



भारत सरकार / Government of India  
विद्युत मंत्रालय / Ministry of Power  
केन्द्रीय विद्युत प्राधिकरण / Central Electricity Authority  
विद्युत प्रणाली योजना एवं परियोजना मूल्यांकन प्रभाग - I  
Power System Planning & Project Appraisal Divi:  
सेवा भवन, आर.के.पुरम, नई दिल्ली - 110066  
Sewa Bhawan, R. K. Puram, New Delhi-110066



[ISO: 9001:2008]

No. 100/1/EC (36) 2016-PSP&PA-I/

Dated: 15<sup>th</sup> July, 2016

To

1. Member (Economic & Commercial),  
Central Electricity Authority  
Sewa Bhawan, R.K. Puram,  
New Delhi – 110 066.
2. Joint Secretary (Transmission)  
Ministry of Power  
Shram Shakti Bhawan  
New Delhi-110001
3. Adviser (Energy),  
NITI Ayog,  
Parliament Street,  
New Delhi – 110 001.
4. Director (Projects),  
Power Grid  
Saudamini,  
Plot No. 2, Sector-29,  
Gurgaon – 122 001.
5. Shri V. V. R. K. Rao  
Former Chairperson, CEA  
B-9/C, DDA Flats, Maya Puri,  
New Delhi -110 064.
6. Shri Ravinder  
Former Member (Power System), CEA  
147, Bhagirathi Apartment,  
Sector-9, Rohini, Delhi – 110 085.

**Subject: 36<sup>th</sup> Meeting of the Empowered Committee on Transmission – Agenda of the meeting regarding.**

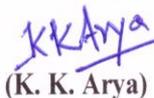
Sir,

The 36<sup>th</sup> meeting of the Empowered Committee on Transmission is proposed to be held on **26<sup>th</sup> July, 2016 (Tuesday) at 3:30 PM** under the chairmanship of Shri S.D.Dubey, Chairperson & Member (Power System), CEA in the Conference Room of CEA, 2<sup>nd</sup> Floor, Sewa Bhawan, R.K. Puram, New Delhi.

The agenda of the meeting is attached herewith. The same is also available at <http://cea.nic.in/reports/committee/empowered/agenda/36.pdf>

Kindly make it convenient to attend the meeting.

Yours faithfully,

  
(K. K. Arya)

Chief Engineer &  
Member Secretary (Empowered Committee)

**Copy to:**

- (i) COO (CTU), POWERGRID, 'Saudamini', Plot No.2, Sector – 29, Gurgaon – 122 001 (Haryana)
- (ii) CEO, RECTPCL, 12-21, Upper Ground Floor, Antriksh Bhawan, 22, KG Marg, New Delhi – 110 001.
- (iii) CEO, PFC Consulting Ltd, First Floor, Urjanidhi, 1 Barakhmba Lane, New Delhi - 110001 (Fax- 011-2345617)

## Agenda note for the 36th meeting of the Empowered Committee on Transmission

Date and Time: 26<sup>th</sup> July, 2016 at 3:30 PM

Venue: Conference Room of CEA, 2<sup>nd</sup> Floor, Sewa Bhawan, R.K. Puram, New Delhi

---

### 1.0 Confirmation of the minutes of 35<sup>th</sup> meeting of Empowered Committee

The minutes of 35<sup>th</sup> meeting of Empowered Committee on Transmission held on 14<sup>th</sup> September, 2015 were issued vide letter No. 100/ 1 / EC (35) /2015 –PSP&PA-I dated 24<sup>th</sup> September, 2015. An Addendum to the minutes was issued vide letter No. 100/ 1 / EC (35) /2015 –PSP&PA-I dated 27<sup>th</sup> October, 2015. A corrigendum to the minutes was also issued vide letter No. 100/ 1 / EC (35) /2015 –PSP&PA-I/363-368 dated 6<sup>th</sup> November, 2015.

Members may confirm please.

### 2.0 Implementing of the transmission schemes after approval by 35<sup>th</sup> Empowered Committee on Transmission (EC):

The following transmission schemes approved in the 35<sup>th</sup> meeting of EC for implementation under TBCB has been notified vide Gazette notification dated 17<sup>th</sup> November, 2015:

| Sl. No. | Name of the schemes  | Name of the BPCs |
|---------|--|------------------|
| 1.      | Transmission System Strengthening in WR associated with Khargone TPP (1320 MW)   | RECTPCL          |
| 2.      | 765 kV System Strengthening Scheme in Eastern Region (ERSS-XVIII)  | PFCCCL           |
| 3.      | A. Immediate evacuation for North Karanpura (3x660MW) generation project of NTPC<br>B. Creation of 400/220 kV sub-station at Dhanbad -Proposal of JUSNL (ERSS-XIX) | RECTPCL          |
| 4.      | A. North Eastern Region Strengthening Scheme – V (NERSS-V)<br>B. North Eastern Region Strengthening Scheme – II (NERSS-II) Part B                                  | RECTPCL          |
| 5.      | North Eastern Region Strengthening Scheme (NERSS)-VI   | PFCCCL           |
| 6.      | Transmission System for Phase- I generation projects in Arunachal Pradesh  | RECTPCL          |

The schemes approved in the 35<sup>th</sup> meeting of EC to be implemented *under Regulated Tariff mechanism* are given at **Annexure-I**.

### 3.0 Recommendations of the Committee for revision of Standard Bidding Documents for procurement of transmission services under Tariff Based Competitive Bidding (TBCB)

Ministry of Power vide Office Memorandum No.15/1/2010-Trans dated 31st August, 2015 has constituted a Committee under the Chairmanship of Member(E&C), CEA to discuss, deliberate and finalise changes required in the Standard Bidding Document for procurement of Transmission Services under Tariff Based Competitive Bidding (TBCB).

The Committee after rounds of meetings has finalised the SBD for procurement of Inter-State transmission services and submitted its recommendations to the Ministry of Power vide letter dated 8th April, 2016. The summary of proposed changes and recommendations of the Committee are enlisted below:

- a) E- reverse bidding has been introduced as this is expected to lead to better price discovery and increased participation.
- b) Respective Bid Process Coordinator (BPC) notified for each project shall act as counterparty for signing the transmission service agreement for TBCB projects (now shall be termed as Implementation and Service Agreement) till such time the CTU is separated from PGCIL. All the projects for which the BPC shall be acting as counter-party signing the transmission service agreement for TBCB projects will be transferred to the CTU when it is separated from PGCIL.
- c) It is proposed that the ISA shall be signed on the date of transfer of SPV between the counterparty and the TSP.
- d) The project, including all the project elements, shall compulsorily be transferred to an agency, nominated by the Central Government, after the initial 35-year period at zero value and free from any encumbrances and liability. The CEA and the CTU will examine the need of upgradation of the system or renovation and modernization of the existing system after completion of 32 years of operation of the transmission project. The project shall then be awarded to a successor bidder, selected through a competitive bidding process for operation and maintenance thereafter including any renovation or/and modernization that may be required.
- e) Any developer with experience in the areas included in definition of core sector should be eligible to participate in the TBCB bid process subject to meeting the prescribed technical and financial criteria. The proposed definition of “core sector” would include, power, coal mining, telecom, ports, airports, railways, metro rail, highways and bridges, industrial parks/ estates, logistic parks, pipelines, irrigation, water supply, sewerage and real estate development.
- f) EPC contractors having construction experience in Core Sector have been allowed to fulfil the **technical qualification requirement** by using their construction experience.
- g) Net worth of the last completed financial year should be higher than the threshold limit rather than any of the last three preceding financial years.

- h) Bid Bond, Contract Performance Guarantee and Liquidated damages for non-fulfilment of conditions subsequent made in line with industry practices.
- i) Equity lock in period of SPV reduced to minimum 51% up to a period of (2) two years after COD of the Project.
- j) Debarring clause to be introduced.
- k) Each element of the transmission system shall achieve COD individually as per COD schedule provided in the RFP and the period of each element would expire individually on occurrence of 35 years from COD of the same element. However, for the purpose of evaluation, the levelised tariff shall be worked out from the schedule COD of the entire project.
- l) Preponing of COD of any element prior to scheduled COD must be certified by CEA / respective RPCs to ensure that the system can be put to use from such preponed COD.
- m) Any increase / decrease in the overall capital cost of the Project due to the change in the location of the interconnection points of the Project which is not within a radius of 5km from the coordinates specified in RFP, due to reasons attributable to Parties other than the TSP during the Construction Period, shall be compensated (or recovered) as per decision of the CERC.
- n) Recommendation of Committee for suitable amendments in the Electricity Act 2003 so that transmission license can be granted for a period of 35 years.
- o) Intermediate milestones during construction period introduced for better control during construction to ensure timely completion of the project.

#### **4.0 Reimbursement Expenditure incurred by PFCCCL as BPC for Northern Region System Strengthening Scheme – XXXV Independent Transmission Project “Northern Region System Strengthening Scheme XXXV through TBCB**

The scheme Northern Region System Strengthening Scheme – XXXV consisting of Mohindergarh – Bhiwani 400 kV D/C line with twin moose conductor (55km) has been de-notified as per the decision taken in the 35th meeting of EC held on 14th September, 2015 and decided to be implemented by CTU under compressed time schedule through regulated tariff mechanism.

Subsequently, Ministry of Power vide its letter No 15/9/2013-Trans dated September 30, 2015 de-notified the scheme “Northern Region System Strengthening Scheme – XXXV”.

Powergrid vide their letter TBCB/NRSSXXXV?RFP/03 dated 13.4.2016 has requested PFCCCL to refund the document fees towards purchase of Request for Proposal (RFP) document for selection of Transmission Service Provider for the above scheme stating that the de-notification of the project from TBCB is not attributable to them and bidders can not be penalized in such circumstances and the amount of Rs. 10,00,000/- should be refunded to them.

On the other hand, PFCCCL vide their letter 03/ITP/16-17/MBTL/RfP dated 29.2..2016 and 25.4.2016 had requested PGCIL to reimburse the expenditure of Rs 56,35,027/- (Rupees Fifty Six Lakhs Thirty Five Thousand and Twenty Seven only) incurred

towards the Bid process as the above project is being implemented by PGCIL under compressed time schedule through regulated tariff mechanism.

Members may like to deliberate.

#### **5.0 De-notification of the Scheme Northern Region System Strengthening Scheme – XXXIII**

This scheme was notified for implementation through TBCB route vide MoP Gazette notification dated 20.05.2013 by PFC Consulting Limited (PFCCL) as the Bid Process Coordinator (BPC). The scheme comprises of the following;

| Transmission Scheme   | Length (km) | Estimated Cost (Rs. Cr.) |
|---|-------------|--------------------------|
| a) Ballabgarh-Greater Noida (New) 400 kV D/C line 5 km on multi circuit towers from Ballabgarh S/s. | 50+5<br>M/c | 100                      |
| b) Establishment of 2x500 MVA, 400/220 kV GIS Substation at Greater Noida (New)                     |             | 160                      |
| Estimated cost ( Rs crores )  |             | 260                      |

This transmission project was kept in abeyance as there was a dispute of PPA between Essar Power (Jharkhand) Ltd (EPJL) and Noida Power Company Ltd (NPCL) for which the system strengthening scheme was agreed in the Standing Committee.

The project was discussed in 37th SCPS of NR held on 20.1.2016, wherein, it was decided that the transmission scheme NRSS-XXXIII comprising of establishment of 400/220 kV Greater Noida ISTS substation along with Ballabgarh – Greater Noida 400 kV D/c line may be dropped.

In view of above, it is proposed that the scheme may be de-notified in the Gazette.

Further, it may be mentioned that PFCCL vide its letter dated April 25, 2016 has informed CEA that an expenditure of **Rs 62.34 Lakhs** has been incurred towards the bidding process for the ITP '**Northern Region System Strengthening Scheme – XXXIII**'. Further, PFCCL also informed that the Government Auditor have raised queries regarding the recovery of expenditure incurred towards the bidding process. PFCCL requested CEA to kindly confirm about the closure of the project and its de-notification in the Gazette and recovery of expenditure incurred in the bidding process.

**Members may like to deliberate.**

#### **6.0 De-notification of transmission projects from tariff based competitive bidding process**

Ministry of Power, GoI vide its notification no. 15/1/2011-Trans dated 16th March, 2011 has notified REC Transmission Projects Company Limited (RECTPCL) as Bid Process Coordinator for selection of developer for following transmission projects:

1. Transmission System associated with IPPs of Vemagiri Area: Package – A,
2. Transmission System associated with IPPs of Vemagiri Area: Package – B
3. Transmission System associated with IPPs of Vemagiri Area: Package – C

The bidding process for the transmission project at Sr. No. 1 above had been concluded successfully and the process for the projects at Sr. No. 2 & 3 was kept on hold since Jan, 2012 based on the instructions issued by CEA/CTU in this regard.

Recently, CERC in its order dated 06.04.2015 in respect of Transmission System associated with IPPs of Vemagiri Area: Package – A has stated that, *Vemagiri-Khammam-Hyderabad 765 kV D/C lines is neither required as an evacuation line nor as a system strengthening line, no useful purpose will be served by adopting the transmission charges and granting license to the petitioner for the said transmission line.* The packages as at Sr. No. 2 & 3 above were linked to the Transmission System associated with IPPs of Vemagiri Area: Package – A.

In view of the above, it is requested that the transmission projects, already allocated to RECTPCL, as mentioned at Sr. No. 2 & 3 above may be examined & decision in this regard may be taken at the earliest.

Moreover, it is to bring to the kind notice that the expenses incurred on projects as mentioned at Sr. No. 2 & 3 are appearing in the books of accounts of REC Transmission Projects Company Limited since then and both statutory and CAG auditors are insisting to write off the expenses from the books. Even the office of CAG has written a letter to write off such expenses from RECTPCL books.

Members may like to deliberate.

#### **7.0 Difficulties faced by Bid Process Coordinators in signing of Transmission Service Agreement (TSA) under tariff based competitive bidding process:**

Both the BPCs informed that they are facing lot of problems in getting the TSA signed by the identified Long Term Transmission Customers (LTTCs) of the project. Major problems faced are as follows:

1. In few cases, the LTA has been not been signed between CTU and the LTTCs and the transmission scheme has been approved. Due to non-signing of the LTA between CTU & LTTCs, the LTTCs are not willing to sign the TSA.
2. In some cases, the LTA has been signed between CTU & LTTCs for more quantum than the PPA entered between Generator & LTTCs. This mismatch in quantum is also causing significant delay in signing of the TSA by the LTTCs.

Due to above referred issues, BPCs are facing extreme difficulties in signing of Transmission Service Agreement by the LTTCs and in turn is delaying the tariff based competitive bidding project. In some cases, the TSA was signed after approx. 4 months after completion of bidding process.

Members may like to deliberate

**8.0 Delay in transfer of SPV due to Non signing of TSA by the LTTCs namely (i) Punjab State Power Corporation Ltd (PSPCL) (ii) Tata Power Delhi Distribution Ltd. (iii) BSES Rajdhani Power Ltd. for the project “ATS for Tanda Expansion TPS (2X660) MW”**

Ministry of Power vide Gazette Notification dated May 20, 2013 appointed PFC Consulting Limited as the Bid Process Coordinator (BPC) for Independent Transmission Projects ATS for Tanda Expansion TPS (2x660) MW to be developed through Tariff Based Competitive Bidding.

CTU (Powergrid) vide letter dated January 01,2015 intimated that list of beneficiaries for the subject transmission schemes for which PPA has been signed and the same has been included in the TSA.

The bid process for the transmission scheme has been completed and the Letter of Intent (LoI) has been issued to the Successful Bidder “Essel Infraprojects Limited”, on October 09, 2015. Out of 11 LTTCs, 8 LTTCs has executed the TSA except for three LTTCs. The SPV could not be transferred due to non-signing of TSA by the LTTCs viz. (i) Punjab State Power Corporation Ltd (PSPCL) (ii)Tata Power Delhi Distribution Ltd and (iii) BSES Rajdhani Power Ltd.,

The LTTC, TPDDL stated that their management has advised not to sign the TSA for the said transmission scheme as they have challenged the signed PPA with NTPC Ltd. for purchase of power from Tanda TPS in CERC. In their opinion, signing the TSA would weaken their case in CERC, as the subject transmission scheme is meant for evacuation of power of Tanda Expansion Project.

The LTTC, PSPCL vide its letter dated 22.03.2016 had requested NTPC to divert/re-allocate its share from Tanda TPS stage II from MoP to other bulk power customer. In response to PSPCL, NTPC vide its letter dated 10.05.2016 has clarified to PSPCL that till the power from Tanda stage II is re-allocated by GOI, the capacity remain available to PSPCL for its use and charges, if any, in terms of applicable provisions of CERC & PPA and requested PSPCL to sign the TSA.

The issues of non-signing of TSA by these three LTTCs has also been raised by PFCCCL in various meetings/discussions with MoP/CEA.

The issues of non-signing of TSA by these three LTTCs has been pending for a long time. This is delaying transfer of SPV to successful bidder of Tanda ATS. The schedule CoD of the project is January 2019. Any delay in transfer of SPV to the successful bidder will delay in the execution of the project.

**9.0 Difficulties faced by Bid Process Coordinators due to inclusion of construction of line bays in the scope of TBCB process:**

During the last EC meeting, both the BPCs informed that they are facing lot of problems, due to inclusion of construction of line bays in the Sub-stations where CTU is not the owner. After deliberations, it was decided that Member (PS), CEA would hold a meeting with the CTU and BPCs to further devise modalities in this respect.

Accordingly, a meeting among officials of CEA, CTU & BPCs were held under Chairmanship of Member (PS), CEA and the matter was deliberated. After detailed deliberations and in order to avoid any conflict during construction, the committee

decided that the owners of the sub-stations/ switchyards (viz. State Transmission Utilities, NTPC, etc.) would provide the necessary space for the bays in their respective sub-stations/ switchyards and the execution of the bay extension works would be entrusted under the scope of successful bidder.

Members may deliberate.

#### **10.0 (A) Implementation of transmission line and associated sub-station works by single agency.**

As per present practice, line bays & reactors for TBCB line at POWERGRID substation are being implemented by POWERGRID, whereas the same at non POWERGRID locations are being implemented through TBCB route. POWERGRID is trying its best to match its schedule with completion schedule of associated TBCB elements; however, exact matching may not be always possible due to various factors. In few cases, POWERGRID implemented the associated line bays as per given time schedule; however, the TBCB line was delayed and Hon'ble CERC shifted the DOCO of POWERGRID's assets till commissioning of the associated line.

Further, transmission licensees are allowed to commission their assets before scheduled date of commissioning and their tariff can be claimed from that date. Under such circumstances, it is even more difficult to ensure matching of commissioning schedule of different transmission elements by multiple implementing agencies.

#### **(B) Implementation of bays of other agencies at a new sub-station**

Under certain situations, immediate evacuation system of a generation project is implemented by the generation developer. In such cases, bays for termination of immediate evacuation line at a new sub-station are to be executed by the generation developer whereas the new sub-station along with other transmission lines is implemented through TBCB route. Under such circumstances, the generation developer has no option but to wait for finalization of the TBCB process and then to request the successful bidder to execute generation developer's bays at the new sub-station on deposit work basis. The situation gets more complicated if the sub-station involves GIS. Dinchang GIS Pooling Station is to be implemented through TBCB route (under Transmission System for Ph-1 Generation Project in Arunachal Pradesh) whereas, construction of 2 no. 220kV GIS bays at Dichang S/s for termination of dedicated line from Dirang HEP is under the scope of Dirang Energy Pvt. Ltd. The generation developer has proposed that its 2 nos. 220 kV GIS bays may be included in the RfP document and they shall bear the price of the same.

**Member may deliberate.**

#### **11.0 Briefing by BPCs on the schemes under bidding process**

Progress of Transmission Projects Awarded Through Tariff Based Competitive Bidding Route to RECTPCL and PFCCL is given at **Annexure-II(A) and II(B)**.

RECTPCL and PFCCL may brief the Empowered Committee about progress of schemes that are under bidding process.

**Members may like to note.**

## 12.0 New transmission schemes to be taken up through Tariff Based Competitive Bidding (TBCB)

### (1) Name of the Scheme: New WR- NR 765 kV Inter-regional corridor

The transmission scheme has been approved in the 38<sup>th</sup> Standing Committee on Power System Planning of Northern Region held on 30<sup>th</sup> May, 2016 and 40<sup>th</sup> Standing Committee Meeting on Power System Planning in WR held on 01.06.2016. The scope of the transmission scheme is as under:

| Scope of the Transmission Scheme   | Capacity (MVA/km) | Estimated Cost (Rs. Crore) |
|--|-------------------|----------------------------|
| (i) 765 kV Vindhyachal Pooling Station – Varanasi D/C line   | 225               | 916                        |
| (ii) 765kV, 1x330MVA line reactor at Varanasi (GIS) end on each circuit of Vindhyachal Pooling Station – Varanasi (GIS) 765kV D/c line |                   | 45                         |
| (iii) 2 nos of 765kV line bays at Vindhyachal Pooling substation (for Vindhyachal PS – Varanasi 765kV D/c line)                        |                   | 39                         |
| (iv) 2 nos of 765kV line GIS bays at Varanasi 765/400kV S/s (for Vindhyachal PS – Varanasi 765kV D/c line)                             |                   | 50                         |
| <b>Total</b>   |                   | <b>1050</b>                |

Note:

- The line lengths mentioned above are approximate as the exact length shall be obtained after the detailed survey.
- POWERGRID to provide space for construction of 2 nos. of 765kV Line Bays at Vindhyachal 765/400 kV Pooling Station and space for construction of 2 nos. of 765kV Line Bays along with line reactor at Varanasi 765/400 kV GIS sub-station

**Members may like to deliberate on the implementation of the scheme through TBCB route.**

### (2) Name of the Scheme: Transmission system for Ultra Mega Solar Park in Fatehgarh, distt. Jaisalmer Rajasthan

The transmission scheme has been approved in the 38<sup>th</sup> Standing Committee on Power System Planning of Northern Region held on 30<sup>th</sup> May, 2016. The scope of the transmission scheme is as under:

| <b>Scope of the Transmission Scheme</b>  | <b>Capacity (MVA/ ckt. km)</b> | <b>Estimated Cost (Rs. Crore)</b> |
|--|--------------------------------|-----------------------------------|
| (i) Establishment of 400kV Pooling Station at Fatehgarh (with a provision to upgrade at 765kV level) |                                | <b>84</b>                         |
| (ii) 765 kV Fatehgarh Pooling sub-station - Bhadla (PG) D/C line (initially to be operated at 400kV) | 110                            | <b>424</b>                        |
| (iii) 2 nos of 400kV line bays at Fatehgarh Pooling substation                                       |                                | <b>20</b>                         |
| (iv) 1x125 MVAR Bus reactor at 400kV Fatehgarh Pooling sub-station                                   |                                | <b>18</b>                         |
| (v) 2 nos of 400kV line bays at Bhadla (PG)  |                                | <b>20</b>                         |
| (vi) Space for future 400kV and 765kV bays at Fatehgarh Pooling Station                              |                                |                                   |
| <b>Total Estimated Cost (Rs. Crore)</b>  |                                | <b>566</b>                        |

Note:

- a. The line lengths mentioned above are approximate as the exact length shall be obtained after the detailed survey.
- b. Park Developer to construct 400 kV line from M/s AREPL solar park along with 1x125 MVAR bus reactor at generation switchyard.
- c. Powergrid to provide space for two nos. of bays at Bhadla PS
- d. The solar park developer (M/s AREPL) would provide adequate land for 765/400 kV Pooling sub-station adjacent to the proposed solar park for which transmission licensee shall coordinate with M/s AREPL
- e. It is proposed that 2 nos. of 400kV line bays at Fatehgarh Pooling from the proposed AREPL solar park to 400kV Fatehgarh Pooling station may be provided by solar park developer(M/s AREPL)

**Members may like to deliberate on the implementation of the scheme through TBCB route.**

**(3) Name of the Scheme: Additional 400kV feed to Goa**

Following Transmission system strengthening was agreed in the 39<sup>th</sup> and 40<sup>th</sup> Standing Committee Meeting on Power System Planning in WR held on 30.11.2015 and 01.06.2016 respectively for providing second 400kV feed to Goa:

| Sl. No   | Scope of the Transmission Scheme  | Capacity (MVA/KM) | Estimated Cost (Rs. Crore) |
|----------|---|-------------------|----------------------------|
| <b>A</b> | <b>Additional 400kV Feed to Goa</b>   |                   |                            |
|          | (i) LILO of one ckt. of Narendra (existing) – Narendra (New) 400kV D/c quad line at Xeldem  | 120               | 286                        |
|          | (ii) Xeldem – Mapusa 400kV D/c (quad) line  | 40                | 84                         |
|          | (iii) Establishment of 2x500MVA, 400/220kV substation at Xeldem   |                   |                            |
|          | <u>400kV</u>  | 1000 MVA          | 224                        |
|          | <ul style="list-style-type: none"> <li>• ICTs : 2x500MVA, 400/220kV</li> <li>• ICT bays: 2 nos</li> <li>• Line bays: 4 nos (2no. for Xeldem – Mapusa 400kV D/c (quad) line &amp; 2 nos for LILO of one ckt of Narendra (existing) – Narendra (New) 400kV D/c quad line at Xeldem)</li> <li>• Bus Reactor: 1x125MVAR</li> <li>• Bus Reactor Bay: 1 no</li> <li>• Space for 2x500MVA, 400/220kV ICTs (future)</li> <li>• Space for ICT bays (future): 2 nos</li> <li>• Space for Line bays along with Line Reactors (future): 4 nos</li> <li>• 1x63MVAR switchable line reactor along with 500 Ohms NGR and its auxiliaries (for Narendra (existing) – Xeldem 400kV line formed after LILO of one ckt of Narendra (existing) – Narendra (New) 400kV D/c quad line at Xeldem)</li> <li>• 1x80MVAR switchable line reactor along with 500 Ohms NGR and its auxiliaries (for Narendra (New) –Xeldem 400kV (quad) line formed after LILO of one ckt of Narendra (existing) – Narendra (New) 400kV D/c quad line at Xeldem)</li> </ul> |                   |                            |
|          | <u>220kV</u>  |                   |                            |
|          | <ul style="list-style-type: none"> <li>• 220kV Bus Extension of Xeldem (existing) substation</li> <li>• ICT bays: 2 nos</li> <li>• Line bays: 6 nos</li> <li>• Space for ICT bays (future): 2 nos</li> <li>• Space for Line bays (future): 6 nos</li> </ul>   |                   |                            |
|          | (iv) 2 nos of 400kV line bays at Mapusa s/s (for Xeldem – Mapusa 400kV D/c (quad) line)   |                   | 20                         |
|          | <b>Total(in crore)</b>  |                   | <b>614</b>                 |

Note:

- a. *The line lengths mentioned above are approximate as the exact length shall be obtained after the detailed survey.*
- b. *Narendra (existing) – Narendra (New) 400kV D/c (quad) line: 178KM is without Line Reactor at both ends. After LILO of this line at Xeldem S/s (considering LILO length as 120KM), the length of modified sections i.e. Narendra (existing) - Xeldem 400kV (quad) line: 120KM (approx.) and Narendra (New) – Xeldem 400kV (quad) line: 298KM (approx.)*
- c. *It is understood that land for 400/220kV Xeldem S/s is available (adjacent to 220 kV Xeldem sub-station of GED) with GED. The same may be provided by GED to the Bidder at cost.*

**Members may like to deliberate on the implementation of the scheme through TBCB route.**

**(4) Name of the Scheme: Connectivity System for Lanco Vidarbha Thermal Power Pvt. Ltd. (LVTPPL)**

Following Transmission scheme was agreed in the 40<sup>th</sup> Standing Committee Meeting on Power System Planning in WR held on 01.06.2016 for Lanco Vidarbha Thermal Power Pvt. Ltd..

| <b>Sl. No</b> | <b>Scope of the Transmission Scheme</b>   | <b>Capacity (MVA/KM)</b> | <b>Estimated Cost (Rs. Crore)</b> |
|---------------|---|--------------------------|-----------------------------------|
| <b>A</b>      | <b>Connectivity System for Lanco Vidarbha Thermal Power Pvt. Ltd.</b>                                 |                          |                                   |
|               | (i) LVTPPL TPS switchyard – Warora Pool 765kV D/c line  | 80                       | 312                               |
|               | (ii) 2 nos of 765kV Line bays at Warora Pool (for LVTPPL TPS switchyard – Warora Pool 765kV D/c line) |                          | 39                                |
|               | <b>Total(in crore)</b>  |                          | <b>351</b>                        |

Note:

- a. *The line lengths mentioned above are approximate as the exact length shall be obtained after the detailed survey.*
- b. *LVTPPL to provide following at their Generation switchyard*
  - *765kV line bay: 2 no. (for LVTPPL TPS switchyard – Warora Pool 765kV D/c line)*
  - *765kV Bus Reactor: 1 x240MVAR*
  - *765kV Bus Reactor Bay: 1 no*

M/s LVTPPL has to sign requisite agreements for taking up the transmission scheme under Tariff Based Competitive Bidding route.

**Members may like to deliberate on the implementation of the scheme through TBCB route.**

(5) **Name of the Scheme: Additional System for Power Evacuation from Generation Projects pooled at Raigarh (Tamnar) Pool**

Following proposal was agreed in the 39<sup>th</sup> Standing Committee Meeting on Power System Planning in WR held on 30.11.2015 as additional system for Power evacuation form Generation projects pooled at Raigarh (Tamnar) Pool:

| Sl. No   | Scope of the Transmission Scheme   | Capacity (MVA/K M) | Estimated Cost (Rs. Crore) |
|----------|--|--------------------|----------------------------|
| <b>A</b> | <b>Additional System for Power Evacuation from Generation Projects pooled at Raigarh (Tamnar) Pool</b> |                    |                            |
|          | (i) Dharamjaygarh Pool section B - Raigarh (Tamnar) Pool 765kV D/c line                                | 70                 | 269                        |
|          | (ii) 2 nos of 765kV line bays at Section B of Dharamjaygarh Pool                                       |                    | 39                         |
|          | (iii) 2 nos of 765kV line bays at Raigarh (Tamnar) Pool  |                    | 39                         |
|          | <b>Total(in crore)</b>   |                    | <b>346</b>                 |

*Note:*

- The line lengths mentioned above are approximate, as the exact length shall be obtained after the detailed survey.
- POWERGRID to provide space for construction of 2 nos. of 765kV Line Bays each at Dharamjaygarh Pool and Raigarh (Tamnar) Pool

(6) **Name of the Scheme: Inter State Transmission system strengthening in Chhatarpur area in Madhya Pradesh**

Following Transmission system strengthening scheme was agreed in the 40<sup>th</sup> Standing Committee Meeting on Power System Planning in WR held on 01.06.2016 to cater to the demand of Chhatarpur/Khajuraho area of Madhya Pradesh:

| Sl. No   | Scope of the Transmission Scheme   | Capacity (MVA/K M) | Estimated Cost (Rs. Crore) |
|----------|--|--------------------|----------------------------|
| <b>A</b> | <b>Inter State Transmission system strengthening in Chhatarpur area in Madhya Pradesh</b>  |                    |                            |
|          | (i) LILO of Satna – Bina 400kV (1st) D/c line at Bijawar. (there are four 400kV circuits between Satna and Bina out of which one is proposed to be LILOed at Sagar (MPPTCL) Substation. This LILO is on one D/c out of the above three remaining 400kV circuits between Satna and Bina). | 70km               | 105                        |
|          | (ii) Establishment of 2x500MVA, 400/220kV substation at Bijawar*   | 1000MV<br>A        | 182                        |

|  |   |  |            |
|--|---|--|------------|
|  | <p><u>400kV</u></p> <ul style="list-style-type: none"> <li>• ICTs : 2x500MVA, 400/220kV</li> <li>• ICT bays: 2 nos</li> <li>• Line bays: 4 nos (for LILO of Satna – Bina 400kV (1st) D/c line at Bijawar (there are four 400kV circuits between Satna and Bina out of which one is proposed to be LILOed at Sagar (MPPTCL) Substation. This LILO is on one D/c out of the above three remaining 400kV circuits between Satna and Bina))</li> <li>• Bus Reactor: 1x125MVAR</li> <li>• Bus Reactor Bay: 1 no</li> <li>• Space for ICT bays (future): 2 nos</li> <li>• Space for Line bays along with Switchable Line Reactors (future): 4 nos</li> <li>• Space for Bus Reactor (Future) : 1 no.</li> </ul> <p><u>220kV</u></p> <ul style="list-style-type: none"> <li>• ICT bays: 2 nos</li> <li>• Line bays: 4 nos (for termination of LILO of both ckts of Tikamgarh - Chatarpur 220 kV D/c line)</li> <li>• Space for future ICT bays : 2 nos</li> <li>• Space for future line bays (future): 8 nos (4 nos. for Bijawar solar park interconnection and 4 nos. additional space for future expansion)</li> </ul> <p>Space for 2x500MVA, 400/220kV ICTs (future)</p> |  |            |
|  | <b>Total(in crore)</b>  |  | <b>287</b> |

Note:

- d. *The line lengths mentioned above are approximate as the exact length shall be obtained after the detailed survey.*
- e. *SPPD to provide land contiguous to Chhatarpur solar park for establishment of 400/220kV Bijawar substation to the Bidder at cost.*

**1. Name of the Scheme: Transmission System for Radhanesda Ultra Mega Solar Power Park in dist. Banaskantha, Gujarat (700 MW)**

Following Transmission system strengthening scheme was agreed in the 40<sup>th</sup> Standing Committee Meeting on Power System Planning in WR held on 01.06.2016.

The scope of work under the transmission scheme is as follows:

| Sl. No. | Scope of the Transmission Scheme   | Capacity (MVA/Rkm) | Cost (in Cr.) |
|---------|--|--------------------|---------------|
| A       | <b>Transmission System for Radhanesda Ultra Mega Solar Power Park in dist. Banaskantha, Gujarat (700 MW)</b> |                    |               |
|         | (iii)Radhanesda Pooling Station – Banaskantha (PG) 400 kV D/C  | 80 km              | 168           |
|         | (iv)2 nos. 400 kV line bays at Banaskantha (PG) S/S  |                    | 18            |
|         | <b>Total(in crore)</b>   |                    | 186           |

*Note: 400 kV Radhanesda Pooling Station shall be under the scope of the SPPD and SPPD shall provide 2 no. 400 kV line bays for interconnection of ISTS line*

**(7) Name of the Scheme: Connectivity and Long Term Access (LTA) to HPPCL 450 MW from Shongtong Karcham HEP.**

The transmission scheme has been approved in the 30<sup>th</sup> Standing Committee on Power System Planning in Northern Region held on 19<sup>th</sup> December, 2011 and discussed in 33<sup>rd</sup> meeting of Empowered Committee on Transmission held on 30<sup>th</sup> September, 2014 wherein it was decided to seek the status of generating project at site. Accordingly, the proposal was deferred for the next meeting. HPPTCL vide their letter dated 31.5.2016 had submitted that HPPTCL has completed all the conditions mentioned by CEA and PGCIL and requested to take up the matter to finalize the implementing agency. The scope of the transmission scheme was as under.:

**Earlier Scope:**

| Sl. No. | Transmission Scheme   | Estimated route length (km) | Estimated Cost (Rs. Crore) |
|---------|---|-----------------------------|----------------------------|
| 1.      | Shongtong Karcham HEP– Wangtoo 400 kV D/C (Quad HTLS) conductor   | 18                          | 42                         |
| 2.      | Creation of 400/220kV, GIS S/s at Wangtoo<br>Provision for 400 kV line bays : <ul style="list-style-type: none"> <li>• 2 nos at Shongtong Karcham HEP (to be provided by HPPCL)</li> <li>• 6 nos at Wangtoo</li> </ul> The provision for 2 nos. of transformer bays | 2x315                       | 158                        |
|         | <b>Total(in crore)</b>  |                             | 200                        |

HPPTCL has informed that they are implementing the Wangtoo Substation. Hence the modified scope of the scheme is as under:

| S. No. | Scope of the Transmission Scheme   | Capacity (MVA/K M) | Estimated Cost (Rs. Crore) |
|--------|--|--------------------|----------------------------|
| 1.     | Shongtong Karcham – Wangtoo 400 kV D/c Line<br>(Quad HTLS Conductor Equivalent to about 3000MW on each ckt) – (ISTS) | 18 km              | 42                         |

**Note:** Establishment of 220/400kV GIS Pooling Station at Wangtoo along with LILO of both circuits of 400 kV Karcham Wangtoo-Abdullapur D/c line at Wangtoo S/s -**Implementation by STU**

(8) **Name of the Scheme: Eastern Region Strengthening Scheme –XXI (ERSS-XXI)**

The following transmission scheme has been approved in the 18<sup>th</sup> Standing Committee on Power System Planning of Eastern Region held on 13<sup>th</sup> June, 2016. The scope of the transmission scheme is as under:

| Scope of the Transmission Scheme   | Capacity (MVA) | Estimated Cost (Rs. Crore) |
|--|----------------|----------------------------|
| <p><b>(i) Establishment of 400/220/132 kV, 2x500 MVA + 2x200 MVA S/s at Sitamarhi (New)</b></p> <p><b><u>400 kV</u></b><br/> ICTs: 400/220 kV, 2x500 MVA<br/> ICTs bays: 2 no.<br/> Line bays with space for switchable line reactor: 4 no.<br/> [2 no. for Darbhanga – Sitamarhi (New) 400kV D/c line with Triple Snowbird conductor and 2 no. for Sitamarhi (New) – Motihari 400kV D/c line with Triple Snowbird conductor]<br/> Bus reactor: 420kV, 2x125 MVAR<br/> Bus reactor bay: 2 no.<br/> Space for future line bays (including space for switchable line reactor): 6 no.<br/> Space for future ICT bays: 2 no.</p> <p><b><u>220 kV</u></b><br/> ICTs: 220/132 kV, 2x200 MVA<br/> ICTs bays: 4 no.<br/> Line bays: 4 no.<br/> [2 no. for Sitamarhi (New) – Motipur (BSPTCL) and 2 no. for Sitamarhi (New) –</p> | 1000MVA        | 258                        |

| Scope of the Transmission Scheme   | Capacity (MVA) | Estimated Cost (Rs. Crore) |
|--|----------------|----------------------------|
| <p><i>Motihari (New of BSPTCL) 220kV D/c lines]</i><br/> Space for future line bays: 4 no.<br/> Space for future ICT bays: 4 no.<br/> <b><u>132 kV</u></b><br/> ICTs bays: 2 no.<br/> Line bays: 4 no.<br/> <i>[2no. for Sitamarhi (New) – Sitamarhi 132kV D/c (Single Moose) line and 2 no. for Sitamarhi (New) – Pupri 132kV D/c line]</i><br/> Space for future line bays: 4 no.<br/> Space for future ICT bays: 2 no.</p> <p>Space for 400/220 kV, 2x500 MVA ICTs<br/> Space for 220/132 kV, 2x200 MVA ICTs</p>  |                |                            |
| <p><b>(ii) Establishment of 400/220/132 kV, 3x500 MVA + 3x200 MVA S/s at Chandauti (New)</b></p> <p><b><u>400 kV</u></b><br/> ICTs: 400/220 kV, 3x500 MVA<br/> ICTs bays: 3 no.<br/> Line bays with space for switchable line reactor: 4 no.<br/> <i>[4 no. for LILO of both circuits of Nabinagar-II – Gaya 400kV D/c (Quad Moose) line of POWERGRID at Chandauti (New)]</i><br/> Bus reactor: 420kV, 2x125 MVAR<br/> Bus reactor bay: 2 no.<br/> Space for future line bays (including space for switchable line reactor): 6 no.<br/> Space for future ICT bays: 2 no.</p> <p><b><u>220 kV</u></b><br/> ICTs: 220/132 kV, 3x200 MVA<br/> ICTs bays: 6 no.<br/> Line bays: 4 no.<br/> <i>[4 no. for LILO of Gaya (POWERGRID) – Sonenagar 220kV D/c at Chandauti (New). Gaya (POWERGRID) – Sonenagar shall be LILOed at Bodhgaya (BSPTCL) also, so as to form Gaya (POWERGRID) – Bodhgaya (BSPTCL) – Chandauti (New) – Sonenagar 220kV D/c line]</i></p> | 1500 MVA       | 316                        |

| Scope of the Transmission Scheme   | Capacity (MVA) | Estimated Cost (Rs. Crore) |
|--|----------------|----------------------------|
| <p>Space for future line bays: 4 no.<br/>Space for future ICT bays: 4 no.</p> <p><b><u>132 kV</u></b><br/>ICTs bays: 3 no.<br/>Line bays: 4 no.<br/><i>[2 no. for LILO of Chandauti (BSPTCL) – Rafiganj and 2 no. for LILO Chandauti (BSPTCL) – Sonenagar 132kV S/c (HTLS conductor of 240MVA, ampacity - 1050A) lines at Chandauti (New)]</i><br/>Space for future line bays: 4 no.<br/>Space for future ICT bays: 2 no.</p> <p>Space for 400/220 kV, 2x500 MVA ICTs<br/>Space for 220/132 kV, 2x200 MVA ICTs</p>   |                |                            |
| <p><b>(iii) Establishment of 400/220/132 kV, 2x500 MVA + 2x200 MVA S/s at Saharsa (New)</b></p> <p><b><u>400 kV</u></b><br/>ICTs: 400/220 kV, 2x500 MVA<br/>ICTs bays: 2 no.<br/>Line bays with space for switchable line reactor: 4 no.<br/><i>[4 no. for LILO of Kishanganj – Patna 400kV D/c (Quad Moose) line of POWERGRID at Saharsa (New)]</i><br/>Bus reactor: 420kV, 2x125 MVAR<br/>Bus reactor bay: 2 no.<br/>Space for future line bays (including space for switchable line reactor): 6 no.<br/>Space for future ICT bays: 2 no.</p> <p><b><u>220 kV</u></b><br/>ICTs: 220/132 kV, 2x200 MVA<br/>ICTs bays: 4 no.<br/>Line bays: 4 no.<br/><i>[2 no. for Saharsa (New) – Begusarai and 2 no. for Saharsa (New) – Khagaria (New) 220kV D/c lines]</i><br/>Space for future line bays: 4 no.<br/>Space for future ICT bays: 4 no.</p> | 1000 MVA       | 258                        |

| Scope of the Transmission Scheme  | Capacity (MVA) | Estimated Cost (Rs. Crore) |
|---|----------------|----------------------------|
| <p><b><u>132 kV</u></b><br/> ICTs bays: 2 no.<br/> Line bays: 2 no.<br/> [2 no. for Saharsa (New) – Saharsa 132kV D/c line]<br/> Space for future line bays: 6 no.<br/> Space for future ICT bays: 2 no.</p> <p><b>Space for 400/220 kV, 2x500 MVA ICTs</b><br/> <b>Space for 220/132 kV, 2x200 MVA ICTs</b></p>  |                |                            |
| <p><b>(iv) Substation extension at Darbhanga S/s</b><br/> 400kV Line bays with space for switchable line reactor: 2 no.<br/> [2 no. for Darbhanga – Sitamarhi (New) 400kV D/c line with Triple Snowbird conductor]</p>  |                | <b>20</b>                  |
| <p><b>(v) Substation extension at Motihari S/s</b><br/> <b><u>400kV</u></b><br/> ICTs: 400/132kV, 315MVA (3<sup>rd</sup>)<br/> ICT bays: 1 no.<br/> Line bays with space for switchable line reactor: 2 no.<br/> [2 no. for Sitamarhi (New) – Motihari 400kV D/c line with Triple Snowbird conductor]</p> <p><b><u>132kV</u></b><br/> ICT bays: 1 no.</p> |                | <b>37</b>                  |
| <b>(vi)</b> Darbhanga – Sitamarhi (New) 400kV D/c line with Triple Snowbird conductor   | <b>80</b>      | <b>182</b>                 |
| <b>(vii)</b> Sitamarhi (New) – Motihari 400kV D/c line with Triple Snowbird conductor   | <b>80</b>      | <b>182</b>                 |
| <b>(viii)</b> LILO of both circuits of Nabinagar-II – Gaya 400kV D/c (Quad Moose) line of POWERGRID at Chandauti (New)  | <b>10</b>      | <b>23</b>                  |
| <b>(ix)</b> LILO of Kishanganj – Patna 400kV D/c (Quad Moose) line of POWERGRID at Saharsa (New)  | <b>20</b>      | <b>45</b>                  |
| <b>Estimated Cost (Rs. Crore)</b>   |                | <b>1321</b>                |

**Note:**

- (a) Darbhanga and Motihari substations belong to Darbhanga Motihari Transmission Company Ltd. (subsidiary of Essel Infra).

**(b) BSPTCL would implement following lines:**

- (i) Sitamarhi (New) – Motipur (BSPTCL) 220kV D/c line
- (ii) Sitamarhi (New) – Motihari (New of BSPTCL) 220kV D/c line
- (iii) Sitamarhi (New) – Sitamarhi 132kV D/c (Single Moose) line
- (iv) Sitamarhi (New) – Pupri 132kV D/c line
- (v) LILO of Gaya (POWERGRID) – Sonenagar 220kV D/c at both Bodhgaya (BSPTCL) and Chandauti (New) substations, so as to form Gaya (POWERGRID) – Bodhgaya (BSPTCL) – Chandauti (New) – Sonenagar 220kV D/c line
- (vi) Reconductoring of Chandauti (BSPTCL) – Rafiganj – Sonenagar 132kV S/c line with HTLS conductor of 240MVA (ampacity - 1050A)
- (vii) LILO of Chandauti (BSPTCL) – Rafiganj 132kV S/c line at Chandauti (New)
- (viii) Reconductoring of Chandauti – Sonenagar 132kV S/c line with HTLS conductor of 240MVA (ampacity - 1050A)
- (ix) LILO of Chandauti – Sonenagar 132kV S/c line at Chandauti (New)
- (x) Saharsa (New) – Begusarai 220kV D/c line
- (xi) Saharsa (New) – Khagaria (New) 220kV D/c line
- (xii) Saharsa (New) – Saharsa 132kV D/c

**13.0 New transmission schemes to be taken up under compressed time schedule through regulated tariff mechanism**

**(1) Name of the Scheme: Provision of 765kV line bays at 765/400 kV Ajmer Substation for 765 kV D/C line Korna (RRVPNL) S/S to Ajmer (Pg) 765/400 kV S/S**

The transmission scheme has been approved in the 38<sup>th</sup> Standing Committee on Power System Planning of Northern Region held on 30<sup>th</sup> May, 2016. The scope of the transmission scheme is as under:

| Scope of the Transmission Scheme   | Capacity (MVA/ ckt. km) | Estimated Cost (Rs. Crore) |
|--|-------------------------|----------------------------|
| <b>Intra- State Transmission corridor in Rajasthan for evacuation of RE generation</b>   |                         |                            |
| (i) 2 nos. of 765kV line bays at 765/400 kV Ajmer S/s alongwith 2x240 MVAR, 765 kV line type switchable shunt reactors for Korna – Ajmer 765 kV D/c line of RVPNL under ISTS                     |                         | 70                         |
| (ii) 2 nos. of 400 kV line bays at 765/400 kV Bikaner S/s for LILO of second circuit of 400 kV D/c Bhadla (RVPN) – Bikaner (RVPN) Quad line (Bhadla (RVPN) – Bikaner (RVPN) 400 kV D/c is a quad |                         | 20                         |

|  |  |    |
|--|--|----|
| conductor line and LILO would also be with quad conductor) |  |    |
| <b>Estimated Cost (Rs. Crore)</b>                          |  | 90 |

**Members may like to deliberate on the implementation of the scheme by PGCIL through regulated tariff mechanism**

**(2) Name of the Scheme: 400kV line bays at Bhinmal(PG) & Sikar(PG) along with 50 MVAR line reactor at Sikar(PG)(30<sup>th</sup> & 38<sup>th</sup> SCM)**

In the 30<sup>th</sup> and 38<sup>th</sup> SCPSNR, it has been agreed that 400kV bays at Bhinmal & Sikar substation may be implemented by POWERGRID under ISTS for evacuation of power from renewable energy projects expected to come up in Rajasthan. The scope of works is as given below:

| <b>Sl. No.</b>                    | <b>Scope of the Transmission Scheme</b>  | <b>Capacity (MVA/KM)</b> | <b>Estimated Cost (Rs. Crore)</b> |
|-----------------------------------|--|--------------------------|-----------------------------------|
|                                   | <b>400kV line bays at Bhinmal(PG) &amp; Sikar(PG) along with 50 MVAR line reactor at Sikar(PG)</b>   |                          | 20                                |
|                                   | <b>i).</b> 2 nos. of 400kV line bays at Bhinmal(PG) for Barmer– Bhinmal 400kV D/c line (Line is being constructed by RRVPNL–Expected commissioning schedule is May’18).  |                          |                                   |
|                                   | <b>ii).</b> 2 nos. of 400kV line bays at Sikar(PG) for 400kV Bikaner-Sikar D/c line along with 50MVAR line reactor at Sikar(PG) on both circuits (Line is being constructed by RRVPNL-Expected commissioning schedule is Jan.’18). |                          | 30                                |
| <b>Estimated Cost (Rs. Crore)</b> |  |                          | 50                                |

(3) **Name of the Scheme: Eastern Region Strengthening Scheme –XX (ERSS-XX)**

The following extension works at POWERGRID sub-stations & re-conductoring of POWERGRID line have been approved in the 18<sup>th</sup> Standing Committee on Power System Planning of Eastern Region held on 13<sup>th</sup> June, 2016 and 33<sup>rd</sup> TCC/ERPC meeting held on 24<sup>th</sup>-25<sup>th</sup> June 2016.

| <b>Scope of the Transmission Scheme</b>   | <b>Capacity (MVA/ ckt. km)</b> | <b>Estimated Cost (Rs. Crore)</b> |
|---|--------------------------------|-----------------------------------|
| (i) Installation of 4 <sup>th</sup> 400/220kV, 500MVA ICT at Biharsharif with associated bays   | 500                            | <b>35.60</b>                      |
| (ii) Installation of 3 <sup>rd</sup> 400/220kV, 500MVA ICT at Maithon with associated bays  | 500                            | <b>35.60</b>                      |
| (iii) Installation of 3 <sup>rd</sup> 400/132kV, 315MVA ICT at Banka with associated bays   | 315                            | <b>27.74</b>                      |
| (iv) Installation of 3 <sup>rd</sup> 400/132kV, 315MVA ICT at Lakhisarai with associated bays   | 315                            | <b>27.74</b>                      |
| (v) Installation of 4 <sup>th</sup> 220/132kV, 160MVA ICT at Rangpo with associated bays  | 160                            | <b>19.00</b>                      |
| (vi) Replacement of 220/132kV, 1x50MVA ICT at Malda with 220/132kV, 160MVA ICT along with suitable modification in bay equipment  | 150                            | <b>18.4</b>                       |
| (vii) Installation of 420kV, 1x125MVAR bus reactor at Subhasgram S/s of POWERGRID with associated bays  | -                              | <b>17.7</b>                       |
| (viii) Conversion of 420kV, 63MVAR fixed line reactor at Purnea end of Kishanganj – Purnea 400kV D/c line to switchable line reactor  | -                              | <b>2</b>                          |
| (ix) Reconductoring of Rangpo – Siliguri 400kV D/c Twin Moose line with Twin HTLS conductor along with suitable modification in line bay equipment at both ends ( <i>Ampacity of single HTLS shall be 1596A – equivalent to Twin ACSR Moose cond. for 45°C ambient and 85°C maximum conductor temperature</i> ).                |                                | *                                 |
| (x) 80MVAR, 765kV, Single Phase Spare Reactor unit at Ranchi (New) 765/400kV sub-station of POWERGRID   | -                              | <b>7</b>                          |
| (xi) Reconductoring of New Purnea(400/220kV) – Purnea(220/132kV) 220kV D/c line with Single HTLS conductor along with suitable modification in line bay equipment at both ends ( <i>Ampacity of single HTLS shall be 1596A – equivalent to Twin ACSR Moose cond. for 45°C ambient and 85°C maximum conductor temperature</i> ). |                                | *                                 |

**\*- under finalization**

**(4) Conversion of Fixed Line Reactors to Switchable Line Reactors in Southern Region**

The following scheme has been discussed and agreed in the 39<sup>th</sup> meeting of the Standing Committee on Power System Planning of Southern Region held on 29<sup>th</sup> December 2015

| Sl. No.                           | Transmission line                        | Proposal agreed in 39 <sup>th</sup> SCM  | Reactor Capacity (MVA <sub>r</sub> ) |               | Estimated Cost (Rs. Crore) |
|-----------------------------------|--|--|--------------------------------------|---------------|----------------------------|
|                                   |  |  | Sending end                          | Receiving end |                            |
| 1                                 | Gazwel-Hyderabad II                      | Line Reactor at Hyderabad end to be made switchable  | -                                    | 50            |                            |
| 2                                 | Nellore-Tiruvellam I & II                | Line Reactor at both ends to be made switchable  | 50                                   | 50            |                            |
| 3                                 | Sriperumbdur-Chitoor                     | Line Reactor at Sriperumbadur end to be made switchable  | 50                                   | -             |                            |
| 4                                 | Udumalpet-Salem II                       | Line Reactor at Udumalpet end to be made switchable  | 63                                   | -             |                            |
| 5                                 | Madurai-Karaikudi                        | Line Reactor at Madurai end to be made switchable  | 63                                   | -             |                            |
| 6                                 | Sriperumbadur-SV Chatram                 | Line Reactor at Sriperumbadur to be made switchable  | 50                                   | -             |                            |
| 7                                 | Kochi-Tirunelveli-I & II                 | Line Reactor at Kochi end to be made switchable. Line Reactor at Tirunelveli end to be retained as fixed line reactor. | 63                                   | 63            |                            |
| 8                                 | Madurai-Trichy                           | Line Reactor at Madurai end to be made switchable  | 50                                   | -             |                            |
| 9                                 | Trichy- Nagapattinam I                   | Line Reactor at Trichy end to be made switchable   | 50                                   | -             |                            |
| 10                                | Trichy- Nagapattinam –II                 | Line Reactor at Trichy end to be made switchable   | 63                                   | -             |                            |
| 11                                | Salem- Hosur II                          | Reactor at Salem end to be made switchable   | 50                                   | -             |                            |
| 12                                | Malakaram-Hyderabad II (Upto LILO point) | Reactor at Hyderabad end to be made switchable   | -                                    | 50            |                            |
| 13                                | Kurnool-Gooty                            | Reactor at Gooty end to be made switchable   | -                                    | 50            |                            |
| <b>Estimated Cost (Rs. Crore)</b> |  |  |                                      |               | <b>25</b>                  |

These works are being implemented by POWERGRID.

Members may note.

**(5) Augmentation of Transformation Capacity in Southern Region**

The following scheme has been discussed and agreed in the 39<sup>th</sup> meeting of the Standing Committee on Power System Planning of Southern Region held on 29<sup>th</sup> December 2015:

| Sl. No. | Scope of the Transmission Scheme  | Capacity (MVA) | Estimated Cost (Rs. Crore) |
|---------|-----------------------------------|----------------|----------------------------|
| 1.      | 400/230 kV, ICT at Arasur         | 1X500 MVA      |                            |
| 2.      | 400/230 kV, ICT at Karaikudi      | 1X500 MVA      |                            |
| 3.      | 400/230 kV, ICT at Tirunelveli    | 1X500 MVA      |                            |
| 4.      | 400/230 kV, ICT at Pondicherry    | 1X500 MVA      |                            |
| 5.      | 400/220 kV, ICT at Kozhikode      | 1X500 MVA      |                            |
|         | <b>Estimated Cost (Rs. Crore)</b> |                | 90                         |

These works are being implemented by POWERGRID.

Members may note.

**(6) Installation of Bus Reactors at Cuddapah, Nellore, Kurnool, Raichur and Thiruvalam**

The following scheme has been discussed and agreed in the 39<sup>th</sup> meeting of the Standing Committee on Power System Planning of Southern Region held on 29<sup>th</sup> December 2015. Broad scope of works includes installation of Bus Reactors at following substations:

| Substation                        | MVar Rating | Estimated Cost (Rs. Crore) |
|-----------------------------------|-------------|----------------------------|
| Cuddapah (400 kV)                 | 125         |                            |
| Kurnool(765 kV)                   | 240         |                            |
| Nellore PS(765 kV)                | 240         |                            |
| Raichur(765kV)                    | 240         |                            |
| Thiruvalam(765kV)                 | 2X 240      |                            |
| <b>Estimated Cost (Rs. Crore)</b> |             | <b>100</b>                 |

These works are being implemented by POWERGRID.

Members may note.

(7) **Transmission System for Tumkur (Pavagada) Ultra Mega Solar Park**

The following scheme has been discussed and agreed in the 39<sup>th</sup> meeting of the Standing Committee on Power System Planning of Southern Region held on 29<sup>th</sup> December 2015 and is being implemented by PGCIL:

**Phase-I:**

| Scope of the Transmission Scheme   | Estimated Cost (Rs. Crore) |
|--|----------------------------|
| <u>Transmission line</u> <ul style="list-style-type: none"> <li>• Tumkur (Pavagada) Pool - Hiriyur 400 kV D/c line - 109 km</li> <li>• LILO of 400kV D/C Gooty-Tumkur (Vasantnarsapur) at Tumkur (Pavagada) Pool</li> <li>• LILO of 400 kV D/C (Quad) Bellary Pool-Tumkur (Vasantnarsapur) at Tumkur (Pavagada) Pooling Station</li> </ul> |                            |
| <u>Sub-station</u> <ul style="list-style-type: none"> <li>• Establishment of 3x500 MVA, 400/220KV Pooling station at Tumkur (Pavagada) along with 1x125MVAr bus reactor</li> <li>• 8 nos. 220kV line Bays at 400/220kV Tumkur (Pavagada) Pooling Station</li> </ul>  |                            |
| <b>Estimated Cost (Rs. Crore)</b>  | <b>600</b>                 |

**i. Phase-II:**

| Scope of the Transmission Scheme  |   | Estimated Cost (Rs. Crore) |
|---|---|----------------------------|
| <b><u>Part-A</u></b>  | <b><u>Part-B</u></b>  | *                          |
| <u>Transmission line</u>  |   |                            |
| <ul style="list-style-type: none"> <li>• Hiriyur – Mysore 400kV D/C line</li> </ul> | <ul style="list-style-type: none"> <li>• Tumkur (Pavagada) Pooling Station - Devanahally (KPTCL) 400kV D/C (Quad) line</li> </ul> |                            |

|   |  |  |
|---|--|--|
|   | <ul style="list-style-type: none"> <li>Extension of 400/200kV Tumkur (Pavagada) Pooling Station and Devanahally (KPTCL) substations</li> </ul> |  |
| <u>Sub-station</u>  |  |  |
| <ul style="list-style-type: none"> <li>Augmentation of 2x500 MVA, 400/220kV transformer at Tumkur (Pavagada) Pooling Station</li> <li>1x125MVAR bus reactor (2<sup>nd</sup>) at Tumkur (Pavagada) Pooling Station</li> <li>Third 400/220kV, 1x500 MVA transformer at Tumkur (Vasantnarsapur)</li> <li>1x80 MVAR switchable line reactor at Mysore end of Hiriur - Mysore D/C line for each circuit</li> <li>Extension of 400/200kV Mysore substation</li> </ul> |  |  |

\*- under finalization

**(8) Name of the Scheme: Transmission system for Ultra Mega Solar Parks in Bhadla, Distt. Rajasthan**

| Sl. No. | Scope of the Transmission Scheme  | Capacity (MVA/KM)       | Estimated Cost (Rs. Crore) |
|---------|---|-------------------------|----------------------------|
|         | <b>Transmission system for Ultra Mega Solar Parks in Bhadla, Distt. Rajasthan</b>                               |                         |                            |
|         | (i) Establishment of 765/400/220kV (765/400kV: 3x1500MVA, 400/220kV : 3x500 MVA) Pooling Station at Bhadla (PG) | 765/400kV:<br>3x1500MVA |                            |
|         | (ii) 765kV Bhadla (PG) – Bikaner (PG) D/c   | 400/220 kV:             |                            |
|         | (iii) 400kV Bhadla (PG)- Bhadla (RVPN) D/c (Quad)   | 3x500 MVA               |                            |
|         | (iv) 2 nos. 400kV & 4 nos. 220kV line bays line bays at Bhadla (PG) for interconnection of solar                |                         |                            |

|      |  |  |  |
|------|--|--|--|
|      | parks  |  |  |
| (v)  | 1x240 MVAr switchable line reactor at each end (each ckt) of the 765kV Bhadla(PG)-Bikaner(PG) D/c line |  |  |
| (vi) | 1x240 MVAr (765kV) & 1x125MVAr (400kV) Bus reactor at Bhadla Pooling Station                           |  |  |

Ministry of Power has assigned the implementation of the works for transmission system for evacuation of power from Bhadla Ultra Mega Solar Park to POWERGRID.

Members may note.

#### 14.0 Change/modification in the scope of transmission schemes already awarded/ under award through TBCB route

(i) **Name of the Scheme: Modification in the Agreed Scope for “765kV Strengthening in Eastern Region (ERSS-XVIII) ”**

This scheme was agreed in the 35<sup>th</sup> meeting of the Empowered Committee ( EC) on Transmission held on 14<sup>th</sup> September, 2015 and notified in Gazette Notification dated November 17, 2015 for implementation through TBCB to PFC Consulting Ltd.

| Transmission Scheme   | Estimated Line Length (km)/ Capacity | Estd. Estimated Cost (Rs. Crore) |
|---|--------------------------------------|----------------------------------|
| <b>Name of Scheme-I : “765kV Strengthening in Eastern Region (ERSS-XVIII) ”</b><br><br>(i) Establishment of 765/400kV, 2x1500MVA substation at Medinipur<br><u><b>765 kV</b></u> <ul style="list-style-type: none"> <li>• ICTs: 7x500 MVA, 765/400 kV (1 spare unit)</li> <li>• ICT bays: 2 no.</li> <li>• Line bays: 4 no.</li> <li>• Bus reactor: 7x110 MVAR single phase units including 1 spare unit</li> <li>• Bus reactor bay: 2 no.</li> <li>• Space for line bays: 4 no.</li> <li>• Space for ICT bays: 2 no.</li> <li>• Space for 765/400 kV ICT</li> </ul> <u><b>400 kV</b></u> <ul style="list-style-type: none"> <li>• ICT bays: 2 no.</li> <li>• Line bays: 6 no.</li> <li>• Bus reactor: 2x125 MVAR</li> <li>• Bus reactor bay: 2 no.</li> <li>• Space for line bays: 4 no.</li> <li>• Space for ICT bays: 2 no.</li> </ul> | 3000 MVA                             | 364                              |
| (ii) Establishment of 765/400kV, 2x1500MVA  | 3000 MVA                             | 271                              |

|   |     |      |
|---|-----|------|
| substations at Jeerat (New)   |     |      |
| <b>765 kV</b>   |     |      |
| <ul style="list-style-type: none"> <li>• ICTs: 7×500MVA, 765/400 kV (1 spare unit)</li> <li>• ICT bays: 2 no.</li> <li>• Line bays: 2 no.</li> <li>• Bus reactor: 7×110 MVAR single phase unit including 1 spare unit</li> <li>• Bus reactor bay: 2 no.</li> <li>• Space for line bays: 4 no.</li> <li>• Space for ICT bays: 2 no.</li> <li>• Space for 765/400 kV ICT</li> </ul> |     |      |
| <b>400 kV</b>   |     |      |
| <ul style="list-style-type: none"> <li>• ICT bays: 2 no.</li> <li>• Line bays: 4 no.</li> <li>• Bus reactor: 2×125 MVAR</li> <li>• Bus reactor bay: 2 no.</li> <li>• Space for line bays: 4 no.</li> <li>• Space for ICT bays: 2 no.</li> </ul>   |     |      |
| (iii) Ranchi (New) – Medinipur 765kV D/c line with Hexa ACSR Zebra conductor along with 240 MVAR 765 kV (765 kV, 3x80 MVAR single phase units) switchable line reactor with 750 Ω NGR in each circuit at Medinipur end.   | 300 | 1750 |
| (iv) Medinipur - Jeerat (New) 765kV D/c line with Hexa ACSR Zebra conductor along with 240 MVAR (765 kV, 3x80 MVAR single phase units) switchable line reactor with 600 Ω NGR in each circuit at Jeerat (New) end.  | 200 | 1166 |
| (v) Medinipur – Haldia New (NIZ) (WBSETCL) 400kV D/c line [ACSR Quad Moose/ HTLS (equivalent to ACSR Quad Moose current rating at 85° C)]   | 130 | 397  |
| (vi) LILO of both circuits of Chandithala – Kharagpur 400 kV D/c line at Medinipur  |     | 10   |
| (vii) Jeerat (New) – Subhasgram 400 kV D/c line [ACSR Quad Moose/ HTLS (equivalent to ACSR Quad Moose current rating at 85° C)]   | 120 | 367  |
| (viii) Jeerat (New) – Jeerat (WB) 400 kV D/c line [ACSR Quad Moose/ HTLS (equivalent to ACSR Quad Moose current rating at 85° C)]   |     | 40   |
| (ix) LILO of Jeerat (WB) – Subhasgram (PG) 400 kV S/c section at Rajarhat (PG)  |     | 10   |
| (x) 2 no. 400 kV line bays at Haldia New (NIZ) (WBSETCL)  |     | 16   |

|   |  |      |
|---|--|------|
| <p>(xi) 2 no. 400 kV line bays at Jeerat (WBSETCL)</p> <p><b>Note:</b></p> <ol style="list-style-type: none"> <li>1. CTU (POWERGRID) would provide 2 no. 400 kV line bays at Subhasgram (PG) for termination of Jeerat (New) - Subhasgram 400 kV D/c line [ACSR Quad Moose/ HTLS] line</li> <li>2. CTU (POWERGRID) would provide 2 no. 400 kV line bays at Rajarhat (PG) for termination of LILO of Jeerat (WB) – Subhasgram (PG) 400 kV S/c section at Rajarhat (PG)</li> <li>3. CTU (POWERGRID) would provide 2 no. 765 kV line bays at Ranchi (New) (PG) along with 2X240 MVAR switchable line reactor with 750 Ω NGR on each circuit for Ranchi (New)-Medinipur 765 kV D/c line.</li> <li>4. WBSETCL would provide space for 2 no. 400 kV line bays at Haldia New (NIZ) (WBSETCL) for termination of Medinipur-Haldia (New) (NIZ) (WBSETCL) 400 kV D/c line</li> <li>5. WBSETCL would provide space for 2 no. 400 kV line bays at Jeerat (WBSETCL) for termination of Jeerat (New)- Jeerat (WBSETCL) 400 kV D/c line</li> </ol> |  | 16   |
|   |  | 4407 |

Subsequently, CEA vide its letter No. 70/1/PSPA-2/2016/289-293 dated 06.04.2016 had modified the scope of the transmission scheme by deleting the following elements:-

- i) Medinipur- Haldia New (NIZ) (WBSETCL) 400 kV D/c line.  
2 nos. 400 kV line bays at Haldia New (NIZ) (WBSETCL)

Further, due to space constraints for termination of 2 nos. of bays at existing Jeerat (WBSETCL) 400 kV substation, it has been proposed for construction of 2 nos. GIS 400 kV bays at Jeerat (WBSETCL) substation for termination of Jeerat (new)-Jeerat (WBSETCL) 400 kV D/C PFCL for which WBSETCL has to provide space for the GIS bays.

CEA advised PFCL to redo the RfQ process with the modified scope.

**The modified scheme is given below;**

| Transmission Scheme | Estimated | Estd. |
|---------------------|-----------|-------|
|---------------------|-----------|-------|

|  | <b>Line Length (km)</b> | <b>Estimated Cost (Rs. Crore)</b> |
|--|-------------------------|-----------------------------------|
| <b>Name of Scheme-I : 765 kV System Strengthening Scheme in Eastern Region (ERSS-XVIII)</b>  |                         |                                   |
| (i) Establishment of 765/400kV, 2x1500MVA substation at Medinipur<br><b>765 kV</b><br><ul style="list-style-type: none"> <li>• ICTs: 7x500 MVA, 765/400 kV (1 spare unit)</li> <li>• ICT bays: 2 no.</li> <li>• Line bays: 4 no.</li> <li>• Bus reactor: 7x110MVAR single phase units including one (1) spare unit</li> <li>• Bus reactor bay: 2 no.</li> <li>• Space for line bays (along with space for switchable line reactor): 4 no.</li> <li>• Space for ICT bays: 2 no.</li> <li>• Space for 765/400kV ICT: 2no.</li> </ul> <b>400 kV</b><br><ul style="list-style-type: none"> <li>• ICT bays: 2 no.</li> <li>• Line bays: 4 no.</li> <li>• Bus reactor: 2x125 MVAR</li> <li>• Bus reactor bay: 2 no.</li> <li>• Space for line bays (along with space for switchable line reactor): 6 no. <ul style="list-style-type: none"> <li>• Space for ICT bays: 2 no.</li> </ul> </li> </ul> | 3000 MVA                | 364                               |
| (ii) Establishment of 765/400kV, 2x1500MVA substations at Jeerat (New)<br><b>765 kV</b><br><ul style="list-style-type: none"> <li>• ICTs: 7x500MVA, 765/400 kV (1 spare unit)</li> <li>• ICT bays: 2 no.</li> <li>• Line bays: 2 no.</li> <li>• Bus reactor: 7x110MVAR single phase units including one (1) spare unit</li> <li>• Bus reactor bay: 2 no.</li> <li>• Space for line bays (along with space for switchable line reactor): 4 no.</li> <li>• Space for ICT bays: 2 no.</li> <li>• Space for 765/400kV ICT: 2 no.</li> </ul> <b>400 kV</b><br><ul style="list-style-type: none"> <li>• ICT bays: 2 no.</li> <li>• Line bays: 4 no.</li> <li>• Bus reactor: 2x125 MVAR</li> <li>• Bus reactor bay: 2 no.</li> <li>• Space for line bays (along with space for switchable line reactor): 4 no.</li> </ul>   | 3000 MVA                | 271                               |
| (iii) Ranchi (New) – Medinipur 765kV D/c line with   | 300                     | 1750                              |

|  |     |      |
|--|-----|------|
| Hexa ACSR Zebra conductor along with 765kV, 240MVAR switchable line reactor with 750Ω NGR in each circuit at Medinipur end (total: 765kV, 7x80MVAR single phase units, 1 unit as spare)  |     |      |
| (iv) Medinipur – Jeerat (New) 765kV D/c line with Hexa ACSR Zebra conductor along with 765kV, 240MVAR switchable line reactor with 600Ω NGR in each circuit at Jeerat (New) end (total: 765kV, 7x80MVAR single phase units, 1 unit as spare) | 200 | 1166 |
| (v) LILO of both circuits of Chandithala – Kharagpur 400 kV D/c line at Medinipur.   |     | 10   |
| (vi) Jeerat (New) – Subhasgram 400 kV D/c line (ACSR Quad Moose current rating at 85°C)  | 120 | 367  |
| (vii) Jeerat (New) – Jeerat (WBSETCL) 400 kV D/c line (ACSR Quad Moose current rating at 85°C)   |     | 40   |
| (viii) LILO of Jeerat (WBSETCL) – Subhasgram (PG) 400 kV S/c section at Rajarhat (PG)  |     | 10   |
| (ix) 2 no. 400 kV GIS line bays at Jeerat (WBSETCL).   |     | 16   |
|  |     | 3994 |

**Note:**

1. CTU (POWERGRID) would provide 2 no. 400kV line bays at Subhasgram (PG) for termination of Jeerat (New) - Subhasgram 400kV D/c line (ACSR Quad Moose)
2. CTU (POWERGRID) would provide 2 no. 400kV line bays at Rajarhat (PG) for termination of LILO of Jeerat (WB) – Subhasgram (PG) 400kV S/c section at Rajarhat (PG)
3. CTU (POWERGRID) would provide 2 no. 765kV line bays along with 765kV, 2x240MVAR switchable line reactor with 750Ω NGR at Ranchi (New) (PG) for termination of Ranchi (New) - Medinipur 765kV D/c line
4. WBSETCL would provide space for 2 no. 400kV GIS line bays at Jeerat (WBSETCL) for termination of Jeerat (New) - Jeerat (WBSETCL) 400 kV D/c line

**The modified scheme may be notified in the Gazette.**

- (ii) **Name of the Scheme: Reactive compensation of various schemes agreed to be implemented through TBCB**

Rajnandgaon – Warora PS 765kV D/c is covered under “***Additional System Strengthening Scheme for Chhattisgarh IPPs – Part B***”. Presently, the scheme is under implementation by Adani Power Ltd. through TBCB route. As per the route survey done by PFCCCL during bidding stage, the length of the line comes out to be about 275KM. On this line only 2x330MVAR switchable line reactor had been provided at Rajnandgaon end. In order to have required reactive compensation, provision of 2x240MVAR switchable line reactor at Warora PS end of Rajnandgaon – Warora PS 765kV D/c line was agreed in the 39<sup>th</sup> meeting of Standing Committee on Power System Planning in Western Region held on 30-11-2015. It was also agreed to include the scope of 2x240MVAR switchable line reactor at Warora PS under “***Additional inter-regional AC link for import of power into Southern Region***” (Warora – Warangal line) and the same has been included accordingly.

**(iii) Name of the Scheme: North Eastern Region Strengthening Scheme–V (NERSS-V)**

The transmission scheme has been approved in the 5<sup>th</sup> Standing Committee on Power System Planning of North Eastern Region held on 8<sup>th</sup> August, 2015. The same was also approved in the 35<sup>th</sup> Empowered Committee Meeting.

Subsequently, implementation of 2 no. 400kV line bays at Palatana generation switchyard for operation of Palatana – Surajmaninagar 400kV (presently operated at 132kV) D/c line at rated voltage level (under the scope of POWERGRID under NERSS-V) has been proposed to be implemented through the TBCB process under the subject scheme. Additionally, it has been proposed to incorporate space for switchable line reactor in the scope along with the space for future 400kV line bays.

Accordingly, revised scope of the transmission scheme is as under:

| Scope of the Transmission Scheme   | Capacity (MVA/ ckt. km) | Estimated Cost (Rs. Crore) |
|--|-------------------------|----------------------------|
| <p><b>(i) Establishment of 400/132 kV, 2x315 MVA S/s at Surajmaninagar</b></p> <p><b><u>400 kV</u></b><br/> ICTs: 400/132 kV, 2x315 MVA<br/> ICTs bays: 2 no.<br/> Line bays: 4 no.<br/> [2 no. for Palatana – Surajmaninagar and 2 no. for Surajmaninagar – P.K.Bari 400kV D/c lines]<br/> Bus reactor: 2x125 MVAR<br/> Bus reactor bay: 2 no.<br/> Space for future line bays (Incl. space for sw. line reactor): 4 no.<br/> Space for ICT bays: 1 no.</p> <p><b><u>132 kV</u></b></p> |                         | <p><b>171.25</b></p>       |

|  |            |               |
|--|------------|---------------|
| <p>ICTs bays: 2 no.<br/>Line bays: 4 no.<br/><i>[2 no. for Surajmaninagar (TSECL) – Surajmaninagar (TBCB) 132kV line with high capacity / HTLS (equivalent of single moose) and 2 no. for future line]</i><br/>Space for future line bays: 4 no.<br/>Space for ICT bays: 1 no.</p> <p><b>Space for future 400/132kV, 315MVA ICT</b></p> <p><i>Land for the Surajmaninagar 400/132kV S/s is identified and available with Tripura and the same would be provided to the TSP at cost.</i></p>  |            |               |
| <p><b>(ii) Establishment of 400/132 kV, 2x315 MVA S/s at P. K. Bari</b></p> <p><b><u>400 kV</u></b><br/>ICTs: 400/132 kV, 2x315 MVA<br/>ICTs bays: 2 no.<br/>Line bays: 4 no.<br/><i>[2 no. for Surajmaninagar – P.K.Bari and 2 no. for P.K.Bari – Silchar 400kV D/c lines]</i><br/>Bus reactor: 2x125 MVAR<br/>Bus reactor bay: 2 no.<br/>Space for future line bays (Incl. space for sw. line reactor): 4 no.<br/>Space for ICT bays: 1 no.</p> <p><b><u>132 kV</u></b><br/>ICTs bays: 2 no.<br/>Line bays: 4 no.<br/><i>[2 no. for P.K.Bari (TSECL) – P.K.Bari (TBCB) 132kV D/c line with high capacity / HTLS (equivalent of single moose) and 2 no. for future line]</i><br/>Space for future line bays: 4 no.<br/>Space for ICT bays: 1 no.</p> <p><b>Space for future 400/132kV, 315MVA ICT</b></p> |            | <b>171.25</b> |
| <p><b>(iii) Surajmaninagar - P. K. Bari 400 kV D/C line with Twin ACSR Moose</b></p>   | <b>100</b> | <b>272.78</b> |
| <p><b>(iv) 2 no. 400 kV line bays at Palatana GBPP switchyard for termination of Palatana – Surajmaninagar 400kV D/C line</b></p>  |            | *             |

|   |            |               |
|---|------------|---------------|
| <b>(v)</b> AGTPP (NEEPCO) – P.K.Bari (TSECL) 132kV D/c line with high capacity HTLS conductor (equivalent to Single ACSR Moose) | <b>100</b> | <b>192.53</b> |
| <b>(vi)</b> 2 no. 132 kV line bays each at AGTPP (NEEPCO) and P. K. Bari (TSECL)  |            | <b>15.10</b>  |
| <b>Estimated Cost (Rs. Crore)</b>   |            | <b>-----</b>  |

**Note:**

**a. TSECL would implement following:**

- (i) Surajmaninagar (TSECL) – Surajmaninagar (TBCB) 132kV line with high capacity / HTLS (equivalent of single moose)
- (ii) P.K.Bari (TSECL) – P.K.Bari (TBCB) 132kV D/c line with high capacity / HTLS (equivalent of single moose)
- (iii) To provide space for 2 no. 132kV line bays at P.K.Bari (TSECL) for termination of AGTPP (NEEPCO) – P.K.Bari (TSECL) 132kV D/c line

**b. OTPC would implement following:**

- (i) 1 no. 132kV bay at Palatana GBPP
- (ii) To provide space for 2 no. 400kV line bays at Palatana generation switchyard for termination of Palatana – Surajmaninagar 400kV D/c line (presently charged at 132kV) at 400kV

c.NEEPCO to provide space for 2 no. 132kV line bays at AGTPP generation switchyard for termination of AGTPP (NEEPCO) – P.K.Bari (TSECL) 132kV D/c line

**Members may approve.**

- (iv) Name of Scheme: Eastern Region Strengthening Scheme – VII (Schemes approved in 29<sup>th</sup> meeting of the Empowered Committee on Transmission: Scope of Works Revised**

The scope of the scheme agreed in the 29<sup>th</sup> meeting of EC is as under:

| <b>Transmission Scheme</b>                            | <b>Estimated Line Length (km)</b> | <b>Estimated Cost (Rs. Crores)</b> |
|---|-----------------------------------|------------------------------------|
| (i) Purulia PSP (WB) – Ranchi (PG) 400 KV D/c line.   | 140                               | 170                                |
| (ii) Kharagur (WBSTCL) - Chaibasa(PG) 400 kV D/c line | 170                               | 200                                |
| <b>Estimated Cost (Rs. Crore)</b>                     |                                   | <b>370</b>                         |

**Note:**

- (a) POWERGRID to provide 2 no. of 400kV bays with line reactor(s) at Ranchi(PG) and Chaibasa(PG) - to be implemented under regulated tariff mechanism
- (b) POWERGRID to provide 2 no. of 400kV bays at Purulia(WB) and Kharagpur(WB) to be implemented under regulated tariff mechanism as ISTS.
- (c) Associated bays to be provided by POWERGRID/Generator to be matched with commissioning of the transmission scheme – CTU to coordinate.

In a meeting taken by Member (PS), CEA on 29-3-2016, WBSETCL informed that there was a space constraint at Purulia PSP generation switchyard and the Ranchi (New)–Purulia PSP 400kV D/c line could not be terminated at Purullia PSP. WBSETCL further informed that they were establishing New Purulia 400 kV GIS near Purulia PSP by LILO of both circuit of Purulia PSP-Arambagh 400 kV D/C line and had proposed to PKTCL to terminate the line at New Purulia GIS substation instead of earlier approved Purulia PSP generation switchyard. This change in scope of the scheme was approved in 18<sup>th</sup> Standing Committee on Power System Planning of Eastern Region held on 13<sup>th</sup> June, 2016. The revised scope of the transmission scheme is as under:

| <b>Transmission Scheme</b>   | <b>Estimated Line Length (km)</b> | <b>Estimated Cost (Rs. Crores)</b> |
|--|-----------------------------------|------------------------------------|
| (iii) Purulia PSP New (WBSETCL) – Ranchi 765/400kV (PG) 400kV D/c line | 140                               | 170                                |
| (iv) Kharagur (WBSTCL) - Chaibasa(PG) 400kV D/c line                   | 170                               | 200                                |
| <b>Estimated Cost (Rs. Crore)</b>                                      |                                   | <b>370</b>                         |

**Note:**

- (a) POWERGRID to provide 2 no. of 400kV bays with line reactor(s) at Ranchi (New) (PG) and Chaibasa(PG) - to be implemented under regulated tariff mechanism as ISTS
- (b) POWERGRID to provide 2 no. of 400kV bays at Purulia PSP New (WBSETCL) and Kharagpur (WBSETCL) - to be implemented under regulated tariff mechanism as ISTS
- (c) West Bengal will establish New Purulia 400kV GIS S/s near Purulia PSP along with LILO of both circuit of Purulia PSP-Arambagh 400kV D/c line

**Members may approve.**

- (v) **Name of Scheme: Eastern Region Strengthening Scheme-XIX (ERSS-XIX): Creation of 400/220 kV sub-station at Dhanbad (Schemes approved in 35<sup>th</sup> meeting of the Empowered Committee on Transmission : Cost Estimate Revised)**

The transmission scheme has been approved in the 17<sup>th</sup> Standing Committee on Power System Planning of Eastern Region held on 25<sup>th</sup> May, 2015. The scope of the transmission scheme is as under:

| Scope of the Transmission Scheme  | Capacity (MVA/<br>ckt. km) | Estimated<br>Cost<br>(Rs. Crore) |
|---|----------------------------|----------------------------------|
| <p><b>(i) Establishment of 400/220 kV, 2x500 MVA sub-station at Dhanbad</b></p> <p><b><u>400 kV</u></b><br/>ICTs: 400/220 kV, 2x500 MVA<br/>ICTs bays: 2 no.<br/>Line bays: 4 no.<br/>Bus reactor: 2x125 MVAR<br/>Bus reactor bay: 2 no.<br/>Space for future line bays: 4 no.<br/>Space for ICT bays: 1 no.</p> <p><b><u>220 kV</u></b><br/>ICTs bays: 2 no.<br/>Line bays: 4 no.<br/>Space for future bays: 4 no.<br/>Space for ICT bays: 1 no.</p> <p><b>Space for 400/220kV, 500MVA ICT</b></p> | 1000                       | 207.70                           |
| <b>(ii) LILO of both circuits of Ranchi-Maithon RB 400 kV D/C line at Dhanbad</b>   | 20                         | 27.33                            |
| <b>Estimated Cost (Rs. Crore)</b>   |                            | <b>235.3</b>                     |

**Note:**

- (a) JUSNL, Jharkhand would construct Dhanbad – Govindpur and Dhanbad – Jainamore 220kV D/c lines for drawl from Dhanbad S/s.

**Members may note.**

**(vi) Name of Scheme: North Eastern Region Strengthening Scheme – II (NERSS– II): Part B**

The transmission scheme has been approved in the 5<sup>th</sup> Standing Committee on Power System Planning of North Eastern Region held on 8<sup>th</sup> August, 2015. The scope of the transmission scheme is as under:

| Scope of the Transmission Scheme | Capacity<br>(MVA/ ckt.<br>km) | Estimated<br>Cost<br>(Rs. Crore) |
|----------------------------------|-------------------------------|----------------------------------|
|----------------------------------|-------------------------------|----------------------------------|

|   |     |               |
|---|-----|---------------|
| (i) Biswanath Chariali - Itanagar (Zebra conductor) 132 kV D/C line   | 95  | 61.09         |
| (ii) Silchar - Misa 400kV D/C line (Quad Moose) line  | 200 | 807.55        |
| (iii) 2 no. 132 kV line bays at Itanagar for termination of Biswanath Chariali - Itanagar (Zebra conductor) 132 kV D/C line |     | 7.55          |
| <b>Estimated Cost (Rs. Crore)</b>   |     | <b>876.19</b> |

**Note:**

(a) CTU (POWERGRID) would provide following:

- 2 no. 400kV GIS line bays each at Silchar and Misa substations for termination of Silchar - Misa 400kV D/c line (Quad) line
- 2 no. 132kV line bays at Biswanath Chariali for termination of Biswanath Chariali - Itanagar (Zebra conductor) 132 kV D/c line. In case of space constraint, GIS bays would be provided.
- 420kV, 1x80 MVAR bus reactor at Misa (POWERGRID) along with GIS bay
- 80 MVAR switchable line reactor at Misa end of Silchar– Misa 400kV D/C (Quad) line on either circuits

(b) DoP, Arunachal Pradesh to provide space for 2 no. 132kV line bays at Itanagar S/s for termination of Biswanath Chariali - Itanagar (Zebra conductor) 132 kV D/c line

**Members may note.**

**(vii) Transmission system for phase-I generation projects in Arunachal Pradesh**

This scheme was approved in the 3<sup>rd</sup> standing committee meeting of power system planning in North Eastern Region held on 21st Dec., 2011 at NRPC, New Delhi as evacuation system from 4 no. of hydro projects in Arunachal Pradesh in Kameng basin. The scope of the transmission scheme is as under:

| Scope of the Transmission Scheme   | Capacity (MVA/ ckt. km) | Estimated Cost (Rs. Crore) |
|--|-------------------------|----------------------------|
| (i) Dinchang-Rangia / Rowta Pooling Point 400kV D/c (Quad)   | 120                     | 574.26                     |
| (ii) LILO of both ckts of Balipara - Bongaigaon 400kV D/c (ACSR Twin Moose) line at Rangia / Rowta Pooling station | 20                      | 52.29                      |
| <b>(iii) Establishment of 7x166 MVA 400/220 kV Pooling station (GIS) at Dinchang in Arunachal Pradesh</b>          |                         | 244.35                     |
| <b>400 kV</b>  |                         |                            |

|  |  |                |
|--|--|----------------|
| <ul style="list-style-type: none"> <li>• ICT single phase 7x166 MVA, 400/220 kV (including 1 spare unit)</li> <li>• ICT bays – 2 no.</li> <li>• Line bays – 2 no.</li> <li>• Bus Reactor 80 MVAR – 2 no.</li> <li>• Bus reactor bays – 2 no.</li> <li>• Space for future line bays (Incl. space for sw. line reactor) – 4 no.</li> <li>• Space for future ICT bay – 2 no.</li> </ul> <p><b>220 kV</b></p> <ul style="list-style-type: none"> <li>• ICT bays – 2 no.</li> <li>• Space for future line bays – 18 no.</li> <li>• Space for future ICT bay – 2 no.</li> </ul> <p><b>Space for future ICT</b></p> <ul style="list-style-type: none"> <li>• Space for 1-phase 6x166MVA 400/220kV future ICT</li> </ul>   |  |                |
| <p><b>(iv) Establishment of 2x500MVA 400/220 kV Pooling station at Rangia / Rowta in Assam</b></p> <p><b>400 kV</b></p> <ul style="list-style-type: none"> <li>• ICT 2x500MVA 400/220 kV</li> <li>• ICT bays – 2 no.</li> <li>• Line bays – 6 no.</li> <li>• Bus Reactor 125 MVAR – 2 no.</li> <li>• Bus Reactor bays – 2 no.</li> <li>• Switchable Line Reactor of 63 MVAR at Rangia / Rowta end for Dinchang - Rangia / Rowta Pooling Point 400 kV D/c (Quad) line- 2 no.</li> <li>• Space for future line bays (Incl. space for sw. line reactor) – 12no.</li> <li>• Space for future ICT bays – 2 no.</li> </ul> <p><b>220 kV</b></p> <ul style="list-style-type: none"> <li>• ICT bays – 2 no.</li> <li>• Line bays – 4 no.</li> <li>• Space for future line bays – 4 no.</li> <li>• Space for future ICT bays – 2 no.</li> </ul> <p><b>Space for future ICT</b></p> <ul style="list-style-type: none"> <li>• Space for 2x500MVA 400/220kV ICT</li> </ul> |  | 252.91         |
| <b>Estimated Cost (Rs. Crore)</b>  |  | <b>1123.81</b> |

**Note:**

- (a) M/s Dirang Energy Pvt. Ltd. to construct 2 no. 220kV line bays at Dinchang pooling station for termination of their Dirang HEP – Dinchang 220kV D/c line.

**Members may note.**

**(viii) North Eastern Region Strengthening Scheme (NERSS)-VI**

The transmission scheme has been approved in the 5<sup>th</sup> Standing Committee on Power System Planning of North Eastern Region held on 8<sup>th</sup> August, 2015. The scope of the transmission scheme is as under:

| Scope of the Transmission Scheme  | Capacity<br>(MVA/ ckt.<br>km) | Estimated<br>Cost<br>(Rs. Crore) |
|---|-------------------------------|----------------------------------|
| <p><b>(i) Establishment of 400/220 kV, 2x500 MVA S/S at New Kohima</b></p> <p><b><u>400 kV</u></b><br/>ICTs: 400/220 kV, 2x500 MVA<br/>ICTs bays: 2 no.<br/>Line bays: 4 no.<br/>Bus reactor: 2x125 MVAR<br/>Bus reactor bay: 2 no.<br/>Space for future line bays (Incl. space for sw. line reactor): 4 no.<br/>Space for ICT bays: 1 no.</p> <p><b><u>220 kV</u></b><br/>ICTs bays: 2 no.<br/>Line bays: 4 no.<br/>Space for future bays: 4 no.<br/>Space for ICT bays: 1 no.</p> <p><b>Space for 400/220kV, 500MVA ICT</b></p> | 1000 MVA                      | 199                              |
| <p><b>(ii) Imphal – New Kohima 400 kV D/C line with Twin ACSR Moose</b></p>   | 120                           | 331                              |
| <p><b>(iii) New Kohima – New Mariani 400kV D/C line with Twin ACSR Moose</b></p>  | 110                           | 304                              |
| <b>Estimated Cost (Rs. Crore)</b>   |                               | <b>835</b>                       |

**Note:**

- (a) CTU (POWERGRID) to provide 2 no. 400 kV line bays at Imphal (POWERGRID) S/s for termination of Imphal – New Kohima 400kV D/C line and 420kV, 1x125MVAR bus reactor (2<sup>nd</sup>) at Imphal (POWERGRID) S/s
- (b) Powergrid to provide 2 no. 400kV line bays at New Mariani S/s for termination of New Kohima – New Mariani 400kV D/C line

**(c) AEGCL, Assam would implement following:**

- (i) New Mariani – Mariani 220kV D/c line (with high capacity Conductor)
- (ii) Termination of Samaguri – Mariani 220kV 2xS/c lines at New Mariani
- (iii) Establishment of 220/132kV, 2x160MVA substation at Khumtai
- (iv) LILO of Samaguri – New Mariani 220kV 2xS/c lines at Khumtai

**(d) Nagaland would implement following:**

- (i) New Kohima (400/220kV TBCB) – New Kohima (220/132kV - Nagaland) 220kV D/c line with high capacity / HTLS conductor equivalent to twin moose

**Members may note.**

**(ix) Immediate evacuation for North Karanpura (3x660MW) generation project of NTPC**

The transmission scheme has been approved in the 17<sup>th</sup> Standing Committee on Power System Planning of Eastern Region held on 25<sup>th</sup> May, 2015. The scope of the transmission scheme is as under:

| <b>Scope of the Transmission Scheme</b>  | <b>Capacity (MVA/ ckt. km)</b> | <b>Estimated Cost (Rs. Crore)</b> |
|--|--------------------------------|-----------------------------------|
| (i) North Karanpura – Gaya 400 kV D/C with quad moose conductor.                                 | 120                            | 304.90                            |
| (ii) North Karanpura – Chandwa (Jharkhand) Pooling Station 400 kV D/C with quad moose conductor. | 65                             | 152.84                            |
| <b>Total Estimated Cost (Rs. Crore)</b>  |                                | <b>457.74</b>                     |

**Note:**

**a. CTU (POWERGRID) shall provide**

- (i) 2 no. 400 kV line bays at Gaya (POWERGRID) S/s for termination of North Karanpura - Gaya 400kV D/c line
- (ii) 2 no. 400 kV line bays at under construction Chandwa (Jharkhand) Pooling Station (POWERGRID) for termination of North Karanpura - Chandwa 400kV D/c line

**b. NTPC shall provide**

- (ii) 2 no. 400kV line bays for North Karanpura - Gaya 400 kV D/C line at their North Karanpura generation switchyard
- (iii) 2 no. 400kV line bays for North Karanpura - Chandwa (Jharkhand) Pooling Station 400kV D/C line at their North Karanpura generation switchyard

**Members may note.**

**(x) Name of the Scheme: Strengthening of transmission system beyond Vemagiri**

The modified scope of the “Strengthening of transmission system beyond Vemagiri” is:

| Scope as per Gazette Notification  | Modified Scope   |
|--|--|
| (i) Vemagiri-II – Chilakaluripeta 765kV D/C line with 240 MVAR switchable line reactors at both ends.                          | (i) Vemagiri-II – Chilakaluripeta 765kV D/C line with 240 MVAR switchable line reactors at both ends of each circuit.<br>(The line bays and line reactors at Chilakaluripeta to be in the scope of TSP and those at Vemagiri end in the scope of CTU). |
| (ii) Chilakaluripeta – Cuddapah 765kV D/C line with 240 MVAR switchable line reactors at both ends.                            | (ii) Chilakaluripeta – Cuddapah 765kV D/C line with 240 MVAR switchable line reactors at both ends of each circuit.<br>(The line bays and line reactors at Chilakaluripeta to be in the scope of TSP and those at Cuddapah end in the scope of CTU).   |
| (iii) Chilakaluripeta – <b>Narsaraopeta</b> 400kV (quad) D/C line  | (iii) Chilakaluripeta – <b>Narsaraopeta (Sattenapalli)</b> 400kV (quad) D/C line<br>(The line bays at both ends to be in the scope of TSP)   |
| (iv) Cuddapah – Madhugiri 400kV (quad) D/C line with <b>80 MVAR</b> switchable line reactors at both ends.                     | (iv) Cuddapah – Madhugiri 400kV (quad) D/C line with <b>50 MVAR</b> switchable line reactors at both ends of each circuit.<br>(The line bays and reactors at both ends to be in the scope of CTU)  |
| (v) <b>Cuddapah – Hindupur 400kV (quad) D/C line with 80 MVAR switchable line reactors at Hindupur end.</b>                    |  |
| (vi) Srikakulam Pooling Station – Garividi 400 kV (Quad) D/C line <b>with 80 MVAR switchable line reactor at Garividi end.</b> | (v) Srikakulam Pooling Station – Garividi 400 kV (Quad) D/C line<br>(The line bays at Garividi end to be in the scope of TSP and those at Srikakulam Pooling Station end in the scope of CTU).   |
| (vii) Establishment of 765/400 kV substation at Chilakaluripeta with 2x1500 MVA transformers and 2x240                         | (vi) Establishment of 765/400 kV substation at Chilakaluripeta with  |

| Scope as per Gazette Notification  | Modified Scope  |
|--|---|
| <p>MVAr bus reactors each.<br/>Transformers: 765/400 kV, 7 x 500 MVA ( One unit spare)</p> <p><b><u>765 &amp; 400 kV Bay Requirements</u></b></p> <p>(i) <b>765 kV line bays at Chilakaluripeta: 4 no.</b></p> <p>(ii) 765/400 kV Transformer bays at Chilakaluripeta: 2 no.</p> <p>(iii) 400 kV line bays Chilakaluripeta : 2 no.</p> <p>(iv) Space for future 765 kV line bays at Chilakaluripeta: 6 no.</p> <p>(v) Space for future 400 kV line bays at Chilakaluripeta: 8 no.</p> <p><b>Note:</b></p> <p>CTU to provide two nos. 765 kV bays at Vemagiri-II Pooling station for Vemagiri-II – Chilakaluripeta 765 kV D/C line</p> <p>CTU to provide requisite no. of 765 kV and 400 kV bays and line reactors for termination of transmission lines at Cuddapah</p> <p>CTU to provide two nos. 400kV bays &amp; line reactors at Madhugiri 400 kV substation for Cuddapah – Madhugiri 400kV (quad) D/C line</p> <p>CTU to provide two nos. 400 kV bays at Srikakulam 400kV substation for Srikakulam Pooling Station – Garividi 400 kV (Quad) D/C line</p> | <p>2x1500 MVA transformers and 2x240 MVAr bus reactors each.</p> <p><b>Transformers: 765/400 kV, 7x500 MVA (Single-Phase units with one spare)</b></p> <p><b><u>765 kV Bays (at Chilakaluripeta)</u></b></p> <p>ICT bays : 2 nos.</p> <p><b>Line bays : 4 nos.</b></p> <p><b>765 kV Bus Reactor Bays : 2 nos.</b></p> <p>Spare bays (Space) : 6 nos.</p> <p><b><u>400 kV Bays</u></b></p> <p>ICT bays : 2 nos.</p> <p>Line bays : 2 nos.</p> <p>Spare bays (Space) : 8 nos.</p> <p>(vii) <b><u>Note about provision of line reactors and bays:</u></b></p> <p>a) CTU to provide 2 nos. 765kV line bays along with 240 MVAr switchable line reactors at Vemagiri-II Pooling station for termination of Vemagiri-II –Chilakaluripeta 765kV D/c line.</p> <p>b) CTU to provide 2 nos. 765kV line bays along with 240 MVAr switchable line reactors at Cuddapah 765/400kV substation for termination of Chilakaluripeta – Cuddapah 765kV D/c line.</p> <p>c) CTU to provide 2 nos. 400kV line bays along with 50 MVAr switchable line reactors at Cuddapah 765/400kV substation for termination of Cuddapah – Madhugiri 400kV (quad) D/c line.</p> <p>d) CTU to provide 2 nos of 400kV line bays along with 50 MVAr switchable line reactors at Madhugiri 400kV substation for termination of</p> |

| Scope as per Gazette Notification | Modified Scope   |
|-----------------------------------|--|
|                                   | <p>Cuddapah – Madhugiri 400kV (quad) D/c line.</p> <p>e) CTU to provide 2 nos. 400kV line bays at Srikakulam 400kV substation for termination of Srikakulam Pooling Station – Garividi 400 kV (Quad) D/c line.</p> <p>f) APTRANSCO to provide space for 2 no 400 kV line bays at Narsaraopeta (Sattenapalli) 400kV sub- station</p> <p>g) APTRANSCO to provide space for 2 no 400 kV line bays at Garividi 400kV sub-station</p> |

**Note:** The “Cuddapah – Hindupur 400kV (quad) D/C line with 80 MVAr switchable line reactors at Hindupur end” has been given to CTU for implementation under compressed time schedule in the SSSR-XXIV scheme.

**(xi) Name of the Scheme: Additional inter-regional AC links for import of power into Southern Region**

The modified scope of the “Additional inter-regional AC links for import of power into Southern Region” is:

| Transmission Scheme as per Gazette Notification  | Modified Scope   |
|--|--|
| <p>1. Establishment of 765/400kV substations at Warangal (New) with 2x1500 MVA transformers and 2x240 MVA bus reactors</p> <p>Transformers: 765/400 kV, 7x500 MVA (One unit Spare)</p> <p><u>765 &amp; 400 kV Bay Requirements</u></p> <p>(i) 765 kV line bays : 6 no.</p> <p>(ii) 765/400 kV Transformer bays : 2 no.</p> <p>(iii) 400 kV line bays : 2 no.</p> <p>(iv) Space for future 765 kV line bays : 6 no.</p> | <p>1. Establishment of 765/400kV substations at Warangal (New) with 2x1500 MVA transformers and 2x240 MVA bus reactors.</p> <p>Transformers: 765/400 kV, 7x500 MVA (Single-Phase units with one spare)</p> <p><u>765 kV &amp; 400 kV Bay Requirements (in Warangal)</u></p> <p>(i) 765 kV line bays : 6 nos.</p> <p>(ii) 765 kV Transformer bays : 2 no.</p> <p>(iii) 400kV Transformer bays : 2 no.</p> <p>(iv) 400 kV line bays : 2 no.</p> <p>(v) Space for future 765 kV line bays : 6 no.</p> |

| <b>Transmission Scheme as per Gazette Notification</b>   | <b>Modified Scope</b>   |
|--|---|
| (v) Space for future 400 kV line bays : 8 no   | (vi) Space for future 400 kV line bays : 8 no   |
| 2. Warora Pool – Warangal (New) 765kV D/c line with 240 MVAR switchable line reactor at both ends  | 2. Warora Pool – Warangal (New) 765kV D/c line with 240 MVAR switchable line Reactor at both ends of each circuit<br><br>(The line bays and reactors at both ends to be in the scope of TSP)  |
| 3. Warangal (New) –Hyderabad 765 kV D/c line with 330 MVAR switchable line reactor at Warangal end   | 3. Warangal (New) –Hyderabad 765 kV D/c line with <b>240 MVAR switchable</b> line reactor at Warangal end of each circuit.<br><br>(The line bays and reactors at Warangal end to be in the scope of TSP and the line bays at Hyderabad end in the scope of CTU) |
| 4. Warangal (New) – Warangal (existing) 400 kV (quad) D/c line   | 4. Warangal (New) – Warangal (Existing) 400 kV (quad) D/c line<br><br>(The line bays at Warangal (New) end to be in the scope of TSP and the line bays at Warangal (Existing) end in the scope of CTU)  |
| 5. Hyderabad – Kurnool 765 kV D/c line with 240 MVAR switchable line reactor at Kurnool end  | 5. Hyderabad – Kurnool 765 kV D/c line with 240 MVAR switchable line reactor at Kurnool end of each circuit<br><br>(The line bays and reactors in the scope of CTU)   |
| 6. Warangal (New) – Chilakaluripeta 765kV D/c line with 240 MVAR switchable line reactor at both ends  | 6. Warangal (New) – Chilakaluripeta 765kV D/c line with 240 MVAR switchable line reactor at both ends of each circuit.<br><br>(The line bays and reactors at both ends to be in the scope of TSP)   |
| 7. Cuddapah – Hoodi 400kV (quad) D/c line with 63 MVAR switchable line reactor at both ends  |   |
| Note :<br><br>i) Warora Pool developer to provide space for two nos. 765 kV line bays at Warora Pool for termination of Warora Pool – Warangal (New) | 7. <b><u>Note about provision of line reactors and bays</u></b><br><br>i) Warora Pool developer to provide space for 2 nos. 765 kV line bays at Warora Pool for termination of  |

| <b>Transmission Scheme as per Gazette Notification</b>  | <b>Modified Scope</b>   |
|---|---|
| <p>765kV D/c line alongwith 240 MVAR switchable line reactor</p> <p>ii) CTU to provide two nos. 765 kV bays at Hyderabad for termination of Warangal (New) –Hyderabad 765 kV D/c line</p> <p>iii) CTU to provide two nos. 765 kV bays at Hyderabad for termination of Hyderabad – Kurnool 765 kV D/c line</p> <p>iv) CTU to provide two nos. 765 kV line bays at Kurnool for Hyderabad – Kurnool 765 kV D/c line with 240 MVAR switchable line reactor at Kurnool end</p> <p>v) CTU to provide four nos. 400 kV bays at Warangal (existing) for Warangal (New) – Warangal (existing) 400 kV (quad) D/c line</p> <p>vi) M/s KPTCL to provide two nos. 400 kV bays at Hoodi for termination of Cuddapah – Hoodi 400kV (quad) D/c line along with 63 MVAR switchable line reactors</p> | <p>Warora Pool – Warangal (New) 765kV D/c line with 240 MVAR <b>switchable line reactor</b></p> <p>ii) CTU to provide 2 nos. 765 kV bays at Hyderabad for termination of Warangal (New) –Hyderabad 765 kV D/c line</p> <p>iii) CTU to provide 2 nos. 765 kV bays at Hyderabad for termination of Hyderabad – Kurnool 765 kV D/c line</p> <p>iv) CTU to provide 2 nos. 765 kV line bays along with 240 MVAR switchable line reactor at Kurnool end for Hyderabad – Kurnool 765 kV D/c line.</p> <p>v) CTU to provide 2 nos. 400 kV bays at Warangal (existing) for Warangal (New) – Warangal (existing) 400 kV (quad) D/c line</p> |

### 15.0 Cost of the Project as per the Cost Committee

Empowered Committee during its 32<sup>nd</sup> meeting held on 17.01.2014, decided that a realistic assessment of the cost estimates of transmission scheme under TBCB route may be worked out by a committee, which will be formed with the representative from CEA, POWERGRID/CTU and Bid Process Coordinators (BPCs).

After carrying out survey of the lines, the cost of the Transmission Projects have been worked out by cost committee. The estimated cost of the transmission projects vis-à-vis estimated cost as per EC is tabulated below for the information and approval of EC:

| S.No. | Name of the Transmission Project   | Estimated Cost as per EC Minutes (in Rs. Crore) | Estimated Cost derived by Cost Committee (in Rs. Crore) |
|-------|--|---|---|
| 1.    | System Strengthening Scheme in Northern Region (NRSS-XXXVI) along with LILO of Sikar-Neemrana 400kV D/C line at Babai (RRVPL)  | 558   | 401   |
| 2.    | Transmission System Strengthening in WR associated with Khargone TPP (1320 MW)   | 2370  | 2137  |
| 3.    | Immediate evacuation for North Karanpura (3x660MW) generation project of NTPC alongwith creation of 400/220 kV sub-station at Dhanbad – Proposal of JUSNL (ERSS-XIX) | 1390  | 472   |

### 16.0 Constitution of the Bid Evaluation Committees (BEC's) for the new transmission schemes

**1). Bid Evaluation Committee (BEC) for “Transmission System Strengthening in WR associated with Khargone TPP (1320 MW)” – RECTPCL**

| <b>S. No.</b> | <b>Name</b>   | <b>Designation</b>   |
|---------------|---|----------------------|
| 1.            | Head, SBI Capital Markets,<br>6th floor, World Trade Tower,<br>Barakhamba Lane, Connaught Place,<br>New Delhi- 110001<br>Phone No. 011-23418770<br>Fax: 011 -23418773   | Chairman             |
| 2.            | Shri S.P. Gupta,<br>Chief Engineer (Procurement),<br>WRPC<br>Mobile No. 09425805230   | Member               |
| 3.            | Shri Ravindra D. Chavan<br>Director (Projects)<br>Fax No. 0761-2665593<br>Mob. No. 09769006280  | Member               |
| 4.            | Shri Pankaj Batra,<br>Chief Engineer (F&CA)<br>Central Electricity Authority<br>Room No. 626, 6th floor, Sewa Bhawan,<br>R.K.Puram, New Delhi-110066<br>Phone No. 011-26732688, 26732668,<br>Mobile: 9350981062 | Member<br>(CEA)      |
| 5.            | Shri Awdhesh Kumar Yadav<br>Director (PSP&PA-I)<br>Central Electricity Authority<br>Sewa Bhawan, R.K.Puram,<br>New Delhi-110066<br>Phone No. 011-26732343, Mobile: 9868664087                                   | Member<br>(CEA)      |
| 6.            | Chairman of SPV constituted by RECTPCL  | Convener -<br>Member |

**2). Bid Evaluation Committee (BEC) for “765 kV System Strengthening Scheme in Eastern Region (ERSS-XVIII)” - PFCCL**

| <b>S. No.</b> | <b>Name</b>   | <b>Designation</b>   |
|---------------|---|----------------------|
| 1.            | Head, SBI Capital Markets,<br>6th floor, World Trade Tower,<br>Barakhamba Lane, Connaught Place,<br>New Delhi- 110001<br>Phone No. 011-23418770<br>Fax: 011 -23418773   | Chairman             |
| 2.            | Representative from ERPC  | Member               |
| 3.            | Representative from ERPC  | Member               |
| 4.            | Shri Pankaj Batra,<br>Chief Engineer (F&CA)<br>Central Electricity Authority<br>Room No. 626, 6th floor, Sewa Bhawan, R.K.Puram,<br>New Delhi-110066<br>Phone No. 011-26732688, 26732668,<br>Mobile: 9350981062 | Member               |
| 5.            | Shri Ravinder Gupta<br>Director (PSP&PA-II)<br>Central Electricity Authority<br>Sewa Bhawan, R.K.Puram,<br>New Delhi-110066<br>Phone No. 011-2673 2369 1015, Mobile: 9968286184                                 | Member               |
| 6.            | Chairman of SPV constituted by PFCCL  | Convener -<br>Member |

**3). Bid Evaluation Committee (BEC) for “Immediate evacuation for North Karanpura (3x660 MW) generation project of NTPC & Creation of 400/220 kV sub-station at Dhanbad-proposal of JUSNL (ERSS-XIX)” RECTPCL**

| <b>S. No.</b> | <b>Name</b>   | <b>Designation</b> |
|---------------|---|--------------------|
| 1.            | Head, SBI Capital Markets,<br>6 <sup>th</sup> floor, World Trade Tower,<br>Barakhamba Lane, Connaught Place,<br>New Delhi- 110001<br>Phone No. 011-23418770<br>Fax: 011 -23418773 | Chairman           |
| 2.            | Representative from ERPC  | Member             |
| 3.            | Representative from ERPC  | Member             |

|    |   |                      |
|----|---|----------------------|
| 4. | Shri Pankaj Batra,<br>Chief Engineer (F&CA)<br>Central Electricity Authority<br>Room No. 626, 6th floor, Sewa Bhawan, R.K.Puram,<br>New Delhi-110066<br>Phone No. 011-26732688, 26732668,<br>Mobile: 9350981062 | Member               |
| 5. | Shri Chandra Prakash<br>Director (PSP&PA-I)<br>Central Electricity Authority<br>Sewa Bhawan, R.K.Puram,<br>New Delhi-110066<br>Phone No. 011-26711015, Mobile: 9868807917                                       | Member               |
| 6. | Chairman of SPV constituted by RECTPCL  | Convener -<br>Member |

**4). Bid Evaluation Committee (BEC) for “North Eastern Region Strengthening Scheme–V (NERSS-V) & North Eastern Region Strengthening Scheme – II (NERSS-II) Part – B” - RECTPCL**

| <b>S. No.</b> | <b>Name</b>   | <b>Designation</b>   |
|---------------|---|----------------------|
| 1.            | Head, SBI Capital Markets,<br>6 <sup>th</sup> floor, World Trade Tower,<br>Barakhamba Lane, Connaught Place,<br>New Delhi- 110001<br>Phone No. 011-23418770<br>Fax: 011 -23418773                               | Chairman             |
| 2.            | Representative from NERPC   | Member               |
| 3.            | Representative from NERPC   | Member               |
| 4.            | Shri Pankaj Batra,<br>Chief Engineer (F&CA)<br>Central Electricity Authority<br>Room No. 626, 6th floor, Sewa Bhawan, R.K.Puram,<br>New Delhi-110066<br>Phone No. 011-26732688, 26732668,<br>Mobile: 9350981062 | Member               |
| 5.            | Shri Chandra Prakash<br>Director (PSP&PA-I)<br>Central Electricity Authority<br>Sewa Bhawan, R.K.Puram,<br>New Delhi-110066<br>Phone No. 011-26711015, Mobile: 9868807917                                       | Member               |
| 6.            | Chairman of SPV constituted by RECTPCL  | Convener -<br>Member |

**5). Bid Evaluation Committee (BEC) for “North Eastern Region Strengthening Scheme (NERSS)- VI” - PFCCL**

| <b>S. No.</b> | <b>Name</b>   | <b>Designation</b>   |
|---------------|---|----------------------|
| 1.            | Head, SBI Capital Markets,<br>6th floor, World Trade Tower,<br>Barakhamba Lane, Connaught Place,<br>New Delhi- 110001<br>Phone No. 011-23418770<br>Fax: 011 -23418773   | Chairman             |
| 2.            | Representative from NERPC   | Member               |
| 3.            | Representative from NERPC   | Member               |
| 4.            | Shri Pankaj Batra,<br>Chief Engineer (F&CA)<br>Central Electricity Authority<br>Room No. 626, 6th floor, Sewa Bhawan, R.K.Puram,<br>New Delhi-110066<br>Phone No. 011-26732688, 26732668,<br>Mobile: 9350981062 | Member               |
| 5.            | Shri Ravinder Gupta<br>Director (PSP&PA-II)<br>Central Electricity Authority<br>Sewa Bhawan, R.K.Puram,<br>New Delhi-110066<br>Phone No. 011-26732369, Mobile: 9968286184                                       | Member               |
| 6.            | Chairman of SPV constituted by PFCCL  | Convener -<br>Member |

**6). Bid Evaluation Committee (BEC) for “Transmission system for Phase-I generation projects in Arunachal Pradesh”- RECTPCL**

| <b>S. No.</b> | <b>Name</b>   | <b>Designation</b> |
|---------------|---|--------------------|
| 1.            | Head, SBI Capital Markets,<br>6th floor, World Trade Tower,<br>Barakhamba Lane, Connaught Place,<br>New Delhi- 110001<br>Phone No. 011-23418770<br>Fax: 011 -23418773 | Chairman           |
| 2.            | Representative from NERPC   | Member             |

|    |   |                      |
|----|---|----------------------|
| 3. | Representative from NERPC   | Member               |
| 4. | Shri Pankaj Batra,<br>Chief Engineer (F&CA)<br>Central Electricity Authority<br>Room No. 626, 6th floor, Sewa Bhawan, R.K.Puram,<br>New Delhi-110066<br>Phone No. 011-26732688, 26732668,<br>Mobile: 9350981062 | Member               |
| 5. | Shri Chandra Prakash<br>Director (PSP&PA-I)<br>Central Electricity Authority<br>Sewa Bhawan, R.K.Puram,<br>New Delhi-110066<br>Phone No. 011-26711015, Mobile: 9868807917                                       | Member               |
| 6. | Chairman of SPV constituted by RECTPCL  | Convener -<br>Member |

**17.0 Any other item.**

Any other item with the permission of Chair.

-----

**Schemes approved in the 35<sup>th</sup> meeting of EC to be implemented under Regulated Tariff mechanism**

- (1) Name of the Scheme: Modification of Suratgarh Substation Location in Green Energy Corridor
- (2) Name of the Scheme: Maharaniabagh – Rajghat 400kV D/C additional line
- (3) Name of the Scheme: Provision of 2 nos. of 400/220kV, 315MVA ICTs (7x105 MVA single phase units) at Parbati Pooling Station
- (4) Name of the Scheme: Provision of 2 x 500MVA, 400/220kV ICTs at Parli (PG) switching station
- (5) Name of the Scheme: Provision of 2 no. of 220 kV bays for LILO of Khedamara – Borjhara line at 400/220 kV Raipur PGCIL substation
- (6) Name of the Scheme: Additional 2nd 1 X 500 MVA, 400/220 kV ICT at Itarsi (PG) 400 kV substation
- (7) Name of the Scheme: Provision of 2 no. of 400 kV GIS bays for termination of Gwalior-Morena 400 kV D/C quad line at Gwalior substation
- (8) Name of the Scheme: Provision of 2 no. of 400 kV bays for termination of Indore (PG) – Ujjain D/C 400 kV D/C line at Indore (765/400) S/S
- (9) Name of the Scheme: Additional 3rd 500MVA, 400/220kV ICT along with 2 no. of 220 kV bay at Satna (PG) S/s
- (10) Name of the Scheme: Provision of 2 no. of 220 kV bays at Mapusa (Colvale) 400/220 kV substation for termination of the proposed Mapusa (Colvale) - Teum 220 kV D/C line of GED.
- (11) Name of the Scheme: Provision of 330 MVAR, 765 kV Line Reactor with reactor bays along with 850  $\Omega$  NGR for Vindhyachal Pooling station – Jabalpur pool 765 kV D/C line (in each circuit at both ends ).
- (12) Name of the Scheme: Transmission system for Ultra Mega Solar Power Parks in Rewa, MP
- (13) Name of the Scheme: Eastern Region Strengthening Scheme-XV (ERSS-XV): System strengthening in Eastern Region for transfer of additional 500MW power to Bangladesh
- (14) Name of the Scheme: Re-conductoring of Maithon RB - Maithon 400kV D/C line of POWERGRID (ERSS-XVII) with HTLS conductor
- (15) Name of the Scheme: Transformer augmentation requirements in Eastern Region -XVII (ERSS-XVII)
- (16) Name of the Scheme: Conversion of fixed Line Reactors to switchable Line Reactors (ERSS-XVII) (to be used as Bus Reactors) for Lakhisarai – Biharsharif 400kV D/C and Keonjhar – Rengali 400 kV S/C
- (17) Name of the Scheme: Proposal of JUSNL (Jharkhand Urja Sancharan Nigam Limited) for provision of 2x160 MVA, 220/132 kV Auto transformer in proposed 400/220 kV GSS of M/s POWERGRID at Daltonganj with provision of 02 nos. 132 kV bays for JUSNL (POWERGRID Scope)

- (18) Name of the Scheme: Bypassing arrangement of LILO of 400kV lines at Angul (ERSS-17) (POWERGRID Scope)
- (19) Name of the Scheme: North Eastern Region Strengthening Scheme – V (NERSS - V)
- (20) Name of the Scheme: North Eastern Region Strengthening Scheme – VI (NERSS-VI)
- (21) Name of the Scheme: Upgradation of existing inter-state 132 kV link between Imphal (PG) and Imphal (State)
- (22) Name of the Scheme: Installation of 3rd 315 MVA Transformer at 400/132/33kV at Silchar Sub Station
- (23) Name of the Scheme: Installation of 31.5 MVAR, 220 kV bus reactor at 220/132kV Mokokchung sub-station of POWERGRID

**Progress of Transmission Projects Awarded Through Tariff Based Competitive Bidding Route to REC Transmission Projects Company Limited**

Projects for which bidding has been completed between 1 April, 2015 to till date are as under:

| <b>Sl.No</b> | <b>Name of Transmission Project</b>  | <b>Name of Selected Bidder</b>              | <b>Date of Transfer of project specific SPV</b>                  |
|--------------|--|---|--|
| 1.           | Transmission System Associated with Gadarwara STPS of NTPC (Part-A)  | M/s Power Grid Corporation of India Limited | April 24,2015  |
| 2.           | Transmission System Associated with Gadarwara STPS of NTPC (Part-B)  | M/s Power Grid Corporation of India Limited | April 24,2015  |
| 3.           | Connectivity Lines for Maheshwaram (Hyderabad) 765/400 kV Pooling S/s  | M/s Sterlite Grid 3 Limited                 | August 20,2015   |
| 4.           | Strengthening of Transmission System beyond Vemagiri   | M/s Power Grid Corporation of India Limited | December 04,2015   |
| 5.           | Transmission System Strengthening in India System for transfer of power from new HEPs in Bhutan  | M/s Kalpataru Power Transmission Limited    | January 06, 2016   |
| 6.           | Immediate evacuation for North Karanpura (3x660 MW) generation project of NTPC and Creation of 400/200 kV Sub-station at Dhanbad -PROPOSAL OF JUSNL (ERSS-XIX) | M/s Adani Transmission Limited              | July 08, 2016  |
| 7.           | System Strengthening Scheme in Northern Region (NRSS-XXXVI) along with LILO of Sikar-Neemrana 400kV D/C Line at Babai (RRVPNL)                                 | M/s Essel Infraprojects Limited             | LoI issued on 28.03.2016, SPV shall be transferred in July, 2016 |
| 8.           | Transmission system Strengthening in WR associated with Khargone TPP (1320 MW)   | M/s Sterlite Grid 4 Limited                 | LoI issued on 26.05.2016, SPV shall be transferred in July, 2016 |

**Projects for which bidding process is on-going are as under:**

| <b>S.No.</b> | <b>Name of Transmission Project</b>                                      | <b>Present Status</b>   |
|--------------|--|---|
| 1.           | Transmission system for Phase-I Generation Projects in Arunachal Pradesh | <ul style="list-style-type: none"><li>• RFP issued on 13.04.2016 based on e-RA</li><li>• RFP submission due on 12.08.2016</li><li>• e-RA platform and portal yet to be developed by MSTC</li></ul>  |
| 2.           | NER System Strengthening Scheme-II                                       | <ul style="list-style-type: none"><li>• RfQ was issued on 27.11.2015</li><li>• 5 bidders at RFQ stage, all qualified for RFP</li><li>• RFP yet to be issued</li><li>• Technical Details awaited from OPTCL</li><li>• Decision for construction of bays in OPTCL S/s awaited from CEA.</li></ul> |

**Projects for which bidding process is kept under abeyance are as under:**

1. Transmission System associated with IPPs of Vemagiri Area – Package – B
2. Transmission System associated with IPPs of Vemagiri Area – Package-C

## Details of Transmission Projects Through Tariff Based Competitive Bidding Route

BPC – PFC Consulting Ltd.

As on 12.07.2016

| Sl No                    | Name of the project   | Nodal agency for the bidding process | Implementing Agency/ Transmission provider   | Agency/ service | Scope of work          | Nominal Voltage (kV) / type | Length (km) / MVA | Remarks   |
|--------------------------|---|--------------------------------------|--|-----------------|------------------------|-----------------------------|-------------------|---|
| <b>BIDDING COMPLETED</b> |   |                                      |  |                 |                        |                             |                   |   |
| 1                        | Scheme for enabling import of NER/ER surplus by NR<br><br>Estimated Cost as provided by CEA:<br><b>Rs. 1700 crore</b> | PFC                                  | <b>Successful Bidder</b> - Sterlite Technologies Ltd.<br><br><b>Address</b> – C-2 Mira Corporate Suite, Ishwar Nagar, Mathura Road, New Delhi-110065<br><br><b>Transmission Service Provider</b> – East North Interconnection Company Ltd.<br><br><b>Address-</b> C/o BALCO, Core-6, 2nd Floor, Scope Office Complex 7, Lodhi Road, New Delhi - 110003 |                 | Bongaigaon –           | 400 kV D/C (Quad)           | 218 km            | (i) LOI placed on 07.01.2010  |
|                          |   |                                      |  |                 | Purnia Biharsharif –   | 400 kV D/C (Quad)           | 210 km            | (ii) Special Purpose Vehicle acquired on 31.03.2010<br>(iii) Approval under section 68 on 25.03.2009<br>(iv) Scheduled Completion Date is 31.03.2013.<br>(v) Transmission License granted on 28.10.2010.<br>(vi) Tariff adoption approval on 28.10.2010<br><br><b>Project Completed</b> |
| 2                        | System strengthening common for WR and NR   | PFCL                                 | <b>Successful Bidder</b> - Sterlite Transmission Projects Ltd.<br><br><b>Transmission Service Provider</b> – Jabalpur  |                 | Dhramjaygarh- Jabalpur | 765 kV 1xD/C                | 384 km            | (i) LOI placed on 31.01.2011  |
|                          |   |                                      |  |                 | Jabalpur-Bina          | 765 kV 1xS/C                | 250 km            | (ii) Special Purpose Vehicle acquired on 31.03.2011   |

## Details of Transmission Projects Through Tariff Based Competitive Bidding Route

BPC – PFC Consulting Ltd.

| Sl No | Name of the project  | Nodal agency for the bidding process | Implementing Agency/ Transmission provider  | Agency/ service | Scope of work  | Nominal Voltage (kV) / type  | Length (km) / MVA                                | Remarks  |
|-------|--|--------------------------------------|---|-----------------|--|--|--|--|
|       | Estimated Cost as provided by CEA:<br><b>Rs. 1720 crore</b>                                    |                                      | Transmission Company Ltd.<br><br><b>Address</b> - C/o BALCO, Core-6, 2nd Floor, Scope Office Complex<br>7, Lodhi Road, New Delhi - 110003   |                 |  |  |  | (iii) Approval under section 68 on 25.11.2010.<br>(iv) Scheduled Completion Date is 31.03.2014.<br>(v) Transmission License granted on 12.10.2011.<br>(vi) Tariff adoption approval on 28.10.2011.<br><br><b>Project Completed</b> |
| 3     | System strengthening for WR<br><br>Estimated Cost as provided by CEA:<br><b>Rs. 2900 crore</b> | PFCCL                                | <b>Successful Bidder</b> - Sterlite Transmission Projects Ltd.<br><br><b>Address</b> – C-2 Mira Corporate Suite, Ishwar Nagar, Mathura Road, New Delhi-110065<br><br><b>Transmission Service Provider</b> – Bhopal Dhule Transmission Company Ltd.<br><br><b>Address</b> - C/o BALCO, Core-6, |                 | Jabalpur-Bhopal<br>Bhopal-Indore<br>765/400 kV substation at Bhopal, with 2x1500 MVA<br>765/400 kV and interconnecting 400 kV lines/LILO | 765 kV S/C<br>765 kV S/C<br>765/400 kV substation<br>10ckm<br>765 kV S/C<br>765 kV S/C<br>765/400 kV | 286<br>181<br>2x1500 MVA<br>232<br>276<br>2x1500 | (i) LOI placed on 19.01.2011<br>(ii) Special Purpose Vehicle acquired on 31.03.2011.<br>(iii) Approval under section 68 on 25.11.2010.<br>(iv) Scheduled Completion Date is 31.03.2014.<br>(v) Transmission License granted on     |

## Details of Transmission Projects Through Tariff Based Competitive Bidding Route

BPC – PFC Consulting Ltd.

| Sl No | Name of the project   | Nodal agency for the bidding process | Implementing Agency/ Transmission provider   | Agency/ service | Scope of work  | Nominal Voltage (kV) / type  | Length (km) / MVA    | Remarks   |
|-------|---|--------------------------------------|--|-----------------|--|------------------------------|----------------------|---|
|       |   |                                      | 2nd Floor, Scope Office Complex<br>7, Lodhi Road, New Delhi – 110003   |                 | substation at Dhule with 2x1500 MVA 765/400 kV and interconnecting 400 kV lines/LILO | substation 20ckm             | MVA                  | 12.10.2011.<br>(vi) Tariff adoption approval on 28.10.2011.<br><br><b>Project Completed</b>   |
| 4     | Transmission System associated with IPPs of Nagapattinam/ Cuddalore Area – Package A<br><br>Estimated Cost as provided by Empowered Committee:<br><b>Rs. 1025 crore</b> | PFCL                                 | <b>Successful Bidder</b> - Power Grid Corporation of India Ltd.<br><br><b>Address</b> – “Saudamini”, Plot No. 2, Sector-29 Gurgaon – 122001<br><br><b>Transmission Service Provider</b> – Nagapattinam - Madhugiri Transmission Company Ltd.<br><br><b>Address</b> – B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi - 110016 |                 | Nagapattinam Pooling Station-Salem<br><br>Salem-Madhugiri                            | 765 kV D/C<br><br>765 kV S/C | 250 KM<br><br>250 KM | (i) LOI placed on 06.03.2012.<br>(ii) Special Purpose Vehicle acquired on 29.03.2012.<br>(iii) Approval under section 68 on 08.10.2011.<br>(iv) Scheduled Completion Date is 29.03.2015.<br>(v) Transmission License – Details not available.<br>(vi) Tariff adoption approval on 09.05.2013. |
| 5.    | Transmission  | PFCL                                 | <b>Successful Bidder</b> - Techno Electric and Engineering   |                 | LILO of both circuits of Patiala-  | 400 kV D/C                   | 30 KM                | (i) LOI placed on 17.09.2013  |

## Details of Transmission Projects Through Tariff Based Competitive Bidding Route

BPC – PFC Consulting Ltd.

| Sl No | Name of the project  | Nodal agency for the bidding process | Implementing Agency/ Transmission provider  | Agency/ service | Scope of work  | Nominal Voltage (kV) / type | Length (km) / MVA    | Remarks  |
|-------|--|--------------------------------------|---|-----------------|--|-----------------------------|----------------------|--|
|       | System for Patran 400 kV S/S<br><br>Estimated Cost as provided by Empowered Committee:<br><b>Rs. 200 crore</b> |                                      | Company Ltd.<br><br><b>Address –</b><br>3F, Park Plaza,<br>71, Park Street<br>Kolkata– 700016<br><br><b>Transmission Service Provider –</b> Patran Transmission Company Ltd.<br><br><b>Address –</b><br>409, 4th Floor, Skipper Corner,<br>88, Nehru Place,<br>New Delhi - 110019 |                 | Kaithal 400kV D/c at Patran (Triple snow Bird Conductor)<br><br>Creation of 2x500 MVA, 400/220 kV Substation at Patran | 400/220 kVSubstation        | 2x500 MVA.           | (ii) Special Purpose Vehicle acquired on 13.11.2013<br>(iii) Approval under section 68 on 16.05.2013.<br>(iv) Scheduled Completion Date is 13.05.2016.<br>(v) Tariff adoption approval on 05.08.2014.<br>(vi) License granted on 14.07.2014<br><br><b>Project achieved its COD on 21.06.2016</b> |
| 6     | Eastern Region System Strengthening Scheme – VII<br><br>Estimated Cost as provided by Empowered                | PFCCL                                | <b>Successful Bidder -</b> Sterlite Grid Ltd.<br><br><b>Address –</b> C-2 Mira Corporate Suite, Ishwar Nagar, Mathura Road, New Delhi-110065<br><br><b>Transmission Service</b>   |                 | Purulia PSP(WB) – Ranchi (PG)<br><br>Kharagpur (WBSTCL) – Chaibasa (PG)  | 400kV D/c<br><br>400kV D/c  | 140 KM<br><br>170 KM | (i) LOI placed on 17.09.2013<br>(ii) Special Purpose Vehicle acquired on 09.12.2013<br>(iii) Approval under section 68 on 29.05.2013.<br>(iv) Scheduled  |

## Details of Transmission Projects Through Tariff Based Competitive Bidding Route

BPC – PFC Consulting Ltd.

| Sl No | Name of the project   | Nodal agency for the bidding process | Implementing Agency/ Transmission provider   | Agency/ service | Scope of work  | Nominal Voltage (kV) / type                                | Length (km) / MVA          | Remarks   |
|-------|---|--------------------------------------|--|-----------------|--|--|----------------------------|---|
|       | Committee:<br><b>Rs. 370 crore</b>  |                                      | <b>Provider</b> – Purulia & Kharagpur Transmission Company Ltd.<br><br><b>Address</b> – C-2 Mira Corporate Suite, Ishwar Nagar, Mathura Road, New Delhi-110065   |                 |  |  |                            | Completion Date is 09.03.2016.<br>(v) Tariff adoption approval on 20.08.2014<br>(vii) License granted on 30.05.2014.<br><br><b>Schedule COD March 2016</b>  |
| 7     | Eastern Region System Strengthening Scheme – VI<br><br>Estimated Cost as provided by Empowered Committee:<br><b>Rs. 540 crore</b> | PFCCCL                               | <b>Successful Bidder</b> - EssellInfraprojectsLtd.<br><br><b>Address</b> – 513/A, 5th Floor, Kohinoor City, Kirol Road, LBS Marg, Off Bandra-Kurla Complex, Kurla (West), Mumbai - 400070<br><br><b>Transmission Service Provider</b> – Darbhanga - Motihari Transmission Company Ltd. |                 | Creation of 2x500 MVA, 400/220 kV GIS Substation at Darbhanga with space for future extension (1x500 MVA)<br><br>Creation of 2x200 MVA, 400/132 kV GIS Substation at Motihari with space for future extension (1x200 | 400/220 kV GIS Substation<br><br>400/220 kV GIS Substation | 2x500 MVA<br><br>2x200 MVA | (i) LOI placed on 17.10.2013<br>(ii) Special Purpose Vehicle acquired on 10.12.2013<br>(iii) Approval under section 68 on 24.07.2013.<br>(iv) Scheduled Completion Date is 01.07.2016.<br>(v) Tariff adoption approval on 20.05.2014. |

## Details of Transmission Projects Through Tariff Based Competitive Bidding Route

BPC – PFC Consulting Ltd.

| Sl No | Name of the project   | Nodal agency for the bidding process | Implementing Agency/ Transmission provider   | Agency/ service | Scope of work  | Nominal Voltage (kV) / type | Length (km) / MVA | Remarks   |
|-------|---|--------------------------------------|--|-----------------|--|-----------------------------|-------------------|---|
|       |   |                                      | <b>Address</b> – Essel House, B-10, Lawrence Road, Industrial Area, New Delhi - 110035   |                 | MVA)   |                             |                   | (vi) Transmission License granted on 30.05.2014.<br><br><b>Schedule COD July 2016</b>   |
|       |   |                                      |  |                 | Muzaffarpur(PG)-Darbhanga 400 kV D/c line with triple snowbird conductor | 400 kV D/C                  | 70 KM             |   |
|       |   |                                      |  |                 | LILO of Barh – Gorakhpur 400 kV D/c line at Mothihari, 400kV 2xD/C quad  | 400 kV D/c                  | 50 KM             |   |
| 8     | Part ATS of RAPP U-7&8 in Rajasthan<br><br>Estimated Cost as provided by Empowered Committee:<br><b>Rs. 310 crore</b> | PFCCCL                               | <b>Successful Bidder</b> - Sterlite Grid Ltd.<br><br><b>Address</b> – C-2 Mira Corporate Suite, Ishwar Nagar, Mathura Road, New Delhi-110065<br><br><b>Transmission Service Provider</b> – RAPP Transmission Company Ltd.<br><br><b>Address</b> – C-2 Mira Corporate Suite, Ishwar |                 | RAPP - Shujalpur 400kV D/C line  | 400 kV D/c                  | 260 KM            | (i) LOI placed on 17.09.2013<br>(ii) Special Purpose Vehicle acquired on 12.03.2014<br>(iii) Approval under section 68 on 16.05.2013.<br>(iv) Scheduled Completion Date is 28.02.2016.<br>(v) Tariff adoption approval on 05.08.2014. |

## Details of Transmission Projects Through Tariff Based Competitive Bidding Route

BPC – PFC Consulting Ltd.

| Sl No | Name of the project   | Nodal agency for the bidding process | Implementing Agency/ Transmission provider  | Agency/ service | Scope of work                                   | Nominal Voltage (kV) / type | Length (km) / MVA | Remarks  |
|-------|---|--------------------------------------|---|-----------------|---|-----------------------------|-------------------|--|
|       |   |                                      | Nagar, Mathura Road, New Delhi-110065   |                 |   |                             |                   | (vi) Transmission License granted on 31.07.2014.<br><b>Project Completed</b>   |
| 9     | Transmission System Associated with DGEN TPS (1200 MW) of Torrent Power Ltd.<br><br>Estimated Cost as provided by CEA: <b>Rs. 275 crore</b> | PFCCL                                | <b>Successful Bidder:</b> Instalaciones Inabensa S.A.<br><br><b>Address:</b> C/Energia Solar, 1 41014 – Sevilla Spain                 |                 | DGEN TPS – Vadodara 400 kV D/C, Twin Moose line | 400 kV D/c                  | 114 KM            | (i) Approval under section 68 on 30.01.2014.<br>(ii) Lol issued on 19.05.2014<br>(iii) Approval of MoP for transfer of SPV obtained on 04.03.2015.<br>(iv) SPV transferred to the successful bidder on 17.03.2015<br><b>Schedule COD May, 2018</b> |
|       |   |                                      |   |                 | Navsari – Bhestan 220 kV D/C line               | 220 kV D/c                  | 19 KM             |  |
| 10    | System strengthening for IPPs in Chhattisgarh and other generation projects in  | PFCCL                                | <b>Successful Bidder:</b><br><br>Adani Transmission Limited the investing affiliate of the successful bidder i.e. Adani Power Limited |                 | Gwalior 765/400 kV – Morena 400 kV D/C line     | 400 kV D/C                  | 50 KM             | (i) LOI placed on 28.07.2016<br>(ii) Special Purpose Vehicle acquired on 23.11.2015.<br>(iii) Approval   |
|       |   |                                      |   |                 | Establishment of substation at Morena           | 400/ 220 kV                 | 2X315 MVA         |  |
|       |   |                                      |   |                 | Vindhyachal-IV &                                | 400 kV D/C                  | 15 KM             |  |

## Details of Transmission Projects Through Tariff Based Competitive Bidding Route

BPC – PFC Consulting Ltd.

| Sl No | Name of the project  | Nodal agency for the bidding process | Implementing Agency/ Transmission provider  | Agency/ service | Scope of work  | Nominal Voltage (kV) / type | Length (km) / MVA | Remarks  |
|-------|--|--------------------------------------|---|-----------------|--|-----------------------------|-------------------|--|
|       | Western Region<br><br>Estimated Cost as provided by Empowered Committee:<br><b>Rs. 823 crore</b><br><b>Rs. 1285 crore</b><br>(as per cost Committee) |                                      |   |                 | V STPP – Vindhyachal Pool 400 kV D/C (Quad) 2nd line               |                             |                   | under section 68 on 24.04.2015.<br>(iv) Transmission License granted on 29.02.2016.  |
|       |  |                                      |   |                 | Sasan UMPP – Vindhyachal Pooling station 765 kV S/C line           | 765 kV S/C                  | 8 KM              | <b>Project Scheduled COD Nov 2018.</b>   |
|       |  |                                      |   |                 | LILO of one circuit of Aurangabad – Padghe 765 kV D/C line at Pune | 765 kV D/C                  | 50 KM             |  |
|       |  |                                      |   |                 | Raigarh (Kotra) - Champa (Pool) 765 kV 2 <sup>nd</sup> S/C line    | 765 kV S/C                  | 100 KM            |  |
|       |  |                                      |   |                 | Champa (pool) – Dharamjaigarh 765 kV 2 <sup>nd</sup> S/C line      | 765 kV S/C                  | 50 KM             |  |
|       |  |                                      |   |                 |  |                             |                   |  |
| 11    | Additional System Strengthening for Sipat STPS<br><br>Estimated Cost as provided by Empowered  | PFCCCL                               | <b>Successful Bidder:</b><br><br>Adani Transmission Limited the investing affiliate of the successful bidder i.e. Adani Power Limited |                 | Sipat – Bilaspur Pooling Station 765 kV S/C line                   | 765 kV S/C                  | 25 KM             | (i) LOI placed on 28.07.2016<br>(ii) Special Purpose Vehicle acquired on 23.11.2015. |
|       |  |                                      |   |                 | Bilaspur Pooling Station - Rajnandgaon 765 kV D/C line             | 765 kV D/C                  | 180 KM            | (iii) Approval under section 68  |

## Details of Transmission Projects Through Tariff Based Competitive Bidding Route

BPC – PFC Consulting Ltd.

| Sl No | Name of the project  | Nodal agency for the bidding process | Implementing Agency/ Transmission provider  | Agency/ service | Scope of work   | Nominal Voltage (kV) / type | Length (km) / MVA | Remarks   |
|-------|--|--------------------------------------|---|-----------------|---|-----------------------------|-------------------|---|
|       | Committee:<br>Rs. 867 crore<br>Rs. 1097 crore<br>(as per cost Committee)   |                                      |   |                 |   |                             |                   | on 30.03.2015.<br>(iv) Transmission License granted on 07.03.2016<br><br><b>Project Scheduled COD November 2018</b>   |
| 12    | Additional System Strengthening Scheme for Chhattisgarh IPPs – Part B<br><br>Estimated Cost as provided by Empowered Committee:<br>Rs. 1930 crore<br>Rs. 2260 crore<br>(as per cost Committee) | PFCCCL                               | <b>Successful Bidder:</b><br><br>Adani Transmission Limited the investing affiliate of the successful bidder i.e. Adani Power Limited |                 | Raipur (Pool) – Rajnandgaon 765 kV D/C line                   | 765 kV D/C                  | 60 KM             | (i) LOI placed on 28.07.2016<br>(ii) Special Purpose Vehicle acquired on 23.11.2015.<br>(iii) Approval under section 68 on 20.04.2015.<br>(iv) Transmission License granted on 07.03.2016<br><br><b>Project Scheduled COD July 2018</b> |
|       |  |                                      |   |                 | Rajnandgaon – New Pooling station near Warora 765 kV D/C line | 765 kV D/C                  | 270 KM            |   |
|       |  |                                      |   |                 | Establishment of new substation near Rajnandgaon              | 765/400 kV                  | 2x1500 MVA        |   |
| 13    | Common Transmission  | PFCCCL                               | <b>Successful Bidder:</b>   |                 | OPGC (IB TPS) – Jharsuguda                                    | 400 kV                      | 50 KM             | (i) LOI placed on 06.01.2016  |

## Details of Transmission Projects Through Tariff Based Competitive Bidding Route

BPC – PFC Consulting Ltd.

| Sl No | Name of the project   | Nodal agency for the bidding process | Implementing Agency/ Transmission provider                   | Agency/ service | Scope of work   | Nominal Voltage (kV) / type | Length (km) / MVA | Remarks  |
|-------|---|--------------------------------------|--|-----------------|---|-----------------------------|-------------------|--|
|       | System for Phase-II Generation Projects in Odisha and Immediate Evacuation System for OPGC (1320 MW) Project in Odisha<br><br>Estimated Cost as provided by Empowered Committee:<br><b>Rs. 2596crore (as per EC)</b><br><b>Rs. 1698 crore (as per cost Committee)</b> |                                      | <b>Sterlite Grid 3 Limited</b>                               |                 | (Sundargarh) 400kV D/C line with Triple Snowbird Conductor<br><br>Jharsuguda (Sundargarh) – Raipur Pool 765 kV D/C line |                             |                   | (ii) Special Purpose Vehicle acquired on 08.04.2016.<br>(iii) Approval under section 68 on 03.06.2015.<br>(iv) Transmission License is yet to be granted .<br><br><b>Project Scheduled COD June 2019 and for element 1 is July 2017.</b> |
| 14    | Additional inter-Regional AC link for import into Southern Region i.e. Warora –   | PFCCCL                               | <b>Successful Bidder:</b><br><br>Essel Infraprojects Limited |                 | Establishment of 765/400kV substations at Warangal (New) with 2x1500 MVA  | 765/400kV                   |                   | (i) LOI placed on 29.02.2016<br>(ii) Approval under section 68 on 22.03.2016.  |

## Details of Transmission Projects Through Tariff Based Competitive Bidding Route

BPC – PFC Consulting Ltd.

| Sl No | Name of the project  | Nodal agency for the bidding process | Implementing Transmission provider | Agency/ service | Scope of work   | Nominal Voltage (kV) / type | Length (km) / MVA | Remarks                                 |
|-------|--|--------------------------------------|------------------------------------|-----------------|---|-----------------------------|-------------------|---|
|       | Warangal and Chilakaluripeta - Hyderabad - Kurnool 765kV link<br><br>Estimated Cost as provided by Empowered Committee:<br><b>Rs. 7760crore</b><br><b>Rs. 5200 crore</b><br><b>(as per cost Committee)</b> |                                      |                                    |                 | transformers and 2x240 MVAR bus reactors  |                             |                   | (iii) SPV is transferred on 06.07.2016. |
|       |  |                                      |                                    |                 | Warora Pool – Warangal (New) 765kV D/c line with 240 MVAR switchable line reactor at both ends.   | 765kV                       | 350 KM            | <b>Project Scheduled COD July 2019.</b> |
|       |  |                                      |                                    |                 | Warangal (New) – Hyderabad 765 kV D/c line with 330 MVAR switchable line reactor at Warangal end. | 765 kV                      | 160 KM            |   |
|       |  |                                      |                                    |                 | Warangal (New) – Warangal (existing) 400 kV (quad) D/c line.                                      | 400 kV                      | 10 KM             |   |
|       |  |                                      |                                    |                 | Hyderabad – Kurnool 765 kV D/c line with 240  | 765 kV                      | 170 KM            |   |
|       |  |                                      |                                    |                 |   |                             |                   |   |

## Details of Transmission Projects Through Tariff Based Competitive Bidding Route

BPC – PFC Consulting Ltd.

| Sl No   | Name of the project  | Nodal agency for the bidding process | Implementing Agency/ Transmission provider                   | Agency/ service | Scope of work   | Nominal Voltage (kV) / type  | Length (km) / MVA   | Remarks   |
|---|--|--------------------------------------|--|-----------------|---|------------------------------|---------------------|---|
|   |  |                                      |  |                 | MVAR switchable line reactor at Kurnool end.  |                              |                     |   |
|   |  |                                      |  |                 | Warangal (New) – Chilakaluripeta 765kV D/c line with 240 MVAR switchable line reactor at both ends. | 765 kV                       | 250 KM              |   |
| BIDDING PROCESS RECENTLY COMPLETED (SPV NOT TRANSFERED) |  |                                      |  |                 |   |                              |                     |   |
| 15  | ATS for Tanda Expansion TPS (2X660 MW)<br><br>Estimated Cost as provided by Empowered Committee:<br><b>Rs. 345 crore</b><br><b>Rs. 336 crore (as per cost Committee)</b> | PFCCCL                               | <b>Successful Bidder:</b><br><br>Essel Infraprojects Limited |                 | Tanda TPS – Sohawal 400 kV D/C Line<br><br>Sohawal-Lucknow (New) (PG) 400 kV D/C Line.              | 400 kV D/c<br><br>400 kV D/c | 80 KM<br><br>120 KM | (i) LOI placed on 09.10.2015<br>(ii) Approval under section 68 on 06.11.2013<br>(iii) Out of 11 LTTCs, 8 LTTCs have signed the TSA and three LTTCs namely Punjab State Power Corporation Ltd, Tata Delhi Distribution |

**Details of Transmission Projects Through Tariff Based Competitive Bidding Route**

**BPC – PFC Consulting Ltd.**

| SI No | Name of the project | Nodal agency for the bidding process | Implementing Transmission provider | Agency/ service | Scope of work | Nominal Voltage (kV) / type | Length (km) / MVA | Remarks  |
|-------|---------------------|--------------------------------------|------------------------------------|-----------------|---------------|-----------------------------|-------------------|--|
|       |                     |                                      |                                    |                 |               |                             |                   | <p>Ltd and BSES Rajdhani Ltd has not yet signed the TSA.</p> <p>(iv) Efforts are being made for signing of TSA. CEA have conducted a meeting with Punjab State Power Corporation Limited and Tata Power Delhi Distribution on 23.10.2015 &amp; 03.12.2015.</p> <p>(v) Further, PFCCCL vide letter dated 17.12.2015 has requested JS(Trans) to intervene and called a meeting with balance LTTCs for signing of TSA.</p> <p>(vi) MoP has taken a meeting on</p> |

## Details of Transmission Projects Through Tariff Based Competitive Bidding Route

BPC – PFC Consulting Ltd.

| Sl No | Name of the project  | Nodal agency for the bidding process | Implementing Transmission provider | Agency/ service | Scope of work                        | Nominal Voltage (kV) / type | Length (km) / MVA | Remarks  |
|-------|--|--------------------------------------|------------------------------------|-----------------|--------------------------------------|-----------------------------|-------------------|--|
|       |  |                                      |                                    |                 |                                      |                             |                   | <p>23.02.2016.</p> <p>(vii) Further MoP vide mail dated 20.06.2016 has asked CTU, CEA, NTPC, PFCCL to comment on legal options for non-signing of TSA by the LTTCs and sent the same to MoP.</p> <p><b>Project Scheduled COD January 2019.</b></p> |
| 16    | <p>Creation of new 400kV GIS Substations in Gurgaon and Palwal area as a part of ISTS:</p> <p>Rs 1759 crore<br/>(as per EC)<br/><b>Rs. 1640 crore</b><br/>(as per cost</p> |                                      |                                    |                 | Aligarh–Prithala 400kV D/C HTLS line |                             | 116               | <p>(i) LOI placed on 17.03.2016</p> <p>(ii) Approval under section 68 on 26.11.2015</p> <p>(iii) Out of 14 LTTCs, 13 LTTCs have signed the TSA.</p> <p>(iv) SPV is proposed to be transferred by</p>   |

## Details of Transmission Projects Through Tariff Based Competitive Bidding Route

BPC – PFC Consulting Ltd.

| Sl No | Name of the project | Nodal agency for the bidding process | Implementing Transmission provider | Agency/ service | Scope of work  | Nominal Voltage (kV) / type | Length (km) / MVA | Remarks                                     |
|-------|---------------------|--------------------------------------|------------------------------------|-----------------|--|-----------------------------|-------------------|---|
|       | Committee)          |                                      |                                    |                 |  |                             |                   | 12.07.2016.                                 |
|       |                     |                                      |                                    |                 | Prithala–Kadarpur<br>400kV D/C HTLS<br>line  |                             | 56                | <b>Project Scheduled COD<br/>June 2019.</b> |
|       |                     |                                      |                                    |                 | Kadarpur–Sohna<br>Road 400kV D/C<br>HTLS line  |                             | 8.5               |   |
|       |                     |                                      |                                    |                 | LILO of Gurgoan–<br>Manesar D/C line<br>at Sohna Road S/                                   |                             | 5                 |   |
|       |                     |                                      |                                    |                 | Neemrana (PG)–<br>Dhonanda (HVPNL)<br>400kV D/C HTLS<br>line                               |                             | 83                |   |
|       |                     |                                      |                                    |                 | Creation of<br>400/220kV, 2X500<br>MVA GIS<br>substation at<br>Kadarpur in<br>Gurgaon area |                             | 1000              |   |
|       |                     |                                      |                                    |                 | Creation of  |                             | 1000              |   |

## Details of Transmission Projects Through Tariff Based Competitive Bidding Route

BPC – PFC Consulting Ltd.

| Sl No                                 | Name of the project   | Nodal agency for the bidding process | Implementing Transmission provider | Agency/ service | Scope of work   | Nominal Voltage (kV) / type | Length (km) / MVA | Remarks  |
|---------------------------------------|---|--------------------------------------|------------------------------------|-----------------|---|-----------------------------|-------------------|--|
|                                       |   |                                      |                                    |                 | 400/220 kV, 2X500 MVA GIS substation at Sohna Road in Gurgaon area        |                             |                   |  |
|                                       |   |                                      |                                    |                 | Creation of 400/220 kV, 2X500 MVA GIS substation at PrithalainPalwal area |                             | 1000              |  |
| <b>BIDDING PROCESS UNDER PROGRESS</b> |   |                                      |                                    |                 |   |                             |                   |  |
| 17                                    | 765 kV System Strengthening Scheme in Eastern Region (ERSS-XVIII)<br>Rs. 4407crores | PFCCL                                |                                    |                 | Establishment of 765/400kV, 2x1500MVA substation at Medinipur             |                             | 3000              | <ul style="list-style-type: none"> <li>MoP vide Gazette Notification dated 17.11.2015 appointed PFCCL as BPC.</li> <li>SPV incorporated on 22.01.2016</li> <li>The RfQ is issued from 12.01.2016 with the last date of submission of response</li> </ul> |
|                                       |   |                                      |                                    |                 | Establishment of 765/400kV, 2x1500MVA substations at Jeerat (New)         |                             | 3000              |  |

## Details of Transmission Projects Through Tariff Based Competitive Bidding Route

BPC – PFC Consulting Ltd.

| Sl No | Name of the project | Nodal agency for the bidding process | Implementing Transmission provider | Agency/ service | Scope of work  | Nominal Voltage (kV) / type | Length (km) / MVA | Remarks   |
|-------|---------------------|--------------------------------------|------------------------------------|-----------------|--|-----------------------------|-------------------|---|
|       |                     |                                      |                                    |                 | Ranchi (New) – Medinipur 765kV D/c line with Hexa ACSR Zebra conductor along with 240 MVAR 765 kV (765 kV, 3x80 MVAR single phase units) switchable line reactor with 750 $\Omega$ NGR in each circuit at either ends. |                             | 300               | 11.02.2016.<br><ul style="list-style-type: none"> <li>CEA vide its letter dated 06.04.2016 has revised the scope of the transmission scheme and advised BPC to redo the RfQ with modified scope.</li> <li>PFCL vide its letter dated 25.04.2016 has requested MoP for allowing to redo the RfQ with normal procedure instead of E-bidding.</li> </ul> |
|       |                     |                                      |                                    |                 | Medinipur - Jeerat (New) 765kV D/c line with Hexa ACSR Zebra conductor along with 240 MVAR (765 kV, 3x80 MVAR single phase units) switchable   |                             | 200               | <ul style="list-style-type: none"> <li>MoP vide MoM dated 01.06.2016 and advised PFCL to redo the RFQ with normal procedure.</li> <li>The RfQ is re-issued from 14.06.2016</li> </ul>   |

## Details of Transmission Projects Through Tariff Based Competitive Bidding Route

BPC – PFC Consulting Ltd.

| Sl No | Name of the project | Nodal agency for the bidding process | Implementing Transmission provider | Agency/ service | Scope of work   | Nominal Voltage (kV) / type | Length (km) / MVA | Remarks   |
|-------|---------------------|--------------------------------------|------------------------------------|-----------------|---|-----------------------------|-------------------|---|
|       |                     |                                      |                                    |                 | line reactor with 600 Ω NGR in each circuit at Jeerat(New) end  |                             |                   | with the last date of submission of response on 13.07.2016. |
|       |                     |                                      |                                    |                 | Medinipur – Haldia New (NIZ) (WBSETCL) 400kV D/c line [ACSR Quad Moose/ HTLS (equivalent to ACSR Quad Moose current rating at 85° C)] |                             | 130               |   |
|       |                     |                                      |                                    |                 | LILO of both circuits of Chandithala – Kharagpur 400 kV D/c line at Medinipur   |                             | 20                |   |
|       |                     |                                      |                                    |                 | Jeerat (New) – Subhasgram 400 kV D/c line [ACSR   |                             | 120               |   |

## Details of Transmission Projects Through Tariff Based Competitive Bidding Route

BPC – PFC Consulting Ltd.

| Sl No | Name of the project | Nodal agency for the bidding process | Implementing Transmission provider | Agency/ service | Scope of work  | Nominal Voltage (kV) / type | Length (km) / MVA | Remarks |
|-------|---------------------|--------------------------------------|------------------------------------|-----------------|--|-----------------------------|-------------------|---------|
|       |                     |                                      |                                    |                 | Quad Moose/ HTLS (equivalent to ACSR Quad Moose current rating at 85° C)]  |                             |                   |         |
|       |                     |                                      |                                    |                 | Jeerat (New) – Jeerat (WB) 400 kV D/c line [ACSR Quad Moose/ HTLS (equivalent to ACSR Quad Moose current rating at 85° C)] |                             | 15                |         |
|       |                     |                                      |                                    |                 | LILO of Jeerat (WB) – Subhasgram (PG) 400 kV S/c section at Rajarhat (PG)  |                             | 5                 |         |
|       |                     |                                      |                                    |                 | 2 no. 400 kV line bays at Haldia New (NIZ) (WBSETCL)   |                             |                   |         |
|       |                     |                                      |                                    |                 | 2 no. 400 kV line  |                             |                   |         |

## Details of Transmission Projects Through Tariff Based Competitive Bidding Route

BPC – PFC Consulting Ltd.

| Sl No | Name of the project  | Nodal agency for the bidding process | Implementing Transmission provider | Agency/ service | Scope of work  | Nominal Voltage (kV) / type | Length (km) / MVA | Remarks   |
|-------|--|--------------------------------------|------------------------------------|-----------------|--|-----------------------------|-------------------|---|
|       |  |                                      |                                    |                 | bays at Jeerat (WBSETCL)                                 |                             |                   |   |
| 18    | North Eastern Region Strengthening Scheme –V (NERSS-V)<br>Rs. 653 crores | PFCCCL                               |                                    |                 | Establishment of 400/220 kV, 2x500 MVA S/S at New Kohima |                             | 1000              | <ul style="list-style-type: none"> <li>MoP vide Gazette Notification dated 17.11.2015 appointed PFCCCL as BPC.</li> <li>SPV incorporated on 22.01.2016.</li> <li>The RfQ is issued from 14.01.2016 with the last date of submission of response 15.02.2016.</li> <li>5 nos. RfQ response has been received and RfQ evaluation is under progress.</li> </ul> |
|       |  |                                      |                                    |                 | Imphal – New Kohima 400kV D/c line                       |                             | 120               |   |
|       |  |                                      |                                    |                 | New Kohima – New Mariani 400kV D/c line                  |                             | 110               |   |