 220kV line bays: 7nos	765/400kV - 2x1500MVA 765kV ICT bay-2 400kV ICT bay-2 400kV line bay-2 765kV line bay-2 240 MVAr (765kV) Bus Reactor -2 125MVAr (400 kV) Bus Reactor -1 765 kV Reactor bay - 2 400 kV Reactor bay -1	296
2.	Khetri – Sikar (PG) 400kV D/c line (AL59)	70 km (approx.)	151
3.	400kV line bays at Sikar (PG) for Khetri – Sikar (PG) 400kV D/c line (Twin AL59)	400kV line bay-2	19
4.	Khetri– Jhatikara 765kV D/c line	170 km (aaprox.)	786
5.	765kV bays at Jhatikara for Khetri– Jhatikara 765kV D/c line	765kV line bay-2	37
6.	1x240 MVAR Switchable Line reactors for each circuit at Jhatikara end of Khetri – Jhatikara 765kV D/c line along with reactor bays	240 MVAR Line reactor -2 765 kV Reactor bay -2	76
		Total (Rs. Cr.)	**1365**

<u>Note:</u>

a. *POWERGRID to provide space for 2 nos of 400kV bays at Sikar (PG) for termination of Khetri – Sikar (PG) 400kV D/c line*

b. *POWERGRID to provide space for 2 nos of 765kV line bays & space for 2nos. of 240 MVAR Switchable Line reactors along with reactor bays at Jhatikara for termination Khetri –Jhatikara 765kV D/c line.*

3.1 NCT recommended the above schemes for implementation in through TBCB by December 2020 in 24 months (19 months implementation + 5 months bidding time).

3.2 ECT concurred the recommendations of NCT for awarding the elements under **TBCB as above.**

4. Transmission system associated with LTA applications from Rajasthan SEZ Part-D:

S. No.	Scope of the Transmission Scheme	Capacity/ ckm	Estd. Cost (Rs. Cr.)
1.	Bikaner(PG) – Khetri S/s 765kV D/c line	220km (approx)	1018
2.	765kV Bays at Bikaner(PG) & Khteri for Bikaner(PG) – Khetri S/s 765kV D/c line	765kV line bay-4	37
3.	1x240 MVAr Switchable line reactor for each circuit at each end of Bikaner – Khetri 765kV D/c line along with reactor bays.	1x240 MVAr Line reactor -4 765 kV Reactor bay -4	153
		Total (Rs Cr.)	**1208**

Note:

a. *Powergrid to provide space for 2 nos of 765kV bays& space for 2x240 MVAR switchable line reactors at* Bikaner(PG)*for termination of Bikaner(PG) – Khetri S/s 765kV D/c line*

b. *Developer of Khetri S/s to provide space for 2 nos of 765kV bays at Khetri S/s & space for 2x240 MVAR switchable line reactors for termination of Bikaner(PG) – Khetri S/s 765kV D/c line*

4.1 Transmission system for 8.9 GW of solar RE projects from Bhadla (3.55 GW), Fatehgarh (3.5 GW), Bikaner (1.85 GW) complexes in Rajasthan was technically agreed in the 2nd meeting of NRSCT held on 13.11.2018. The scheme is required for evacuation of power from balance 6050 MW of RE potential out of total quantum of 8.9 GW (2.850 GW LTA already granted).

4.2 NCT recommended the above schemes for implementation in through TBCB by December 2020 in 24 months (19 months implementation + 5 months bidding time).

4.3 ECT concurred the decision of NCT for awarding the elements under **TBCB.**

5. ICT Augmentation works at existing Moga (PG) ISTS S/S associated with LTA applications from SEZs in Rajasthan:

S. No.	Scope of the Transmission Scheme	Capacity /ckm	Estd. Cost (Rs. Cr.)
1.	Augmentation with 765/400kV, 1x1500MVA transformer (3rd) at Moga S/s	1x1500MVA, 765/400kV 765kV ICT bay-1 400kV ICT bay-1	73
		Total (Rs. Cr.)	**73**

5.1 Injection of power from 3330 MW LTA already granted to RE projects with the green energy Corridor in NR (under implementation) is likely to flow towards Moga (through Bikaner –Moga 765kV D/c line). The scheme has been proposed to take care of ICT overloading at Moga under N- 1 contingency.

5.2 NCT recommended the above scheme for implementation through RTM in compressed time schedule of 9 months by September 2019**.**

5.3 CTU indicated that 9 months time from now is very short for implementation of a 765/400kV ICT, therefore completion schedule may be reconsidered

5.4 ECT concurred the recommendations of NCT for awarding the elements under RTM by POWERGRID with the compressed schedule of practically feasible time period of 12 months.

6. ICT Augmentation works at Bhadla (PG) associated with 1630 MW LTA granted at Bhadla.

S. No.	Scope of the Transmission Scheme	Capacity/Ckm	Estd. Cost (Rs. Cr.)
1.	Additional 3x500 MVA, 400/220kV 5th, 6th& 7thICT at Bhadla Pooling station.	3x500 MVA, 400/220kV 400 kV ICT bay-3 220 kV ICT bay-3	105

6.1 LTA of 830 MW (280 MW by Aug 2019, 550 MW by Oct 2020) and 800 MW (250 MW by September 2019, 500 MW by September 2020 & 50 MW by October 2020) have been granted at Bhadla with augmentation of 5th ICT and 6th& 7th ICT respectively at Bhadla.

6.2 The above ICTs are required in the time frame of August 19/ September 19. Therefore, NCT recommended the above scheme for implementation through RTM with compressed time schedule of 8/ 9months.

6.3 CTU indicated that 9 months time from now is very short for implementation of a 400/220kV ICT, therefore completion schedule may be reconsidered

6.4 ECT concurred the recommendations of NCT **for RTM** with the compressed schedule of practically feasible time period of 12 Months.

7. ICT Augmentation works at existing Bhiwani (PG) ISTS S/S associated with LTA applications from SEZs in Rajasthan:

S. No.	Scope of the Transmission Scheme	Capacity /ckm	Estd. Cost (Rs. Cr.)
1.	Augmentation with 765/400kV, 1x1000MVA, transformer (3rd) at Bhiwani (PG) S/s	1x1500MVA, 765/400kV, 765kV ICT bay-1 400kV ICT bay-1	65
		Total Rs (in Crore)	**65**

7.1 The scheme has been proposed to take care of ICT overloading at Bhiwani (PG) under N- 1 contingency with increased flow on Phagi –Bhiwani 765kV D/c line after implementation of Ajmer –Phagi 765kV D/c line (September 2020).

7.2 NCT recommended the scheme for implementation through TBCB with implementation **schedule of September 2020.**

7.3 As the scheme is augmentation of existing sub-station, **ECT recommended the scheme for through RTM by POWERGRID**.

8. 125 MVAR bus reactor at Kala Amb substation

8.1 To control high voltage in the Northern grid, the provision of reactive compensation, was discussed and approved in the 39th meeting of Standing Committee on Power System Planning of Northern Region held on 29-30thMay, 2017 which involved installation of bus

reactors at various 220kV & 400kV buses. Further, in the 2nd ECT installation of bus reactors at various substations of POWERGRID in Northern Region was recommended for implementation through RTM by POWERGRID as a part of the scheme NRSS-XL. The scheme which was agreed in the 39th meeting of SCPSPNR also involved installation of 125 MVAr bus reactor at Kala Amb substation. The Kala Amb substation is under implementation through TBCB.

The scope of works is as follows:

S. No.	Scope of the Transmission Scheme	Capacity /km	Estd. Cost (Rs. Cr.)
1.	1x125 MVAR, 420 kV Bus Reactor at Kala Amb	1x125 MVAR, 420kV bus reactor 420kV reactor bay– 1	16

8.2 NCT was of opinion that the scheme is basically technical up gradation at existing ISTS (implemented through TBCB route by M/s POWERGRID). **NCT recommended the above scheme for implementation through RTM.**

8.3 ECT concurred the recommendations of NCT for awarding the elements **under RTM.**

9. 12ohm series reactor at 400kV Mohindergarh S/s of M/s Adani:

9.1 The scheme to control Fault Level in Northern Region (Phase-II) was discussed and approved in the 39th meeting of Standing Committee on Power System Planning of Northern Region held on 29-30 May, 2017 and in the 2ndECT the scheme was recommended for implementation through RTM by Powergrid. The scheme which was agreed in the 39th meeting of SCPSPNR also involved installation of 12ohm Series Line reactors in Mohindergarh– Dhanonda 400kV D/c line Ckt I & II at Mohindergarh end. Mohindergarh substation is owned by M/s Adani Power limited.

The scope of works is as follows:

S. No.	Scope of the Transmission Scheme	Estd. Cost (Rs. Cr.)
1.	12ohm Series Line reactors in Mohindergarh– Dhanonda 400kV D/c line (Ckt I & II) at Mohindergarh end	50

9.2 NCT was of opinion that the scheme involves works at existing ISTS HVDC station (of M/s Adani Power limited). The above works falls under the category of technical up-gradation.

9.3 NCT recommended the above scheme for implementation through RTM**.**

9.4 After deliberations ECT concurred the recommendations of NCT for awarding the elements **under RTM** by owner of the substation, i.e. M/s Adani Power limited

10. 2 Nos. of 220kV bays at 3x315 MVA, 400/220kV Samba (Jatwal) (PG) S/s:

10.1 The scheme for providing 2 nos. of 220kV bays at 3x315 MVA, 400/220kV Samba (Jatwal) (PG) S/s for termination of Samba (Jatwal) (PG) –Samba(JKPDD) 220kV D/c line under ISTS was agreed in 1st meeting of NR SCT held on 11.09.2018.

The scope of works is as follows:

S. No.	Scope of the Transmission Scheme	Capacity/Ckm	Estd. Cost (Rs. Cr.)
1.	2 nos. of 220kV line bays at Samba (Jatwal) (PG)	220 kV line bays- 2	10

10.2 Samba (Jatwal) (PG) –Samba (JKPDD) 220kV D/c line is under implementation (expected commissioning by November 19) as a part of PMDP -2015 and above bays are required for terminating this line at 400/220kV Samba (Jatwal) (PG) S/s.

10.3 NCT recommended the scheme for implementation through RTM in the matching time frame of the transmission line (November 19).

10.4 ECT concurred the recommendations of NCT for awarding the elements **under RTM** as above.

B3: New ISTS Transmission Schemes in Southern Region:

1. High loading of Nellore – Nellore (PS) 400kV (Quad) D/c line: The scope of works is as follows:

S. No.	Scope of the Transmission Scheme	Estd Cost (Rs. Cr.)
1.	Bypassing of Nellore PS – Nellore PG 400kV D/c (Quad) line & Nellore PG – Thiruvalam 400kV D/c (quad) line at Nellore PG to form Nellore PS – Thiruvalam 400kV D/c (Quad) direct line	1.00
2.	Conversion of 2x50 MVAR fixed line reactors at Nellore PG on Nellore PG – Thiruvalam 400kV D/c (Quad) line as bus reactor at Nellore PG 400kV sub-station	

1.1 CEA appraised that the scheme has been agreed to address the high loading on 400kV Nellore PS – Nellore PG line and high short circuit level at Nellore PG in the 42nd Standing Committee on Power System Planning in Southern Region held on 27/04/2018.

1.2 As the scope of work includes only Bypassing arrangement in existing transmission line and Conversion of line reactor as bus reactor and the scheme is basically technical up-gradation at existing ISTS substation. NCT has recommended the above scheme for implementation through RTM.

1.3 ECT concurred the decision of NCT for awarding the elements **under RTM.**

B4: New ISTS Transmission Schemes in Eastern Region:

1. Construction of 2 nos. 132 kV feeder bays at Malda 400 kV substation of POWERGRID

The scope of works are as follows:

S. No.	Scope of the Transmission Scheme	Capacity /Ckm	Estd. Cost (Rs. Cr.)
1.	Replacement of existing Single Main & Transfer (SMT) bus scheme with Double Main (DM) bus scheme at 132kV level at Malda (POWERGRID) substation in GIS along with additional 2 no. of		28

	132kV GIS line bays for Manikchak/ Paranpur – Malda (POWERGRID) 132kV D/c line of WBSETCL		

1.1 This work comprises of replacement of existing bus scheme to Double Main scheme at Malda (POWERGRID) substation and additional 2 no. of 132kV GIS line bays, the scheme is basically technical up-gradation at existing ISTS substation, therefore, NCT has recommended the above scheme for implementation through RTM.

1.2 ECT concurred the recommendations of NCT for awarding the elements **under RTM**.

1.3 ECT also noted that the schemes under (under Para B1 to B4) would require regulatory approval by CTU wherever required as per the recommendations of NCT.

C: RE POTENTIAL BASED TRANSMISSION SCHEMES

C1: Transmission schemes for providing connectivity to RE projects in potential wind energy and solar energy zones in WR [Lakadia (2000MW), Osmanabad (2000MW) & Solapur (1000 MW)]:

i) Name of Scheme: Transmission System for providing connectivity to RE projects in Gujarat [Lakadia (2000MW)] (196 Cr.)

ii) Name of Scheme: Transmission system associated with RE generations from potential wind energy zones in Osmanabad area of Maharashtra (301 Cr.)

iii) Name of Scheme: Transmission system associated with RE generations from potential Solar Energy Zone in Maharashtra (1000 MW under Ph-I) (220Cr.)

C2: Transmission system for providing connectivity to RE projects at Bikaner(PG), Fatehgarh-II & Bhadla –II:

i) Name of Scheme: Transmission system for providing connectivity to RE projects at Bikaner (PG) (93 Cr.)

ii) Name of Scheme: Transmission system for providing connectivity to RE projects in Bhadla-II (298 Cr)

iii) Name of Scheme: Transmission system for providing connectivity to RE projects in Fatehgarh-II (298 Cr)

C3: Evacuation of power from RE sources in Wind Energy Zones in Tamil Nadu, Karnataka and Andhra Pradesh

i) Name of Scheme: Evacuation of power from RE sources in Tirunelveli and Tuticorin Wind Energy Zone (Tamil Nadu) (500MW) (37 Cr.)

ii) Name of Scheme: Evacuation of power from RE sources in Karur / Tiruppur Wind Energy Zone (Tamil Nadu) (2500MW) (578 Cr.)

iii) Name of Scheme: Evacuation of power from RE sources in Koppal Wind Energy Zone (Karnataka) (2500MW) (824 Cr.)

iv) Name of Scheme: Evacuation of power from RE sources in Kurnool Wind Energy Zone (3000MW) /Solar Energy Zone (AP)(1500MW) (2680 Cr.)

The above schemes have been firmed up based on future RE potential zones in WR/NR/SR, however no Stage-II connectivity/LTA applications have been received from

any of the RE generator(s). NCT was of opinion that implementation of the above schemes may be taken up only after receipt of Stage-II connectivity/LTA application(s) from RE generator(s) or LTA application from SECI on behalf of RE generator(s).

As per CEA planning criteria and CERC Regulation for Connectivity; a transmission system is generally augmented to cater to the long-term requirements of eligible entities. ECT noted that at present no LTA beneficiaries have been firmed up for the above schemes. It was informed that SECI has applied to CERC for grant of approval for LTA applications on behalf of potential RE developer(s)/generator(s).

As the gestation period is short for the development of Wind and Solar generation, there is a need for planning and implementation of matching transmission schemes in advance. After detailed deliberations, ECT agreed that the above schemes are for broad level planning and integration of potential RE generations assessed in potential RE zones of WR/NR/SR. ECT further agreed that as no developer has applied for Stage-II connectivity/LTA so far, SECI would be requested to apply for Stage-II Connectivity/LTA beforehand in order to utilize the above scheme. Subsequently, these schemes will be taken up for implementation.

C4: Deferred Transmission Scheme

1. Strengthening of transmission system in Assam including formation of second 400kV node in ER-NER corridor

The detailed scope of works is as follows:

S. No.	Scope of the Transmission Scheme	Capacity /Ckm	Estd. Cost (Rs. Cr.)
1.	Construction of 400kV Bornagar substation as switching station (to be upgraded to 765kV at a later stage) **<u>400kV</u>** • Line bays (including space for sw. line reactor): 6 no. *[4 no for LILO of Bongaigaon- Balipara 400kV D/C (Quad) line at Bornagar and 2 no for Disconnection of Alipurduar – Bongaigaon 400kV D/C (Quad) line from Bongaigaon end and termination of the same line at Bornagar S/s so as to form Alipurduar – Bornagar 400kV D/C (Quad) line]* • Bus reactor: 2×125 MVAR • Bus reactor bay: 2 no. **<u>Space for future 765kV switchyard</u>** • 765/400kV 3x1500MVA ICTs (10x500MVA Single Phase Units) along with associated bays • 765kV Line bays (including space for sw. line reactor): 8 nos. • 765kV, 2x330MVAR (7x110 MVAR) Bus Reactors		

	<u>Space for 400kV switchyard</u> • 400kV Line bays (including space for sw. line reactor): 6 nos. • 765/400kV 3x1500MVA ICTs (10x500MVA Single Phase Units) along with associated bays • 400/220kV, 3x500MVA ICTs along with associated bays **<u>Space for future 220kV switchyard</u>** • 400/220kV, 3x500MVA ICTs along with associated bays • 10 nos. 220kV line bays		
2	LILO of Bongaigaon- Balipara 400kV D/C (Quad) line at Bornagar		
3	Disconnection of Alipurduar – Bongaigaon 400kV D/C (Quad) line from Bongaigaon end and termination of the same line at Bornagar S/s so as to form Alipurduar – Bornagar 400kV D/C (Quad) line		
4	Shifting of 2 nos. 420kV, 80MVAR Line Reactors from Bongaigaon end of Siliguri/Alipurduar – Bongaigaon 400 kV D/c (Quad) line to Bornagar end of Alipurduar – Bornagar 400kV D/c (Quad) line		
5	Shifting of 2 nos. 420kV, 63MVAR Line Reactors from Bongaigaon end of Balipara – Bongaigaon 400kV D/c (Quad) line to Bornagar end of Bornagar – Balipara 400kV D/c (Quad) line		

1.1 The above transmission scheme was agreed in the 6th and 7th meetings of SCPSPNER held on 03-10-2016 and 17-5-2018. The scheme, *inter alia*, envisages construction of 400 kV Bornagar substation (to be upgraded to 765kV at a later stage) and its interconnection with Katihar (Eastern Region) via Parbotipur (Bangladesh) through 765kV line. This line would also provide additional connectivity to NER. It was appraised that the 765kV link with Bangladesh is under discussion. As such for implementation of this project, we may wait till further discussion with Bangladesh.

1.2 NCT decided to defer the scheme till finalization of 765kV link with Bangladesh and explore other measures to enhance reliability of Bongaigaon substation**.**

1.3 ECT concurred the recommendations of NCT**.**

D SCHEME FOR DENOTIFICATION:

1. "Transmission system for Phase-1 generation projects in Arunachal Pradesh":

1.1 In view of non-implementation of the HEPs planned to be pooled at Dinchang Pooling station, it was agreed in NCT that the scheme may be recommended for de-notification.

1.2 ECT concurred the recommendations of NCT **for de-notification.**

E. In regard to matter of signing the TSA in case of transmission system identified for the Renewable Energy sources, it was decided that the issue would be taken up separately. Also, regulatory approval from CERC is required to be taken for such schemes. Further CEA/CTU were requested to expedite formulation of the guidelines/protocols for coordination of augmentation works to be awarded under TBCB.

Meeting ended with vote of thanks to the Chair.

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Summary of the Schemes recommended by ECT in its 3rd meeting:

S. No.	Name of Scheme:	Estd cost (Rs. Cr.)	ECT Recomd.	Allocated to BPC
1.	Additional 1x500MVA 400/220kV (9th) ICT, for injection from any additional RE project (other than 4000MW injection under SECI bids upto Tranche IV) at Bhuj PS	56.3	RTM (POWERGRID) -	
2.	WRSS-21 Part-A (TBCB)- "Transmission System strengthening for relieving over loadings observed in Gujarat Intra-state system due to RE injections in Bhuj PS	856	TBCB	REC
3.	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	19	RTM (POWERGRID)	
4.	WRSS-21 Part-B- Transmission System strengthening for relieving over loadings observed in Gujarat Intra-state system due to RE injections in Bhuj PS:	1865	TBCB	PFC
5.	Transmission system associated with RE generations at Bhuj–II, Dwarka & Lakadia	1075	TBCB	REC
6.	Transmission System for providing connectivity to RE projects at Bhuj-II (2000MW) in Gujarat	645	TBCB	PFC
7.	Jam Khambhaliya Pooling Station and Interconnection of Jam Khambhaliya Pooling Station for providing connectivity to RE projects (1500 MW)in Dwarka (Gujarat)and installation of 400/220 kV ICT along with associated bays at M/s CGPL Switchyard	435 (229+169+ 37)	TBCB	REC
8.	400kV line bay at Solapur PS for St-II connectivity to M/s Toramba	10	RTM (POWERGRID)	
9.	Transmission System for providing connectivity to RE projects in Gujarat [Lakadia (2000MW)]*	196	Proposed for potential basis based on the LTA applications of SECI	
10.	Transmission system associated with RE generations from potential wind energy zones in Osmanabad area of Maharashtra*	301		
11.	Transmission system associated with RE generations from potential Solar Energy Zone in Maharashtra (1000 MW under Ph-I)*	220		
12.	Transmission system associated with LTA applications from Rajasthan SEZ Part-A	2312	RTM (POWERGRID)	
13.	Construction of Ajmer (PG)-Phagi 765 kV D/C line along with associated bays for Rajasthan SEZ	583 (509+74)	TBCB	REC
14.	Scheme Transmission system associated with LTA applications from Rajasthan SEZ Part-B	676	TBCB	PFC
15.	Transmission system associated with LTA applications from Rajasthan SEZ Part-C	1365	TBCB	REC
16.	Transmission system associated with LTA applications from Rajasthan SEZ Part-D	1208	TBCB	PFC
17.	ICT Augmentation works at existing Moga (PG) ISTS S/S associated with LTA applications from SEZs in	73	RTM (POWERGRID)	

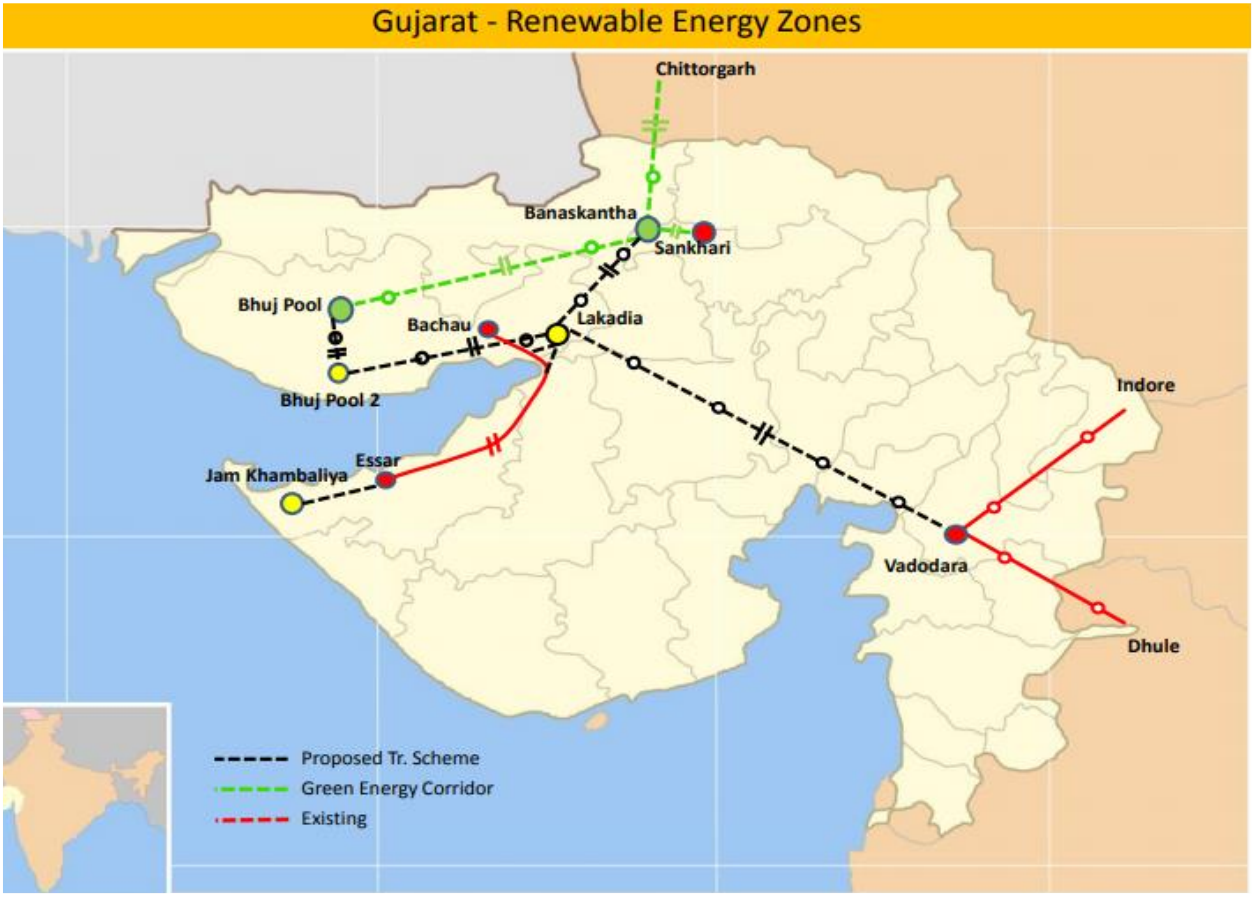
	Rajasthan		
18.	ICT Augmentation works at Bhadla (PG) associated with 1630 MW LTA granted at Bhadla	105	RTM (POWERGRID)
19.	ICT Augmentation works at existing Bhiwani (PG)ISTS S/S associated with LTA applications from SEZs in Rajasthan	65	RTM (POWERGRID)
20.	Transmission system for providing connectivity to RE projects at Bikaner(PG)*	93	Proposed for potential basis based on the LTA applications of SECI
21.	Transmission system for providing connectivity to RE projects in Fatehgarh-II*	298	
22.	Transmission system for providing connectivity to RE projects in Bhadla-II*	298	
23.	125 MVAR bus reactor at Kala Amb substation	16	RTM (POWERGRID Kala Amb Transmission Ltd.)
24.	12ohm series reactor at 400kV Mohindergarh S/s of M/s Adani	50	RTM (M/s Adani Power Ltd.)
25.	2 Nos. of 220kV bays at 3x315 MVA, 400/220kV Samba (Jatwal) (PG) S/s	10	RTM (POWERGRID)
26.	Evacuation of power from RE sources in Tirunelveli and Tuticorin Wind Energy Zone (Tamil Nadu)(500MW)*	37	Proposed for potential basis based on the LTA applications of SECI
27.	Evacuation of power from RE sources in Karur / Tiruppur Wind Energy Zone (Tamil Nadu)(2500MW)*	578	
28.	Name of Scheme: Evacuation of power from RE sources in Koppal Wind Energy Zone (Karnataka) (2500MW)	824	
29.	Evacuation of power from RE sources in Kurnool Wind Energy Zone (3000MW) /Solar Energy Zone (AP)(1500MW)*	2680	
30.	High loading of Nellore – Nellore (PS) 400kV (Quad) D/c line	1	RTM (POWERGRID)
31.	Construction of 2 nos. 132 kV feeder bays at Malda 400 kV substation of POWERGRID	10	RTM (POWERGRID)
32.	Transmission system for Phase-1 generation projects in Arunachal Pradesh	De-notification	

* **The schemes to be taken up for implementation after receipt of connectivity / LTA applications from RE generation developers / LTA applications from SECI**

Total cost of the schemes	**Rs. 16960 Crore**
Total TBCB	8708
REC	4314
PFC	4394
RTM	2727.3
Potential Schemes	5525

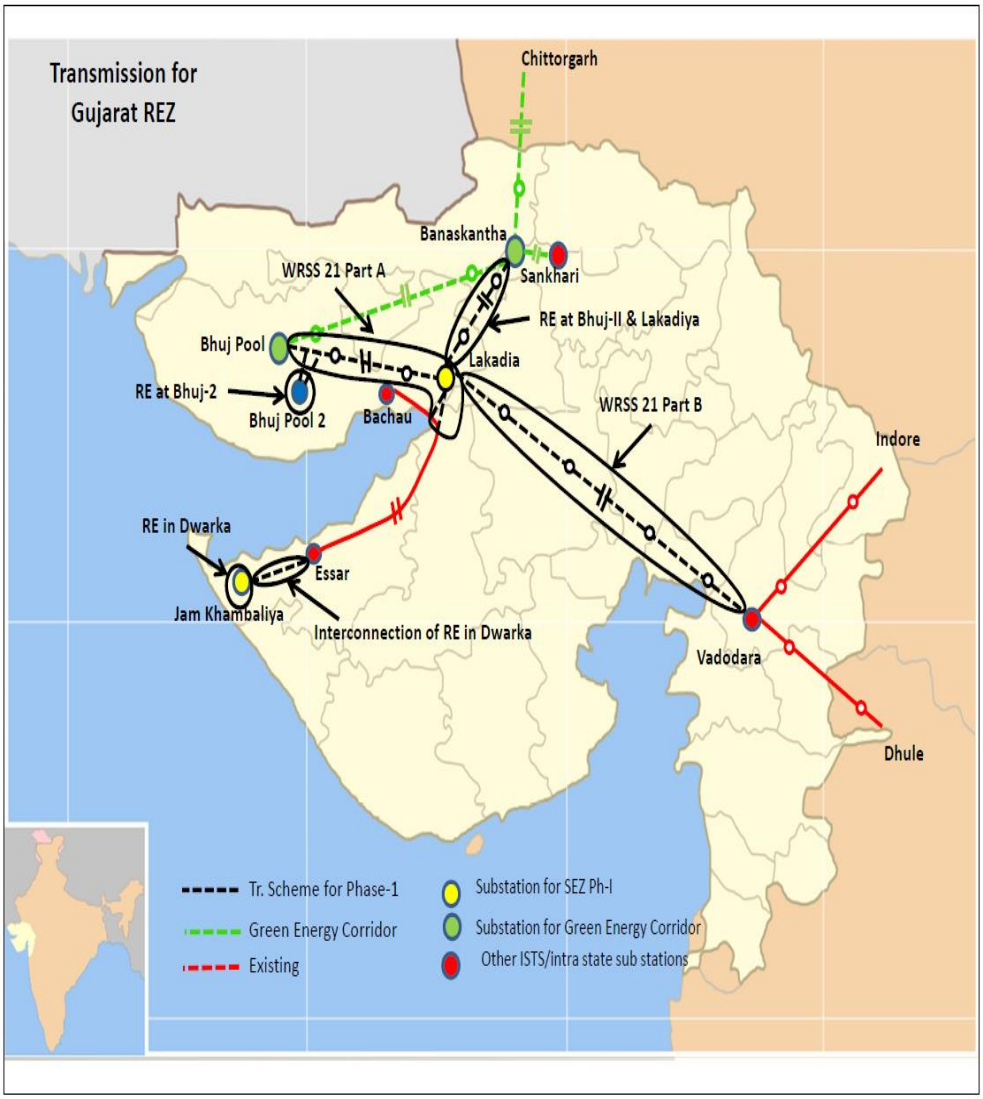
Annexure-I

Transmission Scheme in Western Region:



Annexure- II

A schematic showing different parts of Transmission scheme for RE projects in Dwarka:



A schematic showing different parts of Transmission scheme for Rajasthan Solar Energy Zones