

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 616/MP/2020

Coram:

**Shri P.K. Pujari, Chairperson
Shri I.S. Jha, Member
Shri Arun Goyal, Member
Shri P.K Singh, Member**

Date of Order: 8.11.2021

In the matter of

Petition under Section 38(2) of the of the Electricity Act, 2003 read with Section 79(1)(c) and Section 79(1)(k) of the Act, along with (i) Central Electricity Regulatory Commission (Grant of Regulatory Approval for execution of Inter-State Transmission Scheme to Central Transmission Utility) Regulations, 2010;(ii)Central Electricity Regulatory Commission (Planning, Coordination and Development of Economic and Efficient Inter-State Transmission System by Central Transmission Utility and other related matters) Regulations, 2018 (iii) Regulation 111 & 114 of the Central Electricity Regulatory Commission (Conduct of Business) Regulations,1999 and (iv) Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2020 for execution of the Transmission System for Evacuation of power from potential Solar and Wind Energy Zones in Gujarat (13.5GW) and Madhya Pradesh (4GW).

And in the matter of

Central Transmission Utility of India Limited,
Registered Office: "SAUDAMINI", Plot No-2, Sector-29,
Gurgaon-122001 (Haryana).

....Petitioner

Vs

1. Madhya Pradesh Power Management Company Limited,
Shakti Bhawan, Rampur,
Jabalpur - 482 008
2. Maharashtra State Electricity Distribution Co. Limited,
Hongkong Bank Building, 3rd floor, M.G. Road, Fort,
Mumbai-400 001
3. Gujarat UrjaVikas Nigam Limited,
Sardar Patel Vidyut Bhawan, Race Course Road,
Vadodara - 390 007



4. Electricity Department,
Govt. of Goa,
Vidyut Bhawan, Panaji, Near Mandvi Hotel,
Goa - 403 001
5. Electricity Department,
Administration of Dadra Nagar Haveli and Daman & Diu,
Daman - 396 210
6. Chhattisgarh State Electricity Board,
P.O. Sunder Nagar, Dangania, Raipur,
Chhatisgarh-492013
7. Madhya Pradesh Audyogik Kendra Vikas Nigam (Indore) Limited,
3/54, Press Complex, Agra-Bombay Road,
Indore-452 008
8. Madhya Pradesh Power Transmission Company Limited,
Shakti Bhawan, Rampur,
Jabalpur - 482 008
9. Maharashtra State Electricity Transmission Co. Limited,
Prakashganga, 6th Floor, Plot No. C-19, E-BLOCK, Bandra Kurla Complex,
Bandra (East), Mumbai - 400 051.
10. Gujarat Energy Transmission Corporation Limited,
Sardar Patel Vidyut Bhawan, Race Course Road,
Vadodara - 390 007
11. Chhattisgarh State Power Transmission Co. Limited,
Office of the Executive Director (C&P),
State Load Despatch Building, Dangania,
Raipur – 492 013
12. Chhattisgarh State Power Distribution Co. Limited,
P.O. Sunder Nagar, Dangania, Raipur
Chhatisgaarh-492013
13. Solar Energy Corporation of India Limited,
D-3, A Wing, 1st Floor, Religare Building,
District Centre, Saket,
New Delhi, Delhi - 110017
14. Adani Green Energy Four Limited,
Achalraj, Opposite Mayor's Bungalow, Law Garden



Parties Present: Ms. Suparna Srivastava, Advocate, PGCIL (CTUIL)
Shri Tushar Mathur, Advocate, PGCIL (CTUIL)
Ms. Soumya Singh, Advocate, PGCIL (CTUIL)

ORDER

The instant Petition was filed by the Petitioner, Central Transmission Utility of India Ltd. (CTUIL) under Section 38(2) of the Electricity Act, 2003 (hereinafter referred to as 'the 2003 Act') read with Sections 79(1)(c) and 79(1)(k) of the 2003 Act for grant of Regulatory Approval for execution of the Transmission System for evacuation of 8 GW power from potential Renewable Energy Zone (REZ) in Khavda Area and 2 GW in Phase-I of Dholera ultra mega solar park (UMSP) in Gujarat. The Petitioner had initially made the following prayers in the Petition:

"a) Grant Regulatory approval for taking up implementation of revised transmission system mentioned in Enclosure –IV, superseding the regulatory approval to the scheme already granted by Hon'ble Commission vide order dated 10.10.2019 in the petition No. 197/MP/2019.

b) Grant of approval for recovery of transmission charges of the assets through CERC (Sharing of Transmission charges and losses for ISTS) Regulations, 2010 or as per applicable CERC Sharing Regulations in vogue.

c) Grant of approval for inclusion of the above system under the TSA notified by CERC

and pass such other relief as the Hon'ble Commission deems fit and appropriate under the circumstances of the case."

2. The Commission during hearing dated 15.4.2021 directed the Petitioner to amend the Petition. In compliance, the Petitioner filed the amended Petition vide affidavit dated 31.5.2021 and amended the original subject with the captioned subject along with its prayers. The amended prayers are as follows:

"a) To declare that the grant of regulatory approval vide Order dated 10.10.2019 in Petition No. 197/MP/2019 shall subsist for the ISTS Scheme pertaining to State of Maharashtra while the regulatory approval for the ISTS Scheme pertaining to the States of



Gujarat (including 4GW Dholera UMSP) and Madhya Pradesh shall stand revoked and reconsidered in terms of the submissions in the present petition; and

b) To grant Regulatory Approval for execution of Transmission System for evacuation of power from envisaged potential solar and wind energy zones in Gujarat (13.5GW) & Madhya Pradesh (4GW) in Western Region as submitted hereinbefore.

c) To provide appropriate directions with respect to the transmission system for 3.5GW REZ in Gujarat which had been taken up for execution under the previous grant of Regulatory Approval vide Order dated 10.10.2019 in Petition No. 197/MP/2019.

d) To grant approval for recovery of transmission charges of the assets through CERC (Sharing of Inter-State Transmission charges and losses) Regulations, 2020 or as per applicable CERC Sharing regulations in vogue.

and pass such other relief as the Hon'ble Commission deems fit and appropriate under the circumstances of the case.”

Background

3. The Commission vide order dated 10.10.2019 in Petition No. 197/MP/2019 has granted Regulatory Approval for construction of transmission system for 32 GW (28 GW WR REZ and 4 GW Dholera UMSP). The State-wise and category-wise break-up of 32 GW REZs approved vide order dated 10.10.2019 is given below:

| Region / State | Type | | Total (GW) |
|----------------|-----------|------------|------------|
| | Wind (GW) | Solar (GW) | |
| Gujarat | 6 | 10 | 16 |
| Maharashtra | 2 | 5 | 7 |
| Madhya Pradesh | - | 5 | 5 |
| Dholera UMSP | | 4 | 4 |
| Total | 8 | 28 | 32 |

4. The Petitioner has submitted that subsequent to order dated 10.10.2019, certain changes with respect to the location of potential REZs in Gujarat and Madhya Pradesh (M.P) have taken place. Accordingly, transmission system identified for earlier approved REZs in Gujarat and M.P was reviewed. The Government of Gujarat has proposed for allocation of land to RE (renewable energy) projects in Khavda area, instead of in the vicinity of already planned pooling stations under ISTS at Lakadia, Jamnagar, Rapar and Radhanesda, for which Regulatory Approval in Petition No. 197/MP/2019 was obtained.



Thus, 10 GW of RE capacity in Gujarat (out of 16 GW as approved in Petition No. 197/MP/2019) are likely to be allocated land in Khavda region. The Petitioner has further submitted that SECI has informed that bids are being invited only for 2 GW (Phase-I) out of approved 4 GW for Dholera UMSP.

5. In view of the above, instant Petition has been filed for grant of Regulatory Approval for revised scheme for evacuation of 8 GW for Khavda REZ and 2 GW (Phase-I) for Dholera UMSP in Gujarat. The Commission vide ROP of hearing dated 15.4.2021 observed the following:

“2. Learned counsel for the Petitioner submitted that the present Petition has been filed inter-alia seeking regulatory approval for execution of the transmission system for evacuation of 8 GW power from Renewable Energy Zones ('REZ') in Khavda Area and Dholera Ultra Mega Solar Park ('UMSP') (Phase-I: 2 GW) in Gujarat.

3. Learned counsel for the Petitioner submitted that the Commission had already accorded regulatory approval to transmission system for evacuation of power from 28 GW REZs in Western Region and transmission system for immediate connectivity to Dholera UMSP (4 GW) vide its order dated 10.10.2019 in Petition No. 197/MP/2019. Out of the aforesaid 28 GW REZs in Western Region, 16 GW REZs (Bhuj 2 GW, Dwarka 2 GW, Lakadia 4 GW, Jamnagar 2.5 GW, Rapar 3 GW and Radhanesda 2.5 GW) had been identified in the State of Gujarat and out of said 16 GW REZs, the transmission system for evacuation of power from 3.5 GW REZs (Bhuj-II: 2 GW and Jam Khambhaliya: 1.5 GW) is already under implementation by the Petitioner. However, the implementation of transmission system(s) for (i) 2 GW REZ (Lakadia) has been deferred due to land issues, (ii) 0.5 GW REZ (Jam Khambhaliya) is being reviewed, and (iii) 10 GW REZs (Rapar- 3 GW, Radhanesda - 2.5 GW, Lakadia - 2 GW and Jamnagar - 2.5 GW) are being relocated to Khavda area due to change in land allocation policy for renewable project by the Government of Gujarat. Accordingly, the instant Petition has been filed seeking regulatory approval for execution of the revised transmission system for evacuation of 8 GW power from Khavda REZ (Out of 10 GW) and Dholera UMSP (Phase-I: 2 GW) in the State of Gujarat.

4. After taking note of the submissions of learned counsel and the representatives of the Petitioner, the Commission observed that vide order dated 10.10.2019 in Petition No. 197/MP/2019, the Commission has already granted regulatory approval to transmission system for evacuation of power from 28 GW REZs in Western Region, which included 16 GW REZs in the State of Gujarat. It was also observed that out of the said 16 GW REZs, 10 GW of REZs have been now shifted to new location (Khavda) and the Petitioner has sought the regulatory approval for revised transmission system for evacuation of power from 8 GW Khavda REZ. Further, out of 4 GW for Dholera UMSP, the scheme has been revised to cater to 2 GW for Dholera UMSP in place of for 4 GW planned earlier.

5. The Commission further observed that part revision of a scheme which has been granted regulatory approval and already under partial implementation may lead to confusion and unnecessary complications. Accordingly, the Commission directed the Petitioner to amend the Petition so as to seek the regulatory approval for execution of transmission systems in respect of REZs in the States of Gujarat and Madhya Pradesh comprehensively including Dholera UMSP and consequently, for withdrawal of the earlier regulatory approval granted



vide order dated 10.10.2019 in respect of States of Gujarat and Madhya Pradesh (Khandwa SEZ and Dholera UMSP). In order to allay the apprehension of the Petitioner for the transmission system for 3.5 GW REZs (Bhuj-II - 2 GW and Jam Khambhaliya - 1.5 GW) already under implementation in terms of aforesaid order, the Commission granted liberty to the Petitioner to appropriately point out/mention the said aspect in the amended Petition and the Commission will provide appropriate protection to the said system already under implementation.

.....”

6. In compliance of above-quoted ROP, the Petitioner vide affidavit dated 31.5.2021 amended the Petition to seek Regulatory Approval for execution of revised transmission systems in respect of REZs in the States of Gujarat and Madhya Pradesh and consequently, for withdrawal of the earlier Regulatory Approval granted vide order dated 10.10.2019 in respect of States of Gujarat (16 GW), Madhya Pradesh (5 GW) and Dholera UMSP (4 GW). There has been no change in the transmission systems in respect of REZs in the State of Maharashtra, where transmission system for 7 GW has been granted Regulatory Approval by the Commission vide order dated 10.10.2019 in Petition No. 197/MP/2019.

7. Vide the aforementioned ROP, the Commission had also directed the Petitioner to appropriately point out the transmission system which are under implementation, so that they can be excluded from the revised approval sought in the instant petition. Accordingly, the Petitioner has submitted that no changes are envisaged in the potential REZ in the State of Maharashtra and, hence, the Regulatory Approval granted for the transmission systems in the State of Maharashtra vide order dated 10.10.2019 in Petition No. 197/MP/2019 is proposed to be continued. Also, the Petitioner has submitted that transmission system for 3.5 GW REZs in the Gujarat (Bhuj-II: 2 GW and Jam Khambhaliya: 1.5 GW) is under advanced stage of commissioning. Therefore, Petitioner has submitted that the Regulatory Approval granted for the transmission systems for the said 3.5 GW vide order dated 10.10.2019 in Petition No. 197/MP/2019 is also proposed to be continued. Further, the Petitioner has submitted that the transmission system for



Dholera UMSP which has been granted the Regulatory Approval vide order dated 10.10.2019 in Petition No. 197/MP/2019 is being reviewed, but a separate petition for seeking Regulatory Approval shall be filed, if required.

8. The amended Petition filed by the Petitioner vide affidavit dated 31.5.2021 is for seeking Regulatory Approval for execution of transmission systems in respect of 13.5 GW REZs in the State of Gujarat (against 16 GW approved vide order dated 10.10.2019) and in respect of 4 GW REZs in the State of Madhya Pradesh (against 5 GW approved vide order dated 10.10.2019), in addition to 7 GW REZs in the State of Maharashtra already granted Regulatory Approval vide order dated 10.10.2019 in Petition No. 197/MP/2019.

Submissions of the Petitioner

9. The Petitioner has submitted as follows:

a) The Commission vide order dated 10.10.2019 in Petition no. 197/MP/2019 had granted the Regulatory Approval for construction of transmission systems for 32 GW (28 GW for WR REZ and 4 GW for Dholera UMSP). The transmission system (for Gujarat and Madhya Pradesh) as approved vide order dated 10.10.2019 and the revised proposal submitted in this petition is as under:

| Sr. No. | REZ Location | REZ (GW) for which Regulatory Approval Obtained | Revised REZ (GW) | Revised REZ (GW) for which Revised Regulatory Approval is being sought | Transmission System Status |
|----------------|------------------|---|--|--|--|
| Gujarat | | | | | |
| 1 | Bhuj-II* | 2 | 2 (No revision) | 2 | 2 GW (Under Implementation) |
| 2 | Jam Khambhaliya* | 2 | 1.5 (No revision to the extent of 1.5 GW) | 1.5 | 1.5 GW (Under Implementation) 0.5 GW (Relocated to Khavda area) |
| 3 | Lakadia | 4 | 2 (No revision to the extent of 2 GW) | 2 | 2 GW (On hold/ deferred) 2 GW (Relocated to Khavda area) |
| 4 | Rapar | 3 | 0 | 0 | Relocated to Khavda area |
| 5 | Radhanesda | 2.5 | 0 | 0 | Relocated to Khavda area |
| 6 | Jamnagar | 2.5 | 0 | 0 | Relocated to Khavda area |
| 7 | Khavda* | 0 | 10.5 | 8 | 8 GW |



| | | | | | |
|--|------------|-----------|----------------------|-------------|---|
| | | | | | (New potential REZ: Scheme under bidding) Transmission Scheme to be finalised for balance 2.5 GW |
| Sub-total (Gujarat) | | 16 | 16 | 13.5 | |
| Madhya Pradesh | | | | | |
| 1 | Khandwa | 2.5 | 0 | 0 | Capacity re-distributed to Chhatarpur and Neemuch REZ |
| 2 | Rajgarh* | 2.5 | 2.5 (No revision) | 2.5 | 1.5 GW Scheme in Phase-I under bidding. Bidding activities for 1 GW in Phase-II to be initiated when evacuation requirements at Pachora PS exceeds 1.5GW |
| 3 | Chhatarpur | 0 | 1.5 | 1.5 | New potential REZ. Transmission Scheme to be finalised. |
| 4 | Neemuch | 0 | 1 | 0 | New potential REZ. Transmission Scheme to be finalised. |
| Subtotal (MP) | | 5 | 5 | 4 | |
| <i>*Note: Scheme under implementation/ bidding</i> | | | | | |

b) In the instant petition, there is no proposal for transmission system for Dholera UMSP. Separate petition will be filed subsequently in this regard, if required.

c) Major changes in potential REZ in the States of Gujarat and Madhya Pradesh have necessitated review of the already planned transmission system.

d) Out of 28 GW RE generation potential planned to be implemented in Western Region, the RE capacity break-up for 16 GW (approved by order dated 10.10.2019) in Gujarat along with time frame is given below:

| Potential Locations in Gujarat | Capacity (in GW) by Dec'20 | | Capacity (in GW) by Dec'21 | | Capacity (in GW) beyond Dec'21 | | Total (in GW) |
|--------------------------------|----------------------------|----------|----------------------------|----------|--------------------------------|-----------|---------------|
| | Wind | Solar | Wind | Solar | Wind | Solar | |
| Bhuj | 2.0 | | | | | | 2.0 |
| Dwarka | 1.5 [^] | | | | 0.5 | | 2.0 |
| Lakadia | | | 2.0 | | | 2.0 | 4.0 |
| Jamnagar | | | | | | 2.5 | 2.5 |
| Rapar | | | | | | 3.0 | 3.0 |
| Radhanesda | | | | | | 2.5 | 2.5 |
| Total | 3.5 | 0 | 2.0 | 0 | 0.5 | 10 | 16 |

[^]Completion schedule of Jam Khambhaliya PS was envisaged as Mar 2021



e) The list of schemes in Gujarat (16 GW) that was approved vide order dated 10.10.2019 is given below:

i. Transmission system required by December 2020/ March 2021 (3.5 GW):

| Sr. No. | Name of Scheme | Estimated Cost (in Rs. crore) |
|------------------|--|-------------------------------|
| 1 | Additional 1x500 MVA 400/220 kV (9th) ICT, for injection from any additional RE project (other than 4000 MW injection under SECI bids up to Tranche IV) at Bhuj PS. – Dec'20 | 56.3 |
| 2 | WRSS-21 Part-A – Transmission system strengthening for relieving over loadings observed in Gujarat Intra-state system due to RE injections in Bhuj PS – Dec'20 | 898 |
| 3 | WRSS-21 Part-B- Transmission system strengthening for relieving over loadings observed in Gujarat Intra-state system due to RE injections in Bhuj PS – Dec'20 | 1873 |
| 4 | Transmission system for providing connectivity to RE projects at Bhuj-II (2000 MW) in Gujarat. – Dec'20 | 714 |
| 5 | Jam Khambhaliya Pooling Station for providing connectivity to RE projects (1500 MW) in Dwarka (Gujarat) – Mar'21 | 229 |
| 6 | Interconnection of Jam Khambhaliya Pooling station for providing connectivity to RE projects (1500 MW) in Dwarka (Gujarat) – Mar'21 | 169 |
| Sub-total | | 3939.3 |

ii. Transmission system required by December 2021 (2 GW):

| Sr. No. | Name of Scheme | Estimated Cost (in Rs. crore) |
|------------------|--|-------------------------------|
| 1 | Transmission system associated with RE generation at Bhuj-II Dwarka & Lakadia. | 1082 |
| 2 | Transmission System for providing connectivity to RE projects in Gujarat [Lakadia (2000 MW)] | 196 |
| Sub-total | | 1278 |

iii. Transmission system to be taken up for implementation with commissioning schedule beyond December 2021 (10.5 GW):

| Sr. No. | Name of Scheme | Estimated Cost (in Rs. crore) |
|---------|--|-------------------------------|
| 1 | Augmentation of transformation capacity at Lakadia PS for providing connectivity to RE projects (2000 MW) SEZ | 247 |
| 2 | Transmission System for evacuation of power from RE projects in Rapar (3000 MW) and Lakadia (2000 MW) SEZ – Part A | 932 |
| 3 | Transmission System for evacuation of power from RE projects in Rapar (3000 MW) and Lakadia (2000 MW) SEZ– Part B | 1373 |
| 4 | Transmission System for evacuation of power from RE projects in Rapar (3000 MW) and Lakadia (2000 MW) SEZ – Part C | 2168 |
| 5 | Transmission System for evacuation of power from RE projects in Rapar (3000 MW) and Lakadia (2000 MW) SEZ – Part C (Ahmedabad 400 kV interconnection). | 117.35 |



| Sr. No. | Name of Scheme | Estimated Cost (in Rs. crore) |
|----------------|---|--------------------------------------|
| 6 | Transmission System for evacuation of power from RE projects in Banaskantha (2500 MW) REZ- Part B | 308 |
| 7 | Transmission System for evacuation of power from RE projects in at Jamnagar (2500 MW) REZ | 1347 |
| 8 | Transmission System for evacuation of power from RE projects in Banaskantha (2500 MW) REZ - Part A (Augmentation of transformation capacity at Radhanesda PS) | 193 |
| | Sub-total | 6685.35 |

f) Subsequently, Government of Gujarat proposed for allocation of land to RE projects in Khavda area, instead of in the vicinity of already planned ISTS pooling stations for REZ at Lakadia, Jamnagar, Rapar & Radhanesda. This was communicated by SECI in a meeting held at CEA on 22.10.2019 to discuss issues related to evacuation system from proposed REZs in Western Region. The transmission system for RE potential at Lakadia, Jamnagar, Rapar and Radhanesda (totalling 10 GW) also catered to 0.5 GW additional potential in Dwarka area. Accordingly, it was later decided in the 2nd WRPC (TP) meeting held on 04.09.2020 to shift this 0.5 GW potential also to Khavda area. In view of the above developments, 10.5 GW potential RE capacity in Gujarat (initially planned for commissioning beyond December 2021) are being allocated land in Khavda region.

g) System studies were conducted to review the transmission system for 10 GW REZs shifted to Khavda area in a joint study meeting amongst CEA, CTU, POSOCO and GETCO held on 23.12.2019. During the meeting, transmission schemes for Khavda REZ (Hybrid) (10 GW) were discussed and it emerged that out of 10 GW RE potential capacity in Gujarat that is likely to be shifted to Khavda region, 4.5 GW RE could be evacuated through the transmission corridor which is already under implementation in Gujarat (2 GW RE potential in Bhuj-II PS and 1.5 GW in Jam Khambhaliya PS) along with some additional transmission system (to be taken up as Phase-I). For Balance 5.5 GW (under Phase-II), additional transmission system needs to be developed. In the 1st meeting of Western Region Power Committee on Transmission Planning (WRPCTP) held on 11.01.2020, the transmission schemes were discussed with all the constituents and were agreed for implementation under ISTS.

h) The schemes were further discussed in the 3rd NCT (National Committee on Transmission) meeting held on 26.05.2020 and 28.05.2020 in which SECI



informed that considering long distance between Khavda and Bhuj-II (approx. 90 km), none of the developers would be interested in implementing the dedicated transmission line as it would result in increase of their generation tariff. After deliberations, it was decided to finalise the planned evacuation system for Khavda REZ except for the 2 GW injection planned at Bhuj-II. Accordingly, the schemes for integration of 8 GW RE capacity envisaged in the Khavda area were segregated as follows:

A. Khavda PS (for injection of 7.5 GW in two stages)

- Phase-I: 3 GW
- Phase-II: 4.5 GW

B. Bhuj PS (for Injection of 0.5 GW through dedicated transmission lines of RE developers in Khavda region)

i) Current status of transmission system corresponding to proposed 13.5 GW REZ potential in Gujarat are given below:

a) Under Implementation: 3.5 GW

- Transmission system has been taken up for implementation for about 3.5 GW potential REZ (Bhuj-II: 2 GW and Jam Khambhaliya: 1.5 GW) with commissioning schedule (SCOD) of May 2021 (Bhuj-II) and August 2021 (Jam Khambhaliya). Since the transmission system is already under implementation, the Commission is requested to provide appropriate protection to the said system which was taken up for execution upon Regulatory Approval vide order dated 10.10.2019 in Petition no. 197/MP/2019.

b) On hold/ deferred: 2 GW

- Implementation of 400/220 kV ICTs and 220 kV line bays at Lakadia PS for Lakadia REZ (2 GW) has been deferred due to land issue.

c) Relocated to Khavda area: 8 GW

- MoP Gazette notification for implementation of Khavda transmission scheme for 7.5 GW (3 GW under Phase-I and 4.5 GW under Phase-II) was issued on 25.09.2020 and scheme is currently under RfP stage.

j) The details of proposed transmission schemes for 13.5 GW REZ in Gujarat along with their status of implementation is given below:

Transmission Lines:

a) Under Implementation (3.5 GW) (Bhuj-II: 2 GW and Jam Khambhaliya: 1.5 GW)

- Bhuj PS – Lakadia PS 765 kV D/c line



- LILO of Bhachau – EPGL 400 kV D/c (triple) line at Lakadia PS
- Lakadia – Vadodara 765 kV D/c line
- Lakadia PS – Banaskantha PS 765 kV D/c line
- 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
- Extension of Essar – Lakadia/Bhachau 400kV D/c (triple) line up to Jam Khambhaliya PS

b) On hold/ deferred (2 GW) (Lakadia)

- NIL (No Transmission line elements involved)

c) Relocated to Khavda area (8 GW)

➤ **Phase-I (3 GW)**

- Khavda PS (GIS) – Bhuj PS 765 kV D/c line

➤ **Phase-II (4.5 GW)**

- Khavda PS (GIS) – Lakadia PS 765kV D/c line
- Lakadia PS – Ahmedabad 765kV D/c line
- LILO of Pirana (PG) – Pirana (T) 400kV D/c line at Ahmedabad S/s with twin HTLS along with reconductoring of Pirana (PG) – Pirana(T) line with twin HTLS conductor with minimum capacity of 2100MVA per circuit at nominal voltage
- Ahmedabad – Indore 765kV D/c line
- Ahmedabad – Vadodara 765kV D/c line

Substations:

d) Under Implementation (3.5 GW) (Bhuj-II: 2 GW and Jam Khambhaliya: 1.5 GW)

- Additional 1x500 MVA 400/220 kV (9th) ICT, for injection from any additional RE project (other than the above 4000 MW) in existing Bhuj PS with associated 400 kV GIS bay and 220 kV hybrid/MTS bay.
- 1 number of 220 kV line bays(hybrid/MTS) for termination of dedicated lines of RE developer (Netra) with Stage-II connectivity at Bhuj PS
- Establishment of 2x1500 MVA, 765/400 kV Lakadia PS along with associated ICT bays
- 2 numbers 765 kV line bays at Lakadia PS for Bhuj PS - Lakadia 765 kV D/c line
- 4 numbers 400 kV line bays at Lakadia PS for LILO of Bhachau – EPGL 400 kV D/c (triple) line at the substation
- 2 numbers of 765 kV line bays at Bhuj PS for Bhuj PS – Lakadia PS 765kV D/c line



- Conversion of existing 2x63 MVAR line reactors at Bhachau end of Bhachau – EPGL 400 kV D/c line to switchable line reactors along with associated reactor bays
- 1x330 MVAR, 765 kV Bus reactor & 1x125 MVAR, 420 kV Bus reactor at Lakadia PS along with associated reactor bays
- 2 numbers 765 kV line bays at Vadodara for Lakadia – Vadodara 765kV D/c line
- 2 numbers 765 kV line bays at Lakadia PS for Lakadia – Vadodara 765kV D/c line
- 330 MVAR switchable line reactors at both ends of Lakadia – Vadodara 765 kV D/c line along with associated reactor bays at both ends
- 240 MVAR switchable Line reactor at Banaskantha PS end of Lakadia PS – Banaskantha PS 765kV D/c line along with reactor bays
- 2 numbers 765 kV line bays at Lakadia for Lakadia PS – Banaskantha PS 765 kV D/c line
- 2 numbers 765 kV line bays at Banaskantha for Lakadia PS – Banaskantha PS 765 kV D/c line
- Establishment of 2x1500 MVA (765/400 kV), 4x500 MVA (400/220 kV) Bhuj II PS (GIS) along with associated ICT bays
- 7 numbers 220 kV line bays at Bhuj II PS for interconnection of RE developers
- 4 numbers 765 kV line bays at Bhuj II PS for reconfiguration of Bhuj PS – Lakadia PS 765 kV D/c line so as to establish Bhuj II – Lakadia 765 kV D/c line as well as Bhuj – Bhuj II 765 kV D/c line
- 1x330 MVAR, 765 kV & 1x125 MVAR, 420 kV Bus reactor at Bhuj II PS along with reactor bays
- 240MVAR line reactor (along with NGR of 400 Ohms) in each circuit of Bhuj-II – Lakadia 765kV D/c line at Bhuj-II PS end
- Establishment of 4x500 MVA, 400/220kV Jam Khambhaliya PS (GIS) along with associated ICT bays
- 1 number 400 kV line bay & 7 nos. 220 kV line bays at Jam Khambhaliya PS for interconnection of RE developers
- 1x125 MVAR, 420 kV Bus reactor at Jam Khambhaliya PS along with reactor bays
- 63 MVAR switchable Line Reactor at both ends of Lakadia - Jam Khambhaliya PS 400 kV D/c line along with reactor bays
- 2 numbers 400 kV line bays at Jam Khambhaliya PS end for line termination of extension of Essar – Lakadia / Bhachau 400 kV D/c (triple) line up to Jam Khambhaliya PS
- Corresponding Spare ICT / Reactor units

e) On hold/ deferred (2 GW) (Lakadia)



- Establishment of 4x500MVA, 400/220kV ICTs at Lakadia (GIS) PS along with associated ICT bays
- 7 numbers 220 kV line bays at Lakadia PS for interconnection of RE developers

f) Relocated to Khavda area (8 GW)

➤ **Phase-I (3 GW)**

- Establishment of 765/400 kV, 3x1500MVA, 400/220kV, 2x500MVA PS at Khavda(GIS) with 1X330 MVAR 765 kV bus reactor and 1X125 MVAR 400 kV bus reactor (on first bus section) (for Phase-I: 3GW). Implementation of 400/220kV ICTs to be taken as per connectivity/LTA granted at 220 kV level.

Note:

- Under Phase-I, 765/400/220 kV Khavda pooling station shall be created with bus section I (765kV, 400kV & 220kV) with 765/400, 3x1500MVA & 400/220kV, 2x500MVA ICTs and 1X330 MVAR 765 kV & 1X125 MVAR 400 kV bus reactors.

- The Khavda PS shall have future space provisions for pooling 4.5 GW RE capacity under phase-II (Total: 7.5 GW including 3 GW under Phase-I) as detailed below:

- Space for bus sectionalizer at 765kV & 400kV level
- Space for additional 5 numbers 1500MVA, 765/400kV ICTs (1 no. addl. ICT in Section I and 4 nos. addl. ICTs in Section II such that there are 4x1500MVA, 765/400kV ICTs in each section).
- Space for additional 2 numbers 500 MVA, 400/220 kV ICTs (in Section II)
- Space for 1X330 MVAR 765 kV & 1X125 MVAR 400 kV bus reactors in section II.

- Bus sectionalizer at 765 kV level shall normally be closed and bus sectionalizer at 400 kV level shall normally be open.

- 220 kV line bays for interconnection of Renewable projects (4 numbers) implementation of which shall be taken up as per the connectivity/LTA granted at 220 kV level.
- 3 numbers 400 kV line bays for interconnection of Adani Renewable Energy Holding Four Ltd (3500 MW Stage-II connectivity)
- 1x500 MVA, 765/400 kV (single phase) spare transformer at Khavda PS
- 110 MVAr 765 kV switchable single phase reactor (spare unit for bus/line reactor) at Khavda PS

➤ **Phase-II (4.5 GW)**



- Augmentation of Khavda PS(GIS) by 4x1500MVA, 765/400kV ICTs and 2X500 MVA, 400/220 kV ICTs (400/220 kV ICTs augmentation to be taken up as per the LTA/connectivity granted at 220 kV level).
- Provision of 1X125 MVAR, 400 kV & 1x330MVA, 765kV bus reactor on second bus section of Khavda PS (GIS)
- 330 MVAR line reactors (switchable) at Khavda end of Khavda PS (GIS) – Lakadia PS 765kV D/c line
- 240 MVAR line reactors (switchable) on both ends of Lakadia PS – Ahmedabad 765kV D/c line
- Establishment of Ahmedabad 765/400kV,2X1500 MVA S/s
- Provision of 1X125 MVAR, 400 kV & 1x330MVA, 765kV bus reactor at Ahmedabad S/s
- 330 MVAR line reactors (switchable) on both ends of Ahmedabad – Indore 765kV D/c line
- 220 kV line bays for interconnection of Renewable projects (4 nos.), implementation of which shall be taken up as per the LTA/connectivity granted at 220 kV level.
- Upgradation of bay equipment at Pirana (PG) & Pirana (Torrent) corresponding to reconductoring of Pirana (PG) – Pirana (T) 400kV D/c line with twin HTLS conductor with minimum capacity of 2100MVA per circuit at nominal voltage
- 1x500MVA, 765/400kV (single phase) Spare transformer at Ahmedabad S/s
- 80MVA, 765kV single phase switchable line reactors (spare units) each at Lakadia & Ahmedabad S/s
- 110MVA, 765kV single phase switchable reactor (spare unit for bus/line reactor) at Ahmedabad S/s
- 110MVA, 765kV single phase switchable line reactor (spare unit) at Indore S/s

➤ **BHUU PS (0.5GW from Khavda area)**

- Through dedicated transmission lines of RE developers in Khavda to Bhuj PS

k) The above schemes have been planned at an estimated cost of Rs. 11575 crore as per details given below.

| Sr. No. | Status | Potential (GW) | Estimated Cost (₹ in crore) |
|---------|--------------------------|----------------|-----------------------------|
| 1 | Under Implementation | 3.5 | 5008.4 |
| 2 | On hold / deferred | 2.0 | 196.0 |
| 3 | Relocated to Khavda area | 8.0 | 6370.0 |
| | | 13.5 | 11574.4 |

l) The status of Stage-II connectivity and LTA received/ granted by the Petitioner in Gujarat is as follows (as on March 2021):

| Pooling Station | Potential (MW) | Stage-II Connectivity (MW) | LTA (MW) |
|-----------------|----------------|----------------------------|----------|
|-----------------|----------------|----------------------------|----------|



| Pooling Station | Potential (MW) | Stage-II Connectivity (MW) | LTA (MW) |
|---------------------------------|----------------|----------------------------|---------------|
| Under Implementation | | | |
| Bhuj PS | - | - | 895.0 |
| Bhuj-II PS | 2000 | 1050.0 | 950.0 |
| Jam Khambhaliya PS | 1500 | 851.4 | 301.4 |
| Sub-total | 3500 | 1901.4 | 2146.4 |
| On hold/ deferred | | | |
| Lakadia PS | 2000 | 0 | 0 |
| Subtotal | 2000 | 0 | 0 |
| Relocated to Khavda Area | | | |
| Khavda PS | 7500 | 3500.0 | 1000.0 |
| Bhuj PS (from Khavda area) | 500 | 0 | 0 |
| Subtotal | 8000 | 3500.0 | 1000.0 |
| Total | 13500 | 5401.4 | 3146.4 |

m) Stakeholder consultation carried out for transmission system for Khavda REZ (8 GW) is given below:

| Details published on CTU website | Stakeholder Comments received | Treatment of Stakeholder Comments |
|----------------------------------|---|--|
| 29.04.2020 | <ul style="list-style-type: none"> GETCO (received vide letter dated 12.06.2020) | <ul style="list-style-type: none"> GETCO (replied vide e-mail dated 24.07.2020) |

n) The comments of GETCO and their treatment are elaborated below:

| Comments of GETCO vide letter dated 12.06.2020 | Treatment |
|---|---|
| <ul style="list-style-type: none"> Transmission scheme from Khavda region will be done in a way to have bare minimum scheme in Phase-I and shall be implemented as per LTA applications. Strengthening schemes may be bid out in next phase as per grant of LTA in future. | <ul style="list-style-type: none"> As per discussions in the 3rd NCT meeting held on 26.05.2020 & 28.05.2020, the transmission system for 7.5GW Khavda REZ (at Khavda PS) is now envisaged in two phases (I: 3GW & II: 4.5GW) such that the phase-I covers only a small portion of the entire transmission scheme (Establishment of 3x1500MVA, 765/400kV & 2x500MVA, 400/220kV Khavda PS (GIS) along with KhavdaPS – Bhuj PS 765kV D/c line). Against the Phase-I system mentioned above, Stage-II connectivity at Khavda PS for 3500MW have been received. Further, SECI has informed that land in Khavda region is being allotted in the chunks of 5-6 GW to implementing agencies like SECI, NTPC, Reliance, Adani etc. Accordingly, it is anticipated that RE |



| Comments of GETCO vide letter dated 12.06.2020 | Treatment |
|--|---|
| <ul style="list-style-type: none"> Phase-II transmission schemes for Khavda REZ shall be further segregated and shall be bid out as per LTA applications only. 220/400 KV & 400/765 KV transformers and 220KV/400 KV feeder bays at ISTS pooling stations for termination of lines from RE developers shall be implemented as per grant of LTA to respective RE developer only | <p>projects with large capacity would be coming in this area.</p> <ul style="list-style-type: none"> The Phase-II of the scheme would also be taken up for implementation based on identification of generation developers in Khavda area. Noted. |
| <ul style="list-style-type: none"> Various 400 KV / 220 KV transmission lines of GETCO surrounding North, Central & Southern Gujarat area would be getting critically loaded (as per the load flow studies results for the Khavda system) because of huge RE integration in Western Gujarat and changed load-generation scenarios. Therefore, appropriate ISTS network strengthening as a part of RE integration will be planned at later stage matching with actual RE growth. | <ul style="list-style-type: none"> As deliberated in the 1st WRPC(TP) meeting held on 11.01.2020, the issue of overloading of the 400 kV Intra-State lines in Gujarat due to RE capacity addition under ISTS would be taken care through adequate system strengthening schemes which may be evolved separately. |
| <ul style="list-style-type: none"> Maximum 300-350 MW capacity shall be granted at 220 KV level through 220 KV S/C line to an individual / group of RE developers and beyond that connectivity shall be granted at 400 KV level only. Alternatively, cost of 400/220 KV transformer & associated feeder bays shall be recovered from respective RE developer/s. | <ul style="list-style-type: none"> Connectivity up to 300-350MW quantum is being provided at 220kV voltage level only. Beyond 350MW, the voltage level connectivity is considered based upon the deliberations in Meeting of WR constituents regarding Connectivity/LTA applications. |

o) Regulatory Approval for transmission system for 5 GW (solar) potential REZ was granted in the State of Madhya Pradesh (2.5 GW at Khandwa and 2.5 GW at Rajgarh) vide order dated 10.10.2019 in Petition No. 197/MP/2019. Transmission system for Rajgarh SEZ has already been taken up for bidding (MoP Gazette issued vide notification dated 24.01.2020) while the transmission system for



Khandwa SEZ had been kept on hold due to land issues as decided in meeting held at MOP on 09.12.2019.

p) The list of schemes associated with 5 GW SEZ in Madhya Pradesh for which Regulatory Approval had been accorded (total estimated cost of about Rs. 1166 crore) is given below:

i) Transmission system required by December 2021 (2.5 GW Rajgarh SEZ)

| Sr. No. | Name of Scheme | Estimated Cost (in Rs. crore) |
|----------------|---|--------------------------------------|
| 1 | Transmission system for evacuation of power from RE projects in Rajgarh (2500 MW) SEZ in Madhya Pradesh | 640 |
| | Sub-total | 640 |

ii) Transmission system to be taken up for implementation with commissioning schedule beyond December 2021 (2.5 GW Khandwa SEZ)

| Sr. No. | Name of Scheme | Estimated Cost (in Rs. crore) |
|----------------|--|--------------------------------------|
| 1 | Transmission system for evacuation of power from RE projects in Khandwa (2500 MW) in Madhya Pradesh | 453 |
| 2 | Transmission system for evacuation of power from RE projects in Khandwa (2500 MW) in Madhya Pradesh – ICT augmentation at Khandwa Pool | 72.79 |
| | Sub-total | 525.79 |

q) MNRE vide letter dated 15.04.2020 has re-distributed 2.5 GW SEZ potential in Khandwa to 1.5 GW at Chhatarpur and 1 GW at Neemuch. MNRE has also indicated that SEZ potential at Rajgarh shall come up in Agar/ Shajapur region (near Pachora) for 1 GW and in Rajgarh for 1.5 GW.

r) A joint study meeting was held on 10.08.2020 amongst CEA, CTU, POSOCO, MPPTCL & GETCO to plan the transmission system for evacuation of power from RE potential areas in Madhya Pradesh for 6.85 GW and the outcome of the same was subsequently discussed in the 2nd WRPC (TP) meeting held on 04.09.2020.

s) It was decided in the 2nd WRPC(TP) meeting that considering the revised RE potential zones in Madhya Pradesh, 2500 MW in respect of Khandwa SEZ will be redistributed to Chhatarpur (1500 MW) and Neemuch (1000 MW) and



transmission system for evacuation of power from RE projects in Khandwa SEZ (2500 MW) in Madhya Pradesh was dropped.

t) MNRE has identified 1500 MW potential in Bijawar/ Chhatarpur area. This includes setting up of two solar parks, namely, 550 MW at Barethi by M/s NTPC and 950 MW at Bijawar by M/s RUMSL. For evacuation of power from these solar parks, a 400/220 kV sub-station has been proposed to be established at Chhatarpur (Bijawar) through LILO of Satna - Bina 400 kV (1st) D/c line at Chhatarpur PS. The pooling station has been proposed at Bijawar from techno-economic considerations as Bijawar is located between Chhatarpur (proposed NTPC Barethi) and the LILO point. Also, the solar capacity planned at Bijawar is about 950 MW whereas that at NTPC Barethi is 550 MW.

u) In the 2nd WRPC(TP) meeting with regard to solar parks at Barethi/ Bijawar, it was also agreed to provide space so as to accommodate 4 nos. of 220 kV line bays in future that would be made available at 400/220kV Pooling Station at Chhatarpur;

v) MPPTCL, MPNRED and RUMS would facilitate in providing land for the proposed Chhatarpur P.S. at Bijawar; and MPNRED and NTPC would apply for Stage-II Connectivity for their respective solar plants proposed to be connected at Chhatarpur P.S.

w) M/s RUMSL has informed that RfP for Neemuch solar park under MNRE's UMREPP Scheme has already been issued and land for development of sub-station is also identified and available. For evacuation of power from the solar park, a new 400/220 kV pooling station has been agreed at Neemuch through Neemuch PS – Kota 400kV D/c line.

x) In the 2nd WRPC(TP) meeting with regard to RUMSL solar park, it was also agreed that the issue of 400/220 kV ICTs at Kota becoming N-1 non-compliant in scenario of low generation at KTPS would be studied further in coordination with NR group. The scheme would also be discussed in the meeting of NRPC(TP). Any additional requirement arising out of Kota 400/220 ICT overloading would be intimated to the WRPC(TP) in the next meeting. It was also agreed that RUMSL would apply for Stage-II connectivity/ LTA for its 500 MW Neemuch Solar Park (to



be commissioned in July 2022 timeframe). Further, RUMSL would apply for Stage-II Connectivity for additional 250 MW (out of remaining 500 MW) for which land has already been identified nearby Singoli village.

y) Transmission system for Neemuch SEZ was subsequently discussed in the 3rd NRPC(TP) meeting held on 19.02.2021 wherein it was deliberated that considering the large REZ potential already planned for interconnection in Rajasthan and that majority of power allocation from the solar project is to Madhya Pradesh only, it would be prudent to interconnect the Neemuch solar park at a suitable location in Madhya Pradesh itself. In view of the above, it was agreed that the transmission system for Neemuch Solar Park (1000MW) would be discussed again in the ensuing WRPC(TP) meeting.

z) Location of Pooling station for Rajgarh SEZ (2500 MW) shall be shifted from Rajgarh to Pachora in Agar district. With the shifting of location of pooling station from Rajgarh to Pachora, it was also agreed to be implement 80 MVAR switchable line reactors on each circuit of Pachora SEZ PP -Bhopal (Sterlite) 400 kV D/c line (Quad/HTLS) at Pachora end under Phase-I; and instead of 9 nos. 220 kV line bays for solar project interconnection envisaged earlier, 10 nos. 220 kV line bays to be established at Pachora SEZ PP (6 under Phase-I & 4 under Phase-II).

aa) The transmission system as agreed earlier for Rajgarh SEZ (2500 MW) was agreed to be implemented in two phases: Phase-I (1500 MW) and Phase-II (1000 MW).

bb) The Transmission scheme for Chhatarpur SEZ (1500 MW) along with Phasing of Transmission System for evacuation of power from potential Solar Energy Zone (SEZ) in Rajgarh SEZ (2500 MW) has subsequently been agreed in the 4th NCT meeting held on 20th & 28th January 2021. However, the recommendation of WRPC for transmission schemes associated with Chhatarpur SEZ (1500 MW) and Phasing of Rajgarh SEZ (2500 MW) is awaited.

cc) The transmission system for SEZ in Madhya Pradesh (4 GW) includes the following elements:

Transmission Lines:

a) Chhatarpur SEZ (1.5 GW) (Khandwa SEZ Redistributed to Chhatarpur)



- LILO of Satna - Bina 400kV (1st) D/c line at Chhatarpur PS (Bijawar) ~60km.*

**Out of Satna – Bina 2xD/c lines, one circuit of 2nd D/c line has been LILOed at Sagar (MPPTCL) substation. The proposed LILO is to be made on the other (1st) D/c line between Satna & Bina.*

b) Under Tendering: 2.5 GW (Rajgarh SEZ in two phases)

➤ **Phase-I (1500 MW)**

- Pachora SEZ PP -Bhopal (Sterlite) 400 kV D/c line (Quad/HTLS) (with minimum capacity of 2100 MVA/ckt at nominal voltage)

➤ **Phase-II (1000 MW)**

- Pachora – Shujalpur 400kV D/c line

Substation:

c) Chhatarpur SEZ (1500 MW) (Khandwa SEZ Redistributed to Chhatarpur)

- Establishment of 3x500MVA, 400/220kV Pooling Station at Chhatarpur (Bijawar) with 420kV (125 MVAR) bus reactor
- 4 numbers 400kV line bays at Bijawar PS for LILLO of Satna - Bina 400kV (1st) D/c line at Bijawar PS
- 5 numbers 220 kV line bays for solar park interconnection

d) Under Tendering: 2.5 GW (Rajgarh SEZ in two phases)

➤ **Phase-I (1500 MW)**

- Establishment of 400/220 kV, 3X500MVA at Pachora SEZ PP with 420kV (125 MVAR) bus reactor
- 80MVAR switchable line reactors on each circuit of Pachora SEZ PP - Bhopal (Sterlite) 400 kV D/c line (Quad/HTLS) at Pachora end
- 2 numbers of 400 kV line bays each at Bhopal (Sterlite) and Pachora SEZ PP for Pachora SEZ PP-Bhopal (Sterlite) 400 kV D/c line (Quad/HTLS)
- 4 numbers 220 kV line bays for Agar & Shajapur solar park inter-connection
- 2 numbers 220kV line bays for other solar projects' interconnection

➤ **Phase-II (1000 MW)**

- 400/220 kV, 2x500MVA ICT augmentation at Pachora PS
- 2 numbers of 400 kV line bays each at Pachora & Shujalpur for Pachora – Shujalpur 400kV D/c line
- 4 numbers 220kV line bays for solar project inter-connection



dd) The schemes in Madhya Pradesh have been planned at an estimated cost of Rs. 1038 crore as per details given below:

| Sr. No. | Status | Potential (GW) | Estimated Cost (₹ in crore) |
|---------|---|----------------|-----------------------------|
| 1 | Chhatarpur SEZ (1500MW) (Khandwa SEZ Redistributed to Chhatarpur) | 1.5 | 339 |
| 2 | Under Tendering: 2.5GW (Rajgarh SEZ in two phases) | 2.5 | 699 |
| | | 4 | 1038 |

ee) Status of Stage-II connectivity/ LTA in Madhya Pradesh (as on March 2021) is given below:

| Pooling Station | Potential (MW) | Stage-II Connectivity (MW) | LTA (MW) |
|---|----------------|----------------------------|-------------|
| Chhatarpur SEZ (1500 MW) (Khandwa SEZ Redistributed to Chhatarpur) | | | |
| Chhatarpur PS | 1500 | 0 | 0 |
| Subtotal | 1500 | 0 | 0 |
| Under Tendering: 2.5 GW (Rajgarh SEZ in two phases) | | | |
| Pachora PS Ph-I | 1500 | 1000 | 1000 |
| Pachora PS Ph-II | 1000 | 0 | 0 |
| Subtotal | 2500 | 1000 | 1000 |
| Total | 4000 | 1000 | 1000 |

ff) Current status of Transmission System corresponding to 4 GW SEZ potential in MP are given below:

a) Under Tendering: 2.5 GW at Rajgarh SEZ

- Transmission system for Rajgarh SEZ has already been taken up for bidding as per MoP Gazette issued vide notification dated 24.01.2020. Based on decision in the 2nd WRPC(TP) meeting held on 04.09.2020 and in the 4th NCT meeting held on 20.01.2021 & 28.01.2021, the transmission system for evacuation of power from potential Solar Energy Zone (SEZ) in Rajgarh SEZ (2500MW) was agreed earlier to be implemented in two phases:

- Phase-I (1500MW)
- Phase-II (1000MW)

b) 1.5 GW at Chhatarpur: Redistributed from Khandwa SEZ

- Transmission system for Chhatarpur SEZ is proposed to be implemented in matching time-frame of RE projects in the area.



gg) The stakeholder consultation carried out for transmission system for Chhatarpur SEZ (1.5 GW) as well as revised phasing of transmission system for Rajgarh SEZ (2.5 GW) is given as follows:

| Details published on CTU website | Stakeholder Comments received | Treatment of Stakeholder Comments |
|----------------------------------|--|---|
| 25.11.2020 | <ul style="list-style-type: none"> • POSOCO (received vide letter dated 24.12.2020) | <ul style="list-style-type: none"> • POSOCO (replied vide e-mail dated 22.01.2021) |

hh) The comments of POSOCO and their treatment are elaborated below:

| Comments of POSOCO received vide letter dated 24.12.2020 | Treatment |
|---|--|
| <p>Regarding Rajgarh/Pachora (2500MW) scheme</p> <ul style="list-style-type: none"> • Augmentation planned at Shujalpur S/s (1x500 MVA, 400/220 kV ICT and reconductoring of 220 kV downstream lines) shall be completed in matching time-frame or before | <p>Noted.</p> <p>The planned augmentation at Shujalpur S/s is being taken up for approval in the 4th National Committee Meeting on Transmission as a separate System Strengthening Scheme on account of operational constraints (N-1 non-compliance) of Shujalpur ICTs as agreed in the 2nd WRPC(TP) meeting held on 04.09.2020.</p> |
| <p>Regarding Chhatarpur (1500 MW) scheme</p> <ul style="list-style-type: none"> • Rewa (MP) – Rewa (PG) 220 kV D/C line shall be commissioned in matching time-frame or before to avoid over-loading of 400/220 kV ICTs at Satna. | <p>Load flow studies indicate that the ICTs at Satna remain N-1 compliant even after considering the scheme for evacuation of power from Chhatarpur (1500MW) SEZ.</p> <p>However, considering the high loadings observed on Satna ICTs, the matter of expediting the works on Rewa (PG) – Rewa (MP) 220 kV D/C as well as Rewa (PG) – Sidhi (MP) 220kV D/C lines may be taken up with the implementing agency i.e. MPPTCL.</p> |
| <p>Regarding Neemuch (1000 MW) scheme</p> | <p>Noted.</p> |



| Comments of POSOCO received vide letter dated 24.12.2020 | Treatment |
|---|---|
| <ul style="list-style-type: none"> The issue of N-1 non-compliance of 2x315 MVA ICTs at Kota may be addressed at the earliest and any augmentation, if planned, shall be implemented in matching time-frame or before. | <p>The matter was also discussed in the 2nd WRPC(TP) meeting and it was decided that the issue would be studied further in coordination with NR group. The scheme would also be discussed in the meeting of NRPC(TP)*. Any additional requirement arising out of Kota 400/220 ICT overloading, would be included in the scheme. The same would be intimated to the WRPC(TP) in the next meeting.</p> |

**Subsequently, in the 3rd NRPCTP meeting held on 19.02.2021, it was decided that the system may again be reviewed in the WRPCTP forum. Hence, the Transmission System for Neemuch SEZ (1GW) is yet to be finalized.*

ii) Ministry of Power, Government of India vide letter dated 11.07.2019 issued directions under Section 107 of the 2003 Act and conveyed the following:

“2. As the gestation period of RE projects is much shorter in comparison to the implementation period of the transmission facilities and significant quantum of RE capacity targeted to be tendered out in the current financial year, it is necessary that the present system of transmission planning and implementation for RE projects need to be carried out in Mission Mode. The transmission activities need to be started much ahead of the generation so that both of them are completed in matching time-frame to achieve the target set by Govt. of India. Thus, in the said background, it has been decided by the Government to accord the identified transmission schemes for aforementioned 66.6 GW of RE generation, comprising around 28 GW under Phase – I and 38.5 GW under Phase – II as ‘Projects of National Importance’.”

jj) Further, vide the said letter dated 11.07.2019, it has been further conveyed that *“Prior requirement of LTA applications and associated Bank Guarantees, to be deferred for the interim period till the RE project is awarded to successful bidder, for taking up the implementation of associated transmission systems for balance RE Capacity under 66.5 GW of RE. It is however, clarified that the due regulatory procedure of LTA and Connectivity will be followed by the successful bidder”.*

kk) In line with the direction of the Ministry of Power vide letter dated 11.07.2019, the Petitioner has applied for regulatory approval under proviso 3(1)(i) read along with proviso 8 (Power to Relax) and proviso 9 (Power to remove difficulties) of CERC (Grant of Regulatory Approval for execution of Inter-State



Transmission Scheme to Central Transmission Utility) Regulations, 2010 (hereinafter referred to as “the Regulatory Approval Regulation”).

II) In compliance with the Regulatory Approval Regulations, Project Inception Report is submitted by the Petitioner.

Reply of GETCO vide affidavit dated 24.9.2020

10. GETCO submitted that PGCIL has proposed scheme for Western Region especially for two locations in Gujarat viz. Khavda in Kutch and Dholera in central Gujarat. GETCO further submitted that as far as Khavda location is concerned, GETCO has submitted its reply/ views to PGCIL vide letter dated 12.6.2020.

Proceedings during hearing dated 19.7.2021

11. The representative of the Petitioner reiterated submissions made in the Petition and the same are not repeated for sake of brevity. The Commission vide ROP of the hearing sought certain information and the Petitioner vide affidavit dated 30.07.2021 has furnished the information called for. The information submitted by the Petitioner is as follows:

- a) The Regulatory Approval for execution of following transmission systems, which has already been granted vide order dated 10.10.2019 in Petition No. 197/MP/2019, may be allowed to subsist as there is no change in the said transmission systems:
 - i. Transmission systems for 3.5 GW in Gujarat (2 GW at Bhuj-II and 1.5 GW at Jam-Khambhaliya REZs), which are under advance stages of implementation.
 - ii. Transmission system for 2 GW REZ at Lakadia (Gujarat) (presently on hold due to non-receipt of LTA applications).
 - iii. Transmission systems for 7 GW REZ in the State of Maharashtra.
- b) Fresh Regulatory approval is sought for following transmission systems (for 7GW potential REZ locations):



- i. Transmission system for 3 GW Khavda REZ (Phase-I scheme).
- ii. Transmission systems for 4 GW of SEZs in the State of Madhya Pradesh (2.5 GW SEZ in Rajgarh and 1.5 GW of SEZ in Chhatarpur)
- c) Regulatory approval for balance 7.5 GW potential REZ in the State of Gujarat (in Khavda area), 1 GW in Madhya Pradesh (Neemuch SEZ) and for Dholera UMSP (4 GW) shall be sought separately, if required.
- d) The 40th Meeting of TCC/WRPC were held on 4th June 2021 & 7th June 2021 (minutes of which were issued later and submitted vide affidavit dated 20.8.2021), wherein the following schemes were recommended for implementation:
- i. Transmission system for evacuation of power from 3 GW REZ in Khavda region (Gujarat)
- ii. Transmission system for evacuation of power from 1.5 GW SEZ in Chhatarpur (MP)
- iii. Revised phasing of Transmission system for evacuation of power from 2.5 GW SEZ in Rajgarh (MP)
- e) The details regarding the status of associated RE generations at potential REZ locations along with details of land acquisition at various project locations w.r.t land required and land acquired has been submitted. At Jam Khambhaliya PS (Stage-II Connectivity for 851.4 MW and LTA for 301.4 MW); at Bhuj PS (Stage-II Connectivity for 1050 MW and LTA for 950 MW); at Khavda PS (Stage-II Connectivity for 3500 MW and LTA for 1000 MW); at Pachora SEZ PP (Stage-II Connectivity and LTA for 1000 MW each); and at Kallam PS (Stage-II Connectivity and LTA of 300 MW each) has been sought.
- f) The estimated cost of the transmission system in Gujarat is as follows:

| Sr. No. | Status | RE Potential (GW) | Estimated Cost (₹ in crore) | Estimated Tariff impact* (₹ in crore) |
|---------|-----------------------------|-------------------|-----------------------------|---------------------------------------|
| 1 | Under Implementation | 3.5 | 5008.4 | 851.4 |
| 2 | On hold/ deferred (Lakadia) | 2 | 196 | 33.3 |
| 3 | Relocated to Khavda area | 3 | 882 | 150 |
| | | 5 | 5488 | 933 |
| | | 13.5 | 11574.4 | 1967.7 |



g) The estimated cost of the transmission system in Madhya Pradesh is as follows:

| Sr. No. | Status | RE Potential (GW) | Estimated Cost (₹ in crore) | Estimated Tariff impact* (₹ in crore) |
|---------|---|-------------------|---|---------------------------------------|
| 1 | Chhatarpur SEZ (1500 MW) (Khandwa SEZ redistributed to Chhatarpur) | 1.5 | 339 | 57.6 |
| 2 | Under Tendering: 2.5 GW (Rajgarh SEZ in two phases) | 2.5 | 699 (Phase-I: Rs.461 crore); (Phase-II: Rs.238 crore) | 118.8 |
| | | 4 | 1038 | 176.4 |

Analysis and Decision

12. The Petitioner had filed Petition No. 197/MP/2019 wherein the Commission vide order dated 10.10.2019 had granted Regulatory Approval for implementation of 32 GW in WR (28 GW WR REZ and 4 GW Dholera UMSP).

13. The Petitioner has filed the instant Petition seeking the Commission's approval as certain changes which had taken place with respect to the location of potential REZs in Gujarat and Madhya Pradesh. The Government of Gujarat had proposed for allocation of land to RE projects in Khavda area (instead of earlier planned ISTS pooling stations at Lakadia, Jamnagar, Rapar & Radhanesda for which regulatory approval in Petition No. 197/MP/2019 was granted).

14. The Petitioner has sought Regulatory Approval for execution of transmission systems in respect of 13.5 GW REZs in the State of Gujarat (instead of 16 GW granted earlier) and for execution of transmission systems in respect of 4 GW REZs in the State of Madhya Pradesh (instead of 5 GW granted earlier). The Petitioner has also submitted that there are no changes envisaged in the transmission systems in respect of 7 GW



REZs in the State of Maharashtra and 5.5 GW in the State of Gujarat (Bhuj-II: 2 GW and Jam Khambhaliya: 1.5 GW, Lakadia: 2 GW) granted earlier. Hence, the Petitioner has submitted that the Regulatory Approval granted vide order dated 10.10.2019 in Petition No. 197/MP/2019 may be continued for them. Further, the Petitioner has submitted that the transmission system for Dholera UMSP is being reviewed and its Regulatory Approval shall be sought separately, if required. Implementation of transmission system for 2 GW REZ at Lakadia is presently on hold due to non-receipt of LTA applications.

15. Regulatory approval has been sought for transmission system for 7 GW REZs, namely, 3 GW in Khavda REZ in the State of Gujarat and 4 GW in REZs in the State of Madhya Pradesh (2.5 GW REZ in Rajgarh and 1.5 GW REZ in Chhatarpur).

16. The revised proposed transmission system for Gujarat and Madhya Pradesh submitted by the Petitioner in the present petition compared to the transmission system already granted Regulatory Approval vide order dated 10.10.2019 in Petition No. 197/MP/2019 are as follows:

| Sr. No. | REZ Location | REZ (GW) for which Regulatory Approval Obtained | Revised REZ (GW) | Revised REZ (GW) for which Revised Regulatory Approval is being Sought | Transmission System Status |
|---------|------------------|---|--|--|--|
| 1 | Bhuj-II* | 2 | 2 (No revision) | 2 | Under Implementation |
| 2 | Jam Khambhaliya* | 2 | 1.5 (No revision to the extent of 1.5 GW) | 1.5 | 1.5 GW: Under Implementation 0.5 GW: Relocated to Khavda area |
| 3 | Lakadia | 4 | 2 (No revision to the extent of 2 GW) | 2 | 2 GW: On hold/ deferred 2 GW: Relocated to Khavda area |
| 4 | Rapar | 3 | 0 | 0 | Relocated to Khavda area |
| 5 | Radhanesda | 2.5 | 0 | 0 | Relocated to Khavda area |
| 6 | Jamnagar | 2.5 | 0 | 0 | Relocated to Khavda area |



| | | | | | |
|--------------------------------|---------|-----------|-----------|----------------------------|---|
| 7 | Khavda* | 0 | 10.5 | 3 (WRPC Recommended) | New potential REZ. Transmission Scheme being finalised for balance 7.5 GW. |
| Sub-total (Gujarat) | | 16 | 16 | 8.5 | |

| Sr. No. | REZ Location | REZ (GW) for which Regulatory Approval Obtained | Revised REZ (GW) | Revised REZ (GW) for which Revised Regulatory Approval is being Sought | Transmission System Status |
|---------------------------------------|--------------|---|----------------------|--|--|
| 1 | Khandwa | 2.5 | 0 | 0 | Capacity re-distributed to Chhatarpur & Neemuch REZ |
| 2 | Rajgarh* | 2.5 | 2.5 (No revision) | 2.5 (WRPC Recommended) | Scheme under bidding in a phased manner (Ph-I: 1.5 GW & Ph-II: 1 GW) |
| 3 | Chhatarpur | 0 | 1.5 | 1.5 (WRPC Recommended) | New potential REZ. Transmission Scheme finalised. |
| 4 | Neemuch | 0 | 1 | 0 | New potential REZ. Transmission Scheme to be finalised. |
| Sub-total (Madhya Pradesh) | | 5 | 5 | 4 | |

17. We have considered the submissions of the Petitioner and the comments of GETCO and POSOCO mentioned by the Petitioner in its submissions.

18. Petitioner has submitted that it has complied with provisions of Regulation 4(7) of the Regulatory Approval Regulations and submitted newspaper cuttings dated 19.8.2020 in support of publication of the notice of application. The Petitioner has also uploaded the Project Inception Report (PIR) on its website along with its annexure detailing about the project.

19. The relevant extract of Regulation 9.1 of the Central Electricity Regulatory Commission (Planning, Coordination and Development of Economic and Efficient Inter-State Transmission System by Central Transmission Utility and other related matters) Regulations, 2018 (hereinafter referred to as “the 2018 Transmission Planning Regulations”) is reproduced below:



“9.1 Application for Regulatory approval by CTU:

(1) At the time of filing application before the Commission for grant of regulatory approval, the CTU shall submit the following:

(a) Recommendations on the scheme by the concerned RPC(s);

.....
.....

(e) Status of consultation with the stakeholders along with Comments / suggestions of stakeholders and its treatment.”

20. The Petitioner has submitted copy of the minutes of 40th WRPC meeting held on 7.6.2021 wherein the instant transmission system was discussed as under:

“Item No. 24. Decisions taken regarding schemes in the 2nd WRPC (TP) meeting held on 04.09.2020 (MoM enclosed at Annexure-24)

i) Modification of the Transmission Scheme for evacuation of 10 GW RE power from potential RE zones in Khavda region by National Committee on Transmission

NCT in its 3rd meeting has approved the following phase-wise Transmission Scheme for evacuation of 8 GW RE power from potential RE zones in Khavda region:

A. 500 MW injection at Bhuj pooling station through dedicated transmission lines of RE developers in Khavda region.

B. Establishment of Khavda pooling station and associated transmission lines for evacuation of 7.5 GW in two phases

Phase-I, 3.0 GW RE injection at Khavda pooling station

(i) Establishment of Khavda 765/400, 3x1500MVA, 400/220kV, 2x500MVA PS (GIS) with 1X330 MVAR 765 kV bus reactor and 1X125MVAR 400 kV bus reactor (765/400/220 kV Khavda pooling station to be created with future space provisions for pooling total 4.5 GW RE capacity under phase-II. Provision for two bus sections with bus sectionalizer to be created at 765kV & 400kV level with 4x1500MVA, 765/400kV ICTs in each section. Bus sectionalizer at 765kV level shall normally be closed and bus sectionalizer at 400kV level shall normally be open. Each 400 kV section to have RE capacity of maximum 4000 MW. Under Phase-I only one bus section at 765 kV and 400 kV is to be implemented.)

(ii) Khavda PS(GIS) – Bhuj PS 765 kV D/c line

(iii) 220 kV line bays (4 nos.) for interconnection of solar projects, implementation of which shall be taken up as per the LTA/connectivity granted at 220 kV level.

(iv) Spare reactors and transformers

- 1x500MVA, 765/400kV (single phase) Spare transformer at Khavda PS
- 110MVAR, 765kV switchable single phase reactor (spare unit for bus/line reactor) at Khavda PS

Phase-II, 4.5 GW RE injection at Khavda



.....

ii) Phasing of Rajgarh Transmission system for evacuation of power from RE projects in Rajgarh (2500 MW) SEZ in Madhya Pradesh

In the 2nd WRPC(TP) meeting, the following was agreed:

I. Transmission system for evacuation of power from RE projects in Rajgarh (2500 MW) SEZ in Madhya Pradesh to be implemented in two phases as two different transmission packages as given below:

I(A). Transmission system for evacuation of power from RE projects in Rajgarh (1500 MW) SEZ in Madhya Pradesh: Phase-I

| Sr. No. | Scope of the Transmission | Capacity /km |
|----------------|---|--|
| 1 | Establishment of 400/220 kV, 3X500 MVA at Pachora SEZ PP with 420kV (125 MVAR) bus reactor Future provisions: Space for 400/220kV ICTs along with bays: 6 400kV line bays: 8 nos. 220kV line bays: 9 nos. 420kV bus reactor along with bays: 1 no 220kV Bus sectionalizer bay: 2 nos. (One no. bay for each Main Bus) | 400/220 kV, 500 MVA ICT – 3 400 kV ICT bays – 3220 kV ICT bays – 3 400 kV line bays – 2 220 kV line bays – 6 (4 nos. for Agar & Shajapur solar park interconnection & 2 nos. for other RE projects) 125 MVAR, 420 kV reactor 420 kV reactor bay – 1 |
| 2 | Pachora SEZ PP -Bhopal (Sterlite) 400 kV D/c line (Quad/HTLS) (with minimum capacity of 2100 MVA/ckt at nominal voltage) along with 80MVAR switchable line reactors on each circuit at Pachora end | Length – 160 Switchable line Reactors (at Pachora end) – 420kV, 2x80MVAR Line reactor bays (at Pachora) – 2 nos. |
| 3 | 2 no. of 400 kV line bays at Bhopal (Sterlite) for Pachora SEZ PP -Bhopal (Sterlite) 400 kV D/c line (Quad/HTLS) (with minimum capacity of 2100 MVA/ckt at nominal voltage) | 400 kV line bays – 2 |

Note: (i) M/s BDTCL (Bhopal Dhule Transmission Company Limited) to provide space for 2 no. of 400 kV line bays at Bhopal (Sterlite) for termination of Pachora SEZ PP - Bhopal (Sterlite) 400 kV D/c line.

(ii) Space for future provisions for 400 kV line bays to be kept including the space for switchable line reactors.



(iii) The implementation schedule for the scheme is July' 2022 (the completion schedule to be reviewed before submission of RfP bids considering visibility of RE generators and sufficient implementation time for the TSP)

I(B) Transmission system for evacuation of power from RE projects in Rajgarh (1000 MW) SEZ in Madhya Pradesh: Phase- II

| Sr. No. | Scope of the Transmission | Capacity /km |
|----------------|--|--|
| 1 | 400/220 kV, 2x500MVA ICT augmentation at Pachora PS | 400/220 kV, 500 MVA ICT – 2 400 kV ICT bays – 2 220 kV ICT bays – 2 400 kV line bays – 2 220 kV line bays – 4 (to be taken up as per Connectivity/LTA applications received) |
| 2 | Pachora – Shujalpur 400kV D/c line line Quad/HTLS) (with minimum capacity of 2100 MVA/ckt at nominal voltage) | Length – 80 |
| 3 | 2 no. of 400 kV line bays at Shujalpur for Pachora – Shujalpur 400kV D/c line (Quad/HTLS) (with minimum capacity of 2100 MVA/ckt at nominal voltage) | 400 kV line bays – 2 |

Note: (i) POWERGRID to provide space for 2 no. of 400 kV line bays at Shujalpur for termination of Rajgarh SEZ PP – Shujalpur 400 kV D/c line.

(ii) Phase-II scheme to be taken up only after receipt of Connectivity/LTA applications beyond 1500 MW at Pachora P.S.

(iii) The schedule of implementation of Phase-II of the scheme would be matching with schedule of RE developers or 18 months from the date of transfer of SPV whichever is later.

.....
.....

iii) Evacuation system from the RE potential areas in Madhya Pradesh after the Re-assessment of RE potential by MNRE

The transmission system for Chhatarpur and Neemuch Solar parks was agreed in the 2nd WRPC(TP) meeting as given below:

Chhatarpur SEZ (1500MW)

- Establishment of 3x500MVA, 400/220kV Pooling Station at Chhatarpur (Bijawar) with 420kV (125 MVAR) bus reactor
- LILO of Satna - Bina 400kV (1st) D/c line at Chhatarpur PS (Bijawar)~60km.*



**Out of Satna – Bina 2xD/c lines, one circuit of 2nd D/c line has been LILoed at Sagar MPPTCL) substation. The proposed LILo is to be made on the other (1st) D/c line between Satna & Bina.*

- 4 nos. 400kV line bays at Bijawar PS for LILo of Satna - Bina 400kV (1st)D/c line at Bijawar PS
- 5 nos. 220 kV line bays for solar park interconnection

Note:

- Space to accommodate 4 nos. of 220 kV bays in future would be made at 400/220kV Pooling Station at Chhatarpur
- MPPTCL, MPNRED and RUMS would facilitate in providing land for the proposed Chhatarpur P.S. at Bijawar.
- Both MPNRED and NTPC would apply for Stage-II Connectivity for their respective solar plants proposed to be connected at Chhatarpur P.S.

Neemuch Solar Park (1000MW)

- Establishment of 2x500MVA, 400/220kV Pooling Station at Neemuch with 420kV (125 MVAR) bus reactor
- Neemuch PS – Kota 400kV D/c line~ 70 km
2 nos. of 400 kV line bays each at Neemuch& Kota for Neemuch PS – Kota400kV D/c line
- 4 nos. 220 kV line bays for solar park interconnection

Note: With the agreed scheme, the issue of 400/220 kV ICTs at Kota becoming N-1 non-compliant in scenario of low generation at KTPS would be studied further in coordination with NR group. The scheme would also be discussed in the NRPC(TP). Any additional requirement arising out Kota400/220 ICT overloading, would be included in the scheme. The same would be intimated to the WRPC(TP) in the next meeting.

TCC Discussions

MS, WRPC informed that the above items are in line with the decisions taken in the 2ndWRPC (TP) Meeting.

CTU representative informed that the items number (i) & (ii) are for information purposes of the WRPC. For item number (iii) B, he further informed that it is again under consideration and may not be discussed right now in the WRPC forum. Further items number (iv) and (v) are also for information purposes.

TCC noted the same.

Representative from MPPTCL raised doubts on the item regarding re-conductoring of Shujalpur (PG)-Shujalpur (MP) 220kV D/c line (conductor with ampacity equivalent to ACSR twin moose at nominal voltage) under Intra –state by MPPTCL.

CTU representative informed that this was agreed in the WRPC (TP) Committee meeting and the only issue was regarding the ampacity and any conductor not necessarily ACSR twin moose can be used by MPPTCL. The details would be shared with MPPTCL.

WRPC Discussions



WRPC agreed to the recommendation of the WRPC (TP) and noted the same.”

21. We, thus, note that as per the above-quoted minutes, WRPC agreed to the recommendations of WRPC (TP) for implementation of transmission system for which Regulatory Approval is being sought by the Petitioner.

22. As required under Regulation 9.1(1)(e) of the 2018 Transmission Planning Regulations, the Petitioner vide affidavit dated 31.5.2021 has submitted the comments of the stakeholders and their treatments for the Khavda region (Gujarat) and Chattarpur & Rajgarh regions (Madhya Pradesh).

23. Comparison of the Stage-II connectivity and LTA granted by the Petitioner that was considered by the Commission in the order dated 10.10.2019 in Petition No. 197/MP/2019 and the current status of Stage-II connectivity and LTA grant as submitted by the Petitioner at each of the potential REZ locations of Gujarat and Madhya Pradesh is summarized below:

Gujarat

| Pooling Station | Potential (MW) | Stage-II Connectivity granted (MW) | LTA granted (MW) | Stage-II Connectivity granted (MW) | LTA granted (MW) |
|--------------------|----------------|---|------------------|---|------------------|
| | | As considered in Petition No. 197/MP/2019 | | Petition No. 616/MP/2020 (Submitted vide Affidavit dated 30.7.2021) | |
| Bhuj-II PS | 2000 | 600 | 600 | 1050 | 950 |
| Jam Khambhaliya PS | 1500 | 600.6 | 0.00 | 851.4 | 301.4 |
| Lakadia PS | 2000 | N.A | N.A | 0 | 0 |
| Khavda PS | 3000 (Ph-I) | N.A | N.A | 3500 | 1000 |
| Total | 8500 | - | - | 5401.4 | 2251.4 |



Madhya Pradesh

| Pooling Station | Potential (MW) | Stage-II Connectivity granted (MW) | LTA granted (MW) | Stage-II Connectivity granted (MW) | LTA granted (MW) |
|---------------------|----------------|--|------------------|--|------------------|
| | | As considered in Petition No. 197/MP/2019 | | Petition No. 616/MP/2020 (Submitted vide Affidavit dated 30.7.2021) | |
| Chhatarpur PS | 1500 | N.A | N.A | 0 | 0 |
| Pachora/ Rajgarh PS | 1500 (Ph-I) | N.A | N.A | 1000 | 1000 |
| | 1000 (Ph-II) | N.A | N.A | 0 | 0 |
| Total | 4000 | N.A | N.A | 1000 | 1000 |

24. The Commission vide order dated 10.10.2019 in Petition No. 197/MP/2019 had observed the following:

“45. The Petitioner has approached the Commission seeking Regulatory Approval for the instant transmission system under the provisions of Regulation 3(1)(i) of the Regulatory Approval Regulations for the transmission scheme of REZ Phase- I and REZ Phase-II and Dholera UMSPP. The relevant provisions of Regulation 3 are extracted under:

“3. Scope and applicability

(1) These regulations shall apply to:

(i)an ISTS Scheme proposed by Central Transmission Utility, for which generators have sought long-term access as per the Central Electricity Regulatory Commission (Grant of Connectivity, Long-Term Access and Medium Term Open Access to the Inter-State Transmission and Related Matters) Regulations, 2009, and for which consultation with Central Electricity Authority and beneficiaries if already identified has been held for setting up the ISTS Scheme, but for which Power Purchase Agreements with all the beneficiaries have not been signed on the date of application.

(ii) an ISTS Scheme for system strengthening/up-gradation, identified by Central Transmission Utility to enable reliable, efficient, co-ordinated and economical flow of electricity within and across the region for which consultation with Central Electricity Authority and beneficiaries if identified has been held.

(iii) ISTS Scheme proposed by CTU, for which the Central Government authorised Solar Power Park Developer has sought long term access, and for which consultation with CEA and beneficiaries wherever identified has been held for setting up the ISTS scheme and the Solar Power Park Developer undertakes to bear all liabilities on behalf of the solar power generators to be set up in the Solar Park.

(2) These regulations shall not apply to ISTS Scheme, for which all the beneficiaries/respective STUs have signed Bulk Power Transmission Agreement to share the transmission charges.”



46. Regulation 3(1)(i) provides that the Regulatory Approval Regulations shall apply to the ISTS scheme proposed by the Petitioner for which the generators have sought LTA. However, for the identified transmission system proposed to be constructed by the Petitioner, full quantum of LTA has not been sought by the generators. As submitted by the Petitioner, out of 28 GW solar and wind potential, LTA applications have been sought only for 5.2GW. The Petitioner has furnished the following details:

.....
.....

47. Since LTA of full quantum of 28 GW has not been sought, the Petition is not covered under Regulation 3 (1) (i) of the Regulatory Approval Regulations. The representative of the Petitioner prayed that the Commission, in exercise of its power under Regulation 8 of the Regulatory Approval Regulations, relax the provisions of the said regulations and grant the reliefs prayed for. The Petitioner has also submitted that the proposed transmission system/line has been envisaged keeping in view the generation potential as assessed by MNRE/ agencies of MNRE.

.....

56. On a cogent reading of the submissions of the CTU and the direction of GOI in para 2(iii) of letter dated 11.7.2019, it can be inferred that the requirements of LTA applications are required to be deferred for the interim period till the RE project is awarded to the successful bidder and that due regulatory procedure of LTA and connectivity will be followed by the successful bidder.”

25. We observe that in the instant Petition, LTA of full quantum of 3 GW (Khavda in Gujarat) and 4 GW (Rajgarh and Chhattarpur in Madhya Pradesh) has not been sought by the generators. Therefore, the instant Petition is not covered under Regulation 3(1)(i) of the Regulatory Approval Regulations. However, as noted in above-quoted order dated 10.10.2019 in Petition No. 197/MP/2019, the requirements of LTA applications are required to be deferred for the interim period till the RE project is awarded to the successful bidder and that due regulatory procedure of LTA and connectivity will be followed by the successful bidder.

26. The Petitioner has estimated the cost of the transmission system for Khavda region, Gujarat (3 GW) as Rs.882 crore and transmission tariff for the same as Rs.150 crore (17% of the estimated cost) per annum. Accordingly, the tentative transmission tariff is worked out as Rs.0.23/unit assuming RE (wind/ solar) CUF as 25%. Similarly, the tentative transmission tariff worked out against the transmission system for 4 GW in



Madhya Pradesh (estimated cost of Rs.1038 crore and estimated tariff of Rs.176.4 crore per annum) comes to Rs.0.2/unit.

27. The Commission vide order dated 10.10.2019 in Petition No. 197/MP/2019 had observed the following regarding grant of regulatory approval in the absence of LTA for full quantum for which regulatory approval was being sought for:

“60. As stated earlier, the Petition for grant of Regulatory approval does not squarely fall under the provisions of Regulation 3(1) (i) of the Regulatory Approval Regulations. However, the Petitioner during hearing on 21.8.2019 prayed that the Commission may exercise the Power to relax under Regulation 8 of the Regulatory Approval Regulations. Therefore, considering the fact that the scheme is of national importance as mentioned by the Ministry of Power in its letter dated 11.7.2019 and with due regard to the guiding principle of promoting renewable energy as enshrined under Section 61(h) of the 2003 Act, we, in exercise of our Powers under Regulation 8 of the Regulatory Approval Regulations, relax the provisions of Regulation 3(1)(i) of the Regulatory Approval Regulations and grant Regulatory approval for execution of the proposed transmission system identified in this Petition...”

28. As noted above, the instant Petition for grant of Regulatory Approval does not squarely fall under the provisions of Regulation 3(1)(i) of the Regulatory Approval Regulations. We also note that the instant Petition of the Petitioner is for modification of earlier Regulatory Approval granted vide order dated 10.10.2019 in Petition No. 197/MP/2019. The genesis of the requirement for the revision is in the decision of the Government of Gujarat to allocate land in Khavda region and not in other regions (approved earlier) that has necessitated change in locations where solar projects can be implemented. Further, the review by MNRE as to where RE projects can be implemented in the State of Madhya Pradesh has also led to change in locations.

29. We, therefore,

(a) allow the subsistence of the Regulatory Approval granted vide order dated 10.10.2019 in Petition No. 197/MP/2019 for the transmission systems for 7 GW in respect of REZs in the State of Maharashtra;



(b) withdraw the Regulatory Approval granted vide order dated 10.10.2019 in Petition No. 197/MP/2019 in respect of States of Gujarat (16 GW), Madhya Pradesh (5 GW) and Dholera UMSP (4 GW); and

(c) in exercise of powers under Regulation 8 of the Regulatory Approval Regulations, relax the provisions of Regulation 3(1)(i) of the Regulatory Approval Regulations and in modification to the Order dated 10.10.2019 in Petition No. 197/MP/2019, grant Regulatory Approval for the transmission system of 8.5 GW in the State of Gujarat (including Regulatory Approval of 5.5 GW granted vide order dated 10.10.2019 in Petition No. 197/MP/2019) and for the transmission system of 4 GW in the State of Madhya Pradesh.

(d) grant liberty to the Petitioner to seek Regulatory Approval separately for the transmission system for Dholera UMSP (which is being reviewed), if required.

The details are given in Annexure-A and Annexure-B of this Order.

30. The Commission vide order dated 10.10.2019 in Petition no. 197/MP/2019 has observed the following:

“59. We observe that timeline for renewable capacity beyond 2021 has not been specified. The Petitioner vide Affidavit dated 1.10.2019 has submitted “Minutes of meeting regarding prioritization of transmission system associated with 66.5 GW potential RE capacity already planned, based on inputs from SECI/MNRE held on 30.08.2019 at CEA, New Delhi” whereby following is recorded:

“SECI informed that as per their bidding guidelines, generation capacity is to be commissioned within 24 months from the date of bidding. Accordingly, it was decided that transmission schemes for the Phase-III potential capacity at various locations may be kept ready for implementation. The necessary approvals for the transmission schemes from NCT, ECT, MoP needs to be in place so that bidding for the transmission schemes could be started as soon as State Government confirms land/reservoir availability for setting up of RE projects. Once SECI starts bidding process for the Phase-III potential REZ capacity, SECI will inform to MOP, CEA & CTU the commissioning schedule of generation projects so that activities for implementation/bidding of respective transmission schemes may be taken up. In case land availability for any part of Phase-III projects is confirmed in near future, the scheme needs to be taken up on priority.”

In line with the above, it is directed that Petitioner shall ensure that transmission system is taken up for implementation matching with progress of generation projects as suggested above.



60. As stated earlier, the Petition for grant of Regulatory approval does not squarely fall under the provisions of Regulation 3(1) (i) of the Regulatory Approval Regulations. However, the Petitioner during hearing on 21.8.2019 prayed that the Commission may exercise the Power to relax under Regulation 8 of the Regulatory Approval Regulations. Therefore, considering the fact that the scheme is of national importance as mentioned by the Ministry of Power in its letter dated 11.7.2019 and with due regard to the guiding principle of promoting renewable energy as enshrined under Section 61(h) of the 2003 Act, we, in exercise of our Powers under Regulation 8 of the Regulatory Approval Regulations, relax the provisions of Regulation 3(1)(i) of the Regulatory Approval Regulations and grant Regulatory approval for execution of the proposed transmission system identified in this Petition. Having done so, the issues and concerns expressed by the discoms and other stakeholders are also required to be balanced while granting such relief, especially when the Ministry of Power, GOI has accorded the said transmission system the status of national importance. The Commission is also guided by the principles, as provided under Section 61(d) of the 2003 Act i.e. safeguarding of consumer's interest and at the same time, recovery of the cost of electricity in reasonable manner. Thus, the Commission has a statutory responsibility to balance the interest of developers and consumers of electricity. Accordingly, the regulatory approval granted above is subject to the condition that the distribution companies and consumers shall be liable for payment of transmission charges after the renewable generating stations achieve the COD. The transmission charges for transmission system approved herein shall be recovered as per CERC (Sharing of inter-state transmission charges and losses) Regulations, 2010 as amended from time to time after the associated generating stations achieves COD. In case of mismatch between the date of commercial operation of generating station and transmission system, the liability of transmission charges shall be governed by Regulation 6 of CERC (Terms and Conditions of Tariff) Regulations, 2019. The CTU, as far as possible, shall endeavor to match or phase out the construction of transmission systems according to the progress of the RE generating stations, in consultation with MOP and MNRE so as to minimize any financial impact on distribution companies in case the transmission assets remain unutilized due to delay or non-materialization of envisaged generation projects. In case the generating stations as envisaged do not materialize and transmission system is commissioned, CTU may seek appropriate remedies such as grants and/or subsidies from GOI/ State Governments till the associated generating stations achieve COD. CTU may also approach the Commission for appropriate relief and directions.

61. CTU shall submit quarterly progress report as regards execution of the approved Transmission Scheme to the Ministry of Power, GOI and CEA. The report shall contain pace of construction of transmission systems and the extent of LTAs granted & the PPAs signed”

31. In line with the above-quoted extract from order dated 10.10.2019 in Petition No. 197/MP/2019, the Petitioner is directed to ensure that transmission system is taken up for implementation in phases, if required, matching with progress of RE generation projects/stations in consultation with MOP and MNRE. The recovery of transmission charges as well as treatment of mismatch between COD of generating station and transmission system shall be governed by provisions of the Central Electricity Regulatory Commission (Sharing of inter-State transmission charges and losses) Regulations, 2020 as amended from time to time. The Regulatory Approval granted in this order is subject



to the condition that the distribution companies and consumers shall be liable for payment of transmission charges after the renewable generating stations achieve COD. In case the generating stations as envisaged do not materialize and transmission system is commissioned, the Petitioner may seek appropriate remedies such as grants and/or subsidies from GOI/ State Governments till the associated generating stations achieve COD. The Petitioner may also approach the Commission for appropriate relief and directions.

32. The Petitioner shall submit quarterly progress report as regards execution of the approved transmission scheme to the Ministry of Power, GOI and CEA. The report shall contain pace of construction of transmission systems and the extent of LTAs granted and PPAs signed.

33. Petition No. 616/MP/2020 is disposed of in terms of the above.

sd/-
(P.K.Singh)
Member

sd/-
(Arun Goyal)
Member

sd/-
(I.S.Jha)
Member

sd/-
(P.K.Pujari)
Chairperson



The transmission systems which are subsisted through instant Petition which were approved vide order dated 10.10.2019 in Petition No. 197/MP/2019

A. Gujarat (5.5GW):

i) Bhuj-II (2GW) and Jamkhambaliya (1.5GW) – 3.5GW (Under Implementation)

1. Additional 1x500 MVA 400/220 kV (9th) ICT, for injection from any additional RE project (beyond 4000MW) at Bhuj PS:

| Sr. No | Scope of the Transmission Scheme | Capacity /ckm |
|--------|---|---|
| 1. | Additional 1x500MVA 400/220kV (9 th) ICT, for injection from any additional RE project (other than 4000MW injection under SECI bids up to Tranche IV) in existing Bhuj PS with associated 400 kV GIS bay and 220kV Hybrid/MTS bay | 1x500MVA, 400/220kV 400kV ICT bay-1 230kV ICT bay-1 |
| 2. | 1 number of 220kV line bays(hybrid/MTS) for termination of dedicated lines of RE developer with Stage-II connectivity | 220kV bay-1 |

2. Western Region Strengthening Scheme-21 (WRSS-21) Part A - Transmission System strengthening for relieving over loadings observed in Gujarat Intra-state system due to RE injections in Bhuj PS:

| Sr. No | Scope of the Transmission Scheme | Capacity /km |
|--------|--|--|
| 1. | Establishment of 2x1500MVA, 765/400kV Lakadia PS with 765kV (1x330MVAR) &400kV (125 MVAR)bus reactor | 2x1500MVA, 765/400kV 400kV ICT bay-2 765kV ICT bay-2 400kV line bay-4 765kV line bay-2 1x330MVar, 765 kV, 1x125MVar, 420kV 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) (for both 1x330MVar bus reactor under Part A and 1x330MVar line reactor on Lakadia – Vadodara line under Part B) |
| 2. | LILO of Bhachau – EPGL 400kV D/c (triple) line at Lakadia PS | 10km |
| 3. | Conversion of existing 2x63MVAR line reactors at Bhachau end of Bhachau – | 400kV Reactor bay-2 |



| Sr. No | Scope of the Transmission Scheme | Capacity /km |
|--------|--|------------------|
| | EPGL 400kV D/c line to switchable line reactors | |
| 4. | Bhuj PS – Lakadia PS 765kV D/c line | 100km |
| 5. | 2 nos of 765kV bays at Bhuj PS for Bhuj PS – Lakadia PS 765kV D/c line | 765kV line bay-2 |

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

| Sr. No. | Scope of the Transmission Scheme | Capacity /km |
|---------|---|--|
| 1. | Lakadia – Vadodara 765kV D/c line | 350km |
| 2. | 330MVAR switchable line reactors at both ends of Lakadia – Vadodara 765kV D/c line | 330 MVAR line reactor-4 765kV Reactor bay-4 1x110 MVAR, 765 kV, 1 ph. switchable line Reactor (spare unit) At Vadodara end |
| 3. | 2 numbers of 765kV bays at both Vadodara and Lakadia S/Ss for Lakadia – Vadodara 765kV D/c line | 765kV line bay-4 |

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

| Sr. No. | Scope of the Transmission Scheme | Capacity / ckm |
|---------|---|---|
| 1 | Establishment of 2x1500MVA (765/400kV), 4x500MVA(400/220kV) Bhuj-II PS (GIS) with 765kV (1x330MVAR) and 400kV (125 MVAR) bus reactor | 2x1500MVA, 765/400kV, 4x500MVA (400/220kV) 400kV ICT bay-6 765kV ICT bay-2 220kV ICT bay- 4 765kV line bay-4 220kV line bay -7 1x330MVAR, 765kV, 1x125MVAR, 420kV 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) |
| 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 |
| 3 | 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 bay-2 1x80 MVAR, 765 kV, 1 ph switchable line Reactor (spare unit) at Bhuj II end |



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

| Sr. No. | Scope of the Transmission Scheme | Capacity /ckm |
|---------|---|--|
| 1. | Establishment of 4x500MVA, 400/220kV Jam Khambhaliya PS (GIS) | 4x500MVA, 400/220kV 400kV ICT bay-4 220kV ICT bay- 4 400kV line bay-1 220kV line bay-7 |
| 2. | 1 number 400kV bay for M/s Vaayu 1 number of 220kV bay for M/s Air power 6 numbers of 220kV bay for future developers | |
| 3. | 1x125MVA, 420kV Bus reactor at Jam Khabhaliya PS along with reactor bay | 1x125MVA, 420kV 400kV reactor Bay-1 |

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

| Sr. No. | Scope of the Transmission Scheme | Capacity /ckm |
|---------|---|----------------------------------|
| 1. | Extension of Essar–Lakadia/Bhachau 400kV D/c (triple) line upto Jam Khambhaliya PS | 40km |
| 2. | 2 numbers of 400kV line bays at Jam Khambhaliya PS for termination of of Jam Khambhaliya PS-Lakadia 400kV D/c (triple) line | 400kV line bay-2 |
| 3. | 63MVA switchable Line Reactor at both ends of Lakadia - Jam Khambhaliya 400kV D/c line | 4x 63 MVA 400kV reactor bay-4 |

7. Transmission system associated with RE generations at Bhuj –II, Dwarka & Lakadia:

| Sr. No. | Scope of the Transmission Scheme | Capacity /km |
|---------|--|--|
| 1. | Lakadia PS – Banaskantha PS 765kV D/c line | 200km |
| 2. | 765kV Bays at Lakadia and Banaskantha for Lakadia PS – Banaskantha PS 765kV D/c line | 4 number 765kV bays |
| 3. | 240MVA switchable Line reactor atBanaskantha end of Lakadia PS – Banaskantha PS 765kV D/c line | 2x240 MVAR 765kV reactor bay-2 1x80 MVAR, 765 kV, 1 ph switchable line Reactor (spare unit) at Banaskantha end |

ii) On hold / deferred (2GW) (Lakadia)

1. Transmission System for providing connectivity to RE projects in Gujarat [Lakadia (2000MW)]:

| Sr. No. | Scope of the Transmission Scheme | Capacity /ckm |
|---------|---|--|
| 1. | Establishment of 4x500MVA, 400/220kV ICTs at Lakadia (GIS) PS | 4x500MVA, 400/220kV ICTs, 400kV ICT bay-4 220kV ICT bay-4 220kV line bays–7 |



B. Maharashtra (7GW):

1. 400 kV line bay at Solapur PS for St-II connectivity to M/s Toramba Renewable Energy Pvt. Ltd. (1000 MW WEZ):

| Sr. No. | Scope of the Transmission Scheme | Capacity/km |
|---------|--|------------------|
| 1. | 1 number of 400k V bay at Solapur (PG) for St-II connectivity to M/s Toramba | 400kV line bay-1 |

2. Transmission system for evacuation of power from RE projects in wind energy zones in Osmanabad area of Maharashtra (1000 MW):

| Sr. No. | Scope of the Transmission Scheme | Capacity/km |
|---------|---|---|
| 1. | Establishment of 2x500MVA, 400/220kV near Kallam PS Future Provisions: Space for 400/220 kV ICTs along with bays: 4 numbers 400 kV line bays: 6 numbers 220kV line bays: 7 numbers 400 kV bus reactor along with bays: 1 number | 2x500MVA, 400/220kV 400kV ICT bay-2 220kV ICT bay-2 400kV line bay-4 220kV line bay-4 |
| 2. | 1x125MVAr bus reactor at Kallam PS | 1x125 MV Ar 400kV reactor bay-1 |
| 3. | LILO of both circuits of Parli(PG) – Pune (GIS) 400kV D/c line at Kallam PS | 10km |
| 4. | Provision of new 50MVAr switchable line reactor at Kallam PS end of Kallam - Pune(GIS) 400kV D/c line* | 2x50 MV Ar 400kV Reactor bay-2 |

* Conversion of 50MVAr fixed Line Reactors on each ckt of Parli (PG) - Pune (GIS) 400kV D/c line at Parli (PG) end into switchable line reactors at an estimated cost of Rs.19 crore has been recommended for implementation under RTM route by 4th NCT on 31.7.19.

3. Transmission system for evacuation of power from RE projects in Sholapur SEZ Solapur SEZ (1500MW):

| Sr. No. | Scope of the Transmission Scheme | Capacity/km |
|---------|---|--|
| 1. | Establishment of 400/220kV, 3x500MVA at Solapur PP (near Mohol) Future Provisions: Space for 400/220 kV ICTs along with bay: 3 numbers 400 kV line bay: 6 numbers 220 kV line bay: 5 numbers 400 kV bus reactor along with bay: 1 number | 500MVA, 400/220kV ICT-3 400kV ICT bay-3 220kV ICT bay-3 400kV line bay-2 220 kV line bay-5 |



| | | |
|----|---|---|
| 2. | Solapur pooling point - Solapur(PG) 400kV D/c line (twin HTLS) (with minimum capacity of 2100 MVA/ckt at nominal voltage) | 50km |
| 3. | 2 numbers of 400kV bays at Solapur PG for Solapur pooling point - Solapur (PG) 400 kV D/c line | 400kV line bay-2 |
| 4. | 1x125 MVAR, 420kV Bus Reactor at Solapur PP | 1x125 MVAR, 420kV bus reactor 420kV reactor bay |

4. Transmission system for evacuation of power from RE projects in Wardha (2500 MW) SEZ in Maharashtra:

| Sr. No. | Scope of the Transmission Scheme | Capacity /km |
|---------|--|---|
| 1. | Establishment of 400/220 kV, 5X500 MVA at Wardha SEZ PP with 400kV (125 MVAR) bus reactor Future provisions: Space for 400/220 kV ICTs along with bays: 3 numbers reactor Future provisions: Space for 400/220 kV ICTs along with bays: 3 numbers 400kV line bays: 6 numbers 220kV line bays : 6 numbers 400kV bus reactor along with bay: 1 number | 400/220 kV, 500 MVA ICT-5 400 kV ICT bay-5 220 kV ICT bay-5 400 kV line bay-4 220 kV line bay-9 125 MVAR, 420 kV reactor 420 kV reactor bay-1 |
| 2. | LILO of Wardha - Warora Pool 400 kV D/c (Quad) line at Wardha SEZPP | Length - 85 |



Regulatory approval for new transmission systems under instant Petition**A. Gujarat (Khavda – 3GW): Transmission scheme for evacuation of 3 GW RE injection at Khavda P.S. under Phase-I:**

| Sr. No. | Scope of the Transmission Scheme | Capacity / line length km |
|---------|--|--|
| 1. | Establishment of 3X1500 MVA 765/400 kV Khavda (GIS) with 1X330 MVAR 765 kV bus reactor and 1X125 MVAR 420 kV bus reactor. | 765/400 kV, 1500 MVA ICT-3 765 kV ICT bay-3 400 kV ICT bay-3 330 MVAR 765 kV busreactor-1 125 MVAR 420 kV busreactor-1 765 kV reactor bay-1 765 kV line bay-1 400 kV reactor bay-1 400 kV line bay-3 500 MVA, 765/400 kV Spare ICT-1 110 MVAR, 765 kV, 1-ph reactor (spare unit)-1 |
| 2. | Khavda PS(GIS) – Bhuj PS 765 kV D/c line | 60 |
| 3. | 2 numbers of line bays each at Bhuj PS for termination of Khavda PS(GIS) – Bhuj PS 765 kV D/c line. | 765 kV AIS line bay–2 |
| 4. | Creation of 400/220 kV, 2X500 MVA transformation capacity at Khavda (GIS) P.S <i>(implementation to be taken as per connectivity/LTA granted at 220 kV level)</i> | 400/220 kV, 500 MVA ICT-2 400 kV ICT bay-2 220 kV ICT bay-2 220 kV Line bay- 4 (for termination of RE generators seeking connectivity at 220 kV level) |

B. Madhya Pradesh (4GW)**i) Chhatarpur (1.5GW)**

| Sr. No. | Scope of the Transmission Scheme | Capacity / line length km |
|---------|--|--|
| 1. | Establishment of 3x500MVA, 400/220kV Pooling Station at Chhatarpur (Bijawar) with 420kV (125 MVAR) bus reactor | 400/220kV ICTs – 3 400 kV ICT bay–3 220 kV ICT bay–3 400 kV line bay–4 220 kV line bay–5 125 MVAr, 420 kV reactor-1 420 kV reactor bay–1 |
| 2. | LILO of Satna - Bina 400kV (1st) D/c line at Chhatarpur PS (Bijawar) | 60 km |



ii) **Rajgarh (2.5GW)**

1. Transmission system for evacuation of power from RE projects in Rajgarh (1500 MW) SEZ in Madhya Pradesh, Phase-I:

| Sr. No. | Scope of the Transmission Scheme | Capacity /km |
|---------|---|---|
| 1. | Establishment of 400/220 kV, 3x500 MVA at Pachora SEZ PP with 420 kV (125 MVAR) bus reactor | 400/220 kV, 500 MVA ICT – 3 400 kV ICT bay–3 220 kV ICT bay–3 400 kV line bay–2 220 kV line bay–6 (4 numbers for Agar & Shajapur solar park interconnection & 2 numbers for other RE projects) 125 MVAR, 420 kV reactor-1 420 kV reactor bay–1 |
| 2. | Pachora SEZ PP - Bhopal (Sterlite) 400kV D/c line (Quad/HTLS) (with minimum capacity of 2100 MVA/ckt at nominal voltage) along with 80 MVAR switchable line reactors on each circuit at Pachora end | Length–160 km Switchable line Reactors (at Pachora end) – 420 kV, 2x80MVAR Line reactor bays (at Pachora) – 2 numbers |
| 3, | 2 numbers of 400 kV line bays at Bhopal (Sterlite) for Pachora SEZ PP - Bhopal (Sterlite) 400 kV D/c line (Quad/HTLS) (with minimum capacity of 2100 MVA/ckt at nominal voltage) | 400 kV line bay–2 |

2. Transmission system for evacuation of power from RE projects in Rajgarh (1000 MW) SEZ in Madhya Pradesh, Phase-II:

| Sr. No. | Scope of the Transmission Scheme | Capacity /km |
|---------|---|---|
| 1. | 400/220 kV, 2x500 MVA ICT augmentation at Pachora PS | 400/220 kV, 500 MVA ICT–2 400 kV ICT bay–2 220 kV ICT bay–2 400 kV line bay–2 220 kV line bay–4 (to be taken up as per Connectivity/LTA applications received) |
| 2. | Pachora – Shujalpur 400kV D/c line (Quad/ HTLS) (with minimum capacity of 2100 MVA/ckt at nominal voltage) | Length– 80 km |
| 3. | 2 numbers of 400 kV line bays at Shujalpur for Pachora – Shujalpur 400kV D/c line (Quad/ HTLS) (with minimum capacity of 2100 MVA/ckt at nominal voltage) | 400 kV line bay–2 |

