



भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

केन्द्रीय विद्युत प्राधिकरण

Central Electricity Authority

विद्युत प्रणाली योजना एवं मूल्यांकन-I प्रभाग

Power System Planning & Appraisal-I Division

No. 100/1/EC (37) 2017-PSP&PA-I/ 1178 - 1187

Dated: 24th October, 2017

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.

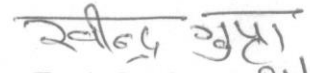
Subject: 37th Meeting of the Empowered Committee on Transmission - Minutes of the meeting

Sir/madam,

Please find enclosed the minutes of 37th Meeting of the Empowered Committee on Transmission held on 20.9.2017 under the chairmanship of Member (Power System, CEA)

The same is also available at CEA website
<http://cea.nic.in/reports/committee/empowered/minutes/37.pdf>

Yours faithfully,


(Ravinder Gupta) 24/10/17
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)
- (iv) Chief Engineer (PSPA-II),CEA

Minutes of the 37th meeting of the Empowered Committee on Transmission

Date and Time: 20th September 2017, 1500 hrs

Venue: CEA, Sewa Bhawan, R.K. Puram, New Delhi

List of Participants is enclosed at Annexure-I.

Member (Power System), CEA as Chairman of the Empowered Committee welcomed the members to the 37th meeting of the Empowered Committee on Transmission. He stated that this meeting is taking place almost after a year. He requested Chief Engineer(PSPA-I), CEA to take up the agenda for discussion.

1.0 Confirmation of the minutes of 36th meeting of Empowered Committee on Transmission

1.1 Chief Engineer (PSPA-I), CEA informed that the minutes of 36th meeting of Empowered Committee (EC) on Transmission held on 26th July, 2016 were issued vide CEA letter No. 100/ 1 / EC (36) /2016–PSP&PA-I/963-978 dated 9th August, 2016 and a corrigendum to the minutes was also issued vide letter No. 100/ 1 / EC (36) /2016 – PSP&PA-I/1028-1037 dated 18th October, 2016. Subsequent to the issue of corrigendum, CTU vide their letter dated 11.11.2016 had intimated that the issue of compensation to CTU for providing technical inputs for transmission schemes under bidding to BPC was not reflected in the minutes of the meeting and had also suggested certain general modifications. The issue of the compensation to CTU would be deliberated in the meeting and other general modifications suggested by CTU would be incorporated in the minutes of meeting of Empowered Committee on Transmission.

1.2 After deliberations, the minutes of the 36th meeting of Empowered Committee on Transmission along with corrigendum were confirmed. He requested Director (PSPA-I), CEA to take up the agenda for discussion.

2.0 Notification / approval of transmission schemes approved in 36th Empowered Committee (EC) on Transmission by MoP

2.1 CEA stated that the following transmission schemes were approved in the 36th meeting of EC on transmission for implementation through Tariff Based Competitive Bidding (TBCB) and MOP vide Gazette notification dated 28th October 2016 has appointed Bid Process Coordinators (BPCs) for the transmission schemes, as shown against the name of each transmission scheme.

Sl. No.	Name of the scheme	Name of the BPCs
1.	New WR- NR 765 kV Inter-regional corridor	RECTPCL
2.	Transmission system for Ultra Mega Solar Park in Fatehgarh, distt. Jaisalmer Rajasthan	PFCCCL
3.	A. Additional 400 kV feed to Goa B. Additional System for Power Evacuation from Generation Projects pooled at Raigarh (Tamnar) Pool	PFCCCL

4.	A. Connectivity System for Lanco Vidarbha Thermal Power Ltd. (LVTPL) B. Inter State Transmission system strengthening in Chhatarpur area in Madhya Pradesh	PFCCCL
5.	Connectivity and Long Term Access (LTA) to HPPCL 450 MW from Shongtong Karcham HEP	PFCCCL
6.	Eastern Region Strengthening Scheme –XXI (ERSS-XXI)	RECTPCL

2.2 The following transmission schemes were agreed in the 36th meeting of EC on Transmission to be implemented through regulated tariff mechanism and MoP vide its letter no. 15/3//2016-Trans dated 28th Oct., 2016 has approved these schemes to be implemented under compressed time schedule through Regulated Tariff Mechanism by POWERGRID.

S. No.	Name of the Transmission Scheme
1.	Provision of 765kV line bays at 765/400 kV Ajmer Substation for 765 kV D/C line Korna (RRVNL) S/S to Ajmer (PG) 765/400 kV S/S
2.	400kV line bays at Bhinmal (PG) & Sikar(PG) along with 50 MVAR line reactor at Sikar(PG)(30th & 38th SCM)
3.	Eastern Region Strengthening Scheme –XX (ERSS-XX)
4.	Conversion of Fixed Line Reactors to Switchable Line Reactors in Southern Region
5.	Augmentation of Transformation Capacity in Southern Region
6.	Installation of Bus Reactors at Cuddapah, Nellore, Kurnool, Raichur and Thiruvallur
7.	Provision of One no. of 220 kV bay at Roorkee under NRSS XXXVI
8.	Provision of 2 no. of 400 kV line bays at Bhadla (PG) for termination of Fatehgarh- Bhadla 765 kV D/C line charged at 400 kV under the transmission scheme “Transmission System for Ultra Mega Solar Park in Fatehgarh, distt. Jaisalmer Rajasthan”
9.	Provision of 1x80 MVAR , 420 kV fixed line reactor along with 500 Ohms NGR under the transmission scheme “Additional 400 kV Feed to Goa”

2.3 In the 39th meeting of SCPSPNR, Korna-Ajmer 765 kV D/C line (RVNL - intra state line) has been agreed to be dropped. Therefore, 2 no. associated 765 kV bays at Ajmer S/S indicated in the scheme no. 1 will not be implemented by POWERGRID.

2.4 The following transmission schemes associated with evacuation of solar parks in Karnataka, Rajasthan and Gujarat were noted by the Empowered Committee to be

implemented through regulated tariff mechanism. MoP vide letter no. 11/64/2014-PG dated 8-01-2015 has, inter alia, assigned the transmission system associated with these solar parks to POWERGRID on compressed time schedule.

S. No.	Name of the Transmission Scheme
1.	Transmission System for Tumkur (Pavgada) Ultra Mega Solar Park in Karnataka
2.	Transmission system for Ultra Mega Solar Parks in Bhadla, Distt. Rajasthan
3.	Transmission System for Banaskantha (Radhanesda) Ultra Mega Solar Power Park in dist. Banaskantha, Gujarat (700 MW)

2.5 **Members noted the same.**

3.0 **De-notification of the Scheme ATS for Tanda Expansion TPS (2x660) MW**

3.1 CEA stated that MoP vide Gazette notification dated May 20, 2013 had notified transmission scheme 'ATS for Tanda Expansion TPS (2x660) MW' for implementation through TBCB route by PFC Consulting Limited (PFCCL) as the Bid Process Coordinator (BPC). The scope of works covered under the scheme is given below;

Scope of Works	Length (in km)	Estimated Cost (Rs. Crore)
Tanda TPS–Sohawal 400 kV D/c line	80	100
Sohawal-Lucknow (New) (PG) 400 kV D/c line	120	145
Total		245

Note:

- CTU to provide 2 no. of 400 kV bays at Lucknow (New) S/S
- CTU to provide 4 no. of 400 kV bays at Sohawal S/S
- NTPC to provide 2 no. of 400 kV bays at Tanda TPS Switchyard

3.2 RfQ and RfP for the scheme were issued by BPC on 01.10.2014 and 12.01.2015 respectively. The bid process for the transmission scheme was completed and the Letter of Intent (LoI) was issued to the successful bidder "Essel Infra Projects Limited", on 9th October, 2015. However, due to non-signing of TSA by the 3 (out of 11) LTTCs viz.(i) Punjab State Power Corporation Ltd (PSPCL) (ii) Tata Power Delhi Distribution Ltd (TPDDL) and (iii) BSES Rajdhani Power Ltd, the SPV could not be transferred.

3.3 Subsequently, PSPCL, TPDDL and BRPL surrendered their allocated power from Tanda-II generation project and MoP revised the power allocation from Tanda-II, vide their order dated 18.5.2017 with UP's share as 943.45 MW plus additional 5% from the unallocated power (5% of 1320=66 MW). Accordingly, in the 39th meeting of SCSPNR, constituents agreed to drop the Inter State transmission scheme - ATS for Tanda Expansion TPS (2x660) MW.

3.4 To the query from the members of the Committee, CEA clarified that Tanda TPS (2x660 MW) is already under implementation and out of the total evacuation system

only part of evacuation system (under ISTS) has been dropped and the balance transmission system is sufficient for evacuation of power from Tanda TPS which is being implemented by UPPTCL as their Intra-State transmission scheme. UPPTCL has also agreed to take up necessary augmentation at 220 kV level required to meet contingency condition.

- 3.5 The Committee members agreed that the scheme may be denotified.
- 3.6 PFFCL stated that since the bid process for the transmission scheme was completed and only transfer of SPV could not take place, they have incurred substantial expenses in the bidding process for the scheme. In the event of de-notification of the scheme, the same cannot be recovered. There should be some mechanism for recovery of expenses incurred by BPC's in case of abandonment/de-notification of transmission schemes.
- 3.7 The Committee members opined that this is financial issue and does not fall under purview of Empowered Committee. It was decided that BPC may take up the matter with Ministry of Power. Ministry of Power agreed to look into the matter.

4.0 Issues raised by STUs in Standing Committees due to implementation of schemes through TBCB:

- 4.1 CEA stated that during the 39th meeting of SCPSPNR, following issues were raised by STUs especially with respect to sub-stations being implemented through TBCB.
- i) While planning a substation, upfront fixing of detailed scope of down stream works is not always possible as STU may require outgoing feeder bays at different point of time.
 - ii) Implementating agency for the Upgradation / augmentation in the existing sub-stations, addition of reactors, conversion of fixed reactors to switchable reactors at existing sub-stations should be the owner of the substation.
- 4.2 CEA added that members of the SCPSPNR had suggested that provisions should be made in the tariff policy for augmentation work at existing substaions to be done by existing Transmission System Provider (TSP) under regulated tariff mechanism.
- 4.3 With regard the issue at (i) above the Empowered Committee suggested that 220 kV bays to be included in the scope of TBCB should be as per the requirement indicated by the drawing entity.

Regarding (ii) above it was informed that as per the existing tariff policy, all future inter-state transmisssion projects shall ordinarily be developed through competitive bidding process. The Central Government may give exemption from competitive bidding for a) specific category of projects of strategic importance, technical upgradation etc. or b) works required to be done to cater to an urgent situation on a case to case basis.

- 4.4 Member (E&C), CEA stated that only those projects needs to be exempted from TBCB, which clearly falls under defined categories. In case of any doubt, the project should be implemented through Tariff Based Competitive Bidding. Therefore, as per the prevailing Tariff Policy, augmentation in existing sub-station is to be implemented through TBCB.
- 4.5 CTU stated that the basic objective of Tariff Based Competitive Bidding was to bring in economics and enable reduction in cost. The cost of above elements like transformer augmentation, reactor installation etc are very low and major cost is towards the supply of equipments and therefore no cost saving is expected if the substation augmentation is

carried out through TBCB route,. In fact this would result in many implementation issues.

- 4.6 CTU further stated that as per the present practice, the augmentation of works in any substation are generally carried out by the owner of the substation. In case these works are implemented through TBCB, there would be additional cost towards the consultancy charges of the order of about 15% for implementation /supervision which would be paid to the owner of the substation and basic objective of cost optimisation would be compromised. It would therefore be prudent that the substation augmentation may be carried out by the owner of the substation. Other EC Members were not in agreement with CTU views and observed that Empowered Committee should comply with the mandate of the Tariff Policy rather than reinterpreting it.

5.0 Status of transmission schemes under bidding process - briefing by BPCs

- 5.1 Details of transmission projects awarded through TBCB route by RECTPCL and PFCCL is given at **Annexure-II (A) and II (B)** respectively.
- 5.2 **Members noted the same.**

6.0 New inter-state transmission schemes

6.1 System strengthening Scheme in Northern Region

- 6.1.1 CEA stated that during the 39th meeting of SCPSPNR held on 29-30th May, 2017 following inter-state transmission schemes were agreed:

Transmission Scheme	Detailed scope of works	Estimated Cost (Rs. Crore)
1x500MVA, 400/220kV ICT along with ICT bays and 1 nos. of 220kV line bays at 400kV Roorkee (PG) S/s	<ul style="list-style-type: none"> • 400/220kV ICT, 500MVA • 400kV ICT bay -1 • 220kV ICT bay-1 • 220kV line bay-1 	36.4
1x500MVA, 400/220kV ICT along with ICT bays and 2 nos. of 220kV line bays at 400kV Sonapat (PG) S/s	<ul style="list-style-type: none"> • 400/220kV ICT, 500MVA • 400kV ICT bay -1 • 220kV ICT bay-1 • 220kV line bay-2 	41.4
2 nos. of 220kV bays at 400 kV Abdullapur (PG) S/s	220kV line bay-2	10.1
1x500MVA, 400/220kV ICT along with ICT bays at Bhadla pooling station <i>Note: The 1X500MVA, 400/220kV ICT at Bhadla is to be provided for grant of LTA to M/s Essel Saurya Urja Company of Rajasthan Ltd. So, it is proposed to take up the above mentioned ICT at Bhadla Pooling Station separately after fulfilling regulatory requirements by the LTA applicant.</i>	<ul style="list-style-type: none"> • 400/220kV ICT 500MVA, • 400kV ICT bay -1 • 220kV ICT bay-1 	31.3

Replacement of 1x315 MVA ICT by 1x500 MVA along with two nos. of 220 kV line bays at Lucknow	<ul style="list-style-type: none"> • 400/220kV ICT 500MVA, • 400kV ICT bay -1 • 220kV ICT bay-1 • 220kV line bay-2 	41.4
1x315 MVA, 400/220 kV ICT (to be shifted from Lucknow after refurbishment if required) with 2 nos. of 220 kV line bays at Gorakhpur	<ul style="list-style-type: none"> • 400kV ICT bay -1 • 220kV ICT bay-1 • 220kV line bay-2 	23.8
1x500MVA, 400/220kV ICT along with 2 nos of 220kV line bays at 400kV Fatehpur (PG) S/s	<ul style="list-style-type: none"> • 400/220kV ICT 500MVA, • 400kV ICT bay -1 • 220kV ICT bay-1 • 220kV line bay-2 	41.4
Total		225.8

- 6.1.2 Shri. V V R K Rao, Expert Member enquired that whether the cost of transmission schemes indicated in the table is firm or will change as it is seen that in some of the cases there is variation in cost of the scheme arrived to by Cost Committee as compared to Empowered Committee cost.
- 6.1.3 CEA clarified that as the scheme involves only augmentation of existing substation / replacement of transformer, the cost will not vary much. With regard to implementation of the scheme through TBCB, CTU stated that there will be lot of practical difficulties in implementation of this scheme. It also involves shifting of transformer from one place to another which poses question on how the tariff of the asset would be fixed.
- 6.1.4 Shri Ravinder, Expert Member stated that CTU should recover the cost of transformer to be shifted, based on depreciated value of asset, as per the norms fixed by CERC.
- 6.1.5 CTU stated that there would be challenges in implementing the scheme through TBCB route in view of the following:
- i) Safety and security of the substations is of utmost importance for reliable power supply in the country. For augmentation of works, POWERGRID shall provide controlled access under supervision of POWERGRID officials. There may even be cyber security issue as person putting a small piece of equipment in a substation would have access to the control room for operation.
 - ii) From economic point of view also, it is not desirable as most of the facilities installed in a substation are shared and all these would have to be duplicated.
 - iii) During the 36th meeting of the Empowered Committee, provision of similar works i.e. augmentation of ICTs and provision of Bus Reactors was covered, wherein the Committee opined that such schemes fall under the category of projects of strategic importance, technical up-gradation etc. and may be implemented under Regulated Tariff Mechanism by POWERGRID. Now for the same type of works the Committee is taking a different approach. In case some clarification in the wording of tariff policy is required, the same may be referred to Ministry of Power.
 - iv) These augmentations are proposed to avoid operational constraints based on the operational feedback by POSOCO or by states. If it is implemented under Regulated Tariff Mechanism by CTU, some diversion of equipment or interim/alternate arrangement, if required, may be carried out. However, if it is a

separate scheme under TBCB, this will take much longer time resulting in additional cost as well as operational constraints during the delay period.

- 6.1.6 CTU further stated that the scheme may involve some modifications in the existing substations, which can only be worked out at the time of detailed engineering. For augmentation of these works, it would not be possible to exactly identify the Bill of quantities (BoQ) as at some locations, new dia would have to be created and at some locations half dia would be available. At some locations, space for panels in control would be available and in some cases, control room would have to be expanded by removing some of the walls. Therefore, in case of implementation through TBCB, it would be difficult for them to provide the BoQ at the time of RfP preparation. POWERGRID would only be able to supply the GA and SLD drawing along with the location where new equipment is to be installed.
- 6.1.7 Shri Ravinder, Expert Member, observed that minor coordination issues cannot be the ground to deviate or relax the tariff policy. As per the act, coordination among ISTS agencies is a statutory obligation of CTU for smooth transfer of power. Sh. Ravinder and Member (E&C), CEA added that since these are familiar and minor issues, in any case required to be addressed to implement any project through competitive bidding. Coordination is always required between various agencies while implementing the infrastructure projects. The points raised by CTU are manageable. It was suggested that as of now the augmentation scheme may be taken up under TBCB. All other members were in agreement that the scheme be taken up through TBCB route.
- 6.1.8 After detailed deliberations, EC recommended the above mentioned transmission scheme to be implemented through TBCB.

6.2 Name of the Scheme: New 400kV feed to Maharani Bagh (PG) 400/220kV S/s

- 6.2.1 CEA stated that the scheme “New 400kV feed to Maharani Bagh (PG) 400/220kV S/s” comprises of 4 no. of 400 kV GIS bays at 400/220kV Maharani Bagh (existing) substation for LILO of both circuits of Mandola-Bawana 400 kV D/C line at Maharani Bagh (existing) and by passing of LILO of one circuit of 400 kV Dadri–Ballabgarh D/C line at Maharani Bagh (existing) (to be used during emergency). The LILO of both circuits of Mandola-Bawana 400 kV D/C line at Maharani Bagh (existing) is under construction by POWERGRID.

To meet the load demand of East Delhi, Kashmere Gate, Park Street and Electric Lane areas 400/220kV Rajghat substation was planned by LILO of both circuits of Mandaula-Bawana 400 kV D/C line at Rajghat. Also, to strengthen the 400kV network of Delhi and to provide second feed to Maharani Bagh, the scheme NRSS-XXXIX (Rajghat–Maharanibagh 400kV D/C line) was planned. MoP has, intevalia, assigned the implementation of above two projects to POWERGRID under compressed time schedule. However, due to non availability of land at Rajghat, its location was shifted near to IP Extn, which was further shifted to existing Maharani Bagh 400/220kV S/s. As the proposed 400/220kV Rajghat (Maharani Bagh-II)(GIS) sub-station was contiguous to existing 400/220kV Maharanibagh (GIS) sub-station, the scheme NRSS XXXIX was agreed to be dropped.

Subsequently, DTL had requested to shift the Rajghat (Maharani Bagh-II) 400/220 kV substation from Maharani Bagh to Gopalpur in North Delhi due to severe RoW constraints in taking out 220 kV and 33 kV feeders. The matter was deliberated in 39th meeting of SCSPNR held on 29-30th May, 2017, wherein, it was agreed that 4x500 MVA, 400/220 kV Rajghat sub-station would be dropped. Further, a new 4x500MVA 400/220kV substation at Gopalpur was agreed and the same would be implemented by DTL as intra state project. Further, considering the availability of only one no. corridor

for constructing 400 kV line in Yamuna bed and minimum change in scope of already awarded contract, it was decided to implement LILO of both circuits of Mandaula-Bawana 400 kV D/C line at Maharani Bagh (existing) substation on multi circuit tower to provide second feed to Maharani Bagh S/S and LILO of both circuits of Bawana-Maharani Bagh 400 kV D/C line at proposed Gopalpur (GIS) sub-station to provide 400 kV connectivity to Gopalpur S/S to be implemented by DTL as intra state project. To address the high fault level issue at Maharani Bagh sub-station, it was decided that LILO of Samaypur (PG)-Dadri 400 kV line at Maharani Bagh would be bypassed at Maharani Bagh. The LILO would be operated in emergency condition only. It may be noted that the LILO of both circuits of Mandola-Bawana 400 kV D/C line at Maharani Bagh (PG) is under implementation by POWERGRID.

In view of above, following scope of works were agreed to be taken up under ISTS:

Transmission Scheme	Estimated Cost (Rs. Crore)
i) 4 no. of 400 kV GIS bays at 400/220kV Maharani Bagh (existing) substation for LILO of both circuits of Mandola-Bawana 400 kV D/C line at Maharani Bagh (existing)	67.5
ii) By passing of LILO of one circuit of 400 kV Dadri-Ballabgarh D/C line at Maharani Bagh (existing) (to be used during emergency)	

6.2.2 Members opined that the transmission scheme is in lieu of Rajghat-Maharani Bagh 400kV D/C line along with associated bays, which was earlier given to POWERGRID for providing second feed to Maharani Bagh. Maharani Bagh 400kV S/s is one of the most important element for power supply in Delhi. As LILO of both circuits of Mandola-Bawana 400 kV D/C line at Maharani Bagh (existing) is under construction by POWERGRID, the 400kV bays are required in the matching time frame. Therefore, looking into the fact that the scheme is urgent in nature in order to provide the reliability of power supply in Delhi and to bring down the short circuit level at Maharani Bagh, the scheme may be implemented by POWERGRID.

6.2.3 **After deliberations, Empowered Committee recommended the above elements to be included in the scheme ‘Creation of 400/220kV substations in NCT of Delhi during 12th Plan period (Part-A)’ to be implemented through regulated tariff mechanism by POWERGRID.**

6.3 Name of the Scheme: Scheme to control Fault Level in Northern Region (Phase-II)

6.3.1 CEA stated that the problem of high short circuit level in Northern Region was deliberated in 39th meeting of SCPCPNR held on 29-30th May, 2017 and seven numbers of pockets (where each pocket consists of a group of substations) having high fault level were identified. In the meeting, it was decided that initially measures to control high short circuit level in two pockets i.e. i) Kanpur, Panki and Fatehpur ii) Bhiwani, Hissar, Mohindergarh and Moga, which involve re-alignment of some lines and installation of 12ohm bus/line reactors would be taken. The scope of the transmission scheme is as under:

Scope of Transmission Scheme	Estimated Cost (Rs. Crore)
Part-A: At Kanpur	65
i) 12ohm Series Line reactor in Kanpur (old)–Kanpur (New), 400kV D/c line at Kanpur (old) end	
ii) Fatehpur–Kanpur (old) 400kV D/c and Kanpur (old)-Panki 400kV D/c lines to be disconnected at Kanpur (old) end and connecting them directly to form Fatehpur-Panki 400 kV D/c line.	
Part-B: At Bhiwani, Hissar and Mohindergarh	110
i) 12ohm Series Bus reactor at Bhiwani (PG) substation.	
ii) 12ohm Series Line reactors in Mohindergarh–Dhanonda 400kV D/c line Ckt I & II at Dhanonda end (To be implemented by HVPNL)	
iii) Mohindergarh–Bhiwani (PG) 400kV D/c line (One of the two D/c lines) and Bhiwani (PG)- Hissar (PG) 400kV D/c line (D/c line which is Direct)) to be disconnected from Bhiwani (PG) end and directly connected to form Mohindergarh–Hissar 400kV D/c line.	
iv) The remaining Bhiwani (PG)–Hissar (PG) 400kV D/c line (one circuit via Bhiwani (BBMB) and Hissar (PG)–Moga (One circuit via Fatehbad) 400kV line to be disconnected at Hissar end and directly connected to form Bhiwani (PG)–Moga 400kV line (One circuit via Fatehbad and other circuit via Bhiwani (BBMB))	
Total Estimated Cost (Rs. Crore)	175

Note: For both Part-A & Part-B, Shifting/reorientation works inside substations may be required to accommodate the splitting/bypass arrangements

6.3.2 CTU stated that implementation of these works through TBCB would be very difficult as this involves detailed studies including TRV studies. Some existing equipments may also have to be replaced.

6.3.3 **The matter was deliberated and Members opined that POWERGRID may make the presentation in the next meeting of EC on Transmission, clearly indicating the complexities involved in the execution of the works through TBCB route. The decision regarding implementation of the scheme may be taken in the next meeting of the Empowered Committee.**

6.4 Name of the Scheme: Reactive Power Compensation in Northern Region

6.4.1 CEA stated that to control high voltage in the Northern grid, the provision of reactive compensation, was discussed and approved in the 39th meeting of Standing Committee on Power System Planning of Northern Region held on 29-30th May, 2017. The scheme ‘Reactive Power Compensation in Northern Region’ involves installation of bus

reactors at various 220kV & 400kV buses and Thyristor Controlled Reactor (TCR) of capacity 500 MVAR at Kurukshetra 400 kV bus. The scope of the transmission scheme is as under:

Scope of Transmission Scheme	MVA R	Estimated Cost (Rs. Crore)
A) 220kV bus reactor		
i) Jind (PG)	25	42.4
ii) Fatehabad (PG)	25	
iii) Kishenpur (PG)	25	
iv) Jalandhar (PG)	2x25	
v) Amritsar (PG)	25	
vi) Mandola(PG)	25	
7 nos. of reactor bays		
B) 400kV bus reactor		
i) Maharaniabagh (PG)	125	192.2
ii) Mandola(PG)	125	
iii) Hissar(PG)	125	
iv) Kala Amb (TBCB)	125	
v) Chamera Pooling Stn. (PG)	125	
vi) Kishenpur(PG)	125	
vii) Jullandhar(PG)	125	
viii) Moga(PG)	125	
ix) Patiala(PG)	125	
x) Sikar (PG)	125	
xi) Allahabad(PG)	125	
xii) Meerut(PG)	125	
xiii) 12 nos. of reactor bays		
C) TCR of capacity 500 MVAR at Kurukshetra 400 kV bus.	500	80.0
Total Estimated Cost (Rs Crore)		314.6

- 6.4.2 On a query from Shri Ravinder, Expert Member (Empowered Committee), about the requirement of TCR at Kurukshetra, CTU stated that some operational constraints are observed at Kurukshetra 400 kV bus. System studies were carried out for smooth and reliable operation of HVDC link considering very low load in Northern Region. It has been seen from the studies that with total 1500 MW injection from HVDC link, about 500 MVAR reactive power support would be required to mitigate the operational constraints. Therefore, to balance the MVAR requirement on real time basis, it was proposed to provide 500 MVAR TCR (Thyristor Controlled Reactor), which acts as a self-regulating device for Reactive VAR absorption and shall improve voltage regulation at Kurukshetra bus. The proposed TCR would be first project in Indian grid.

6.4.3 After deliberations, members approved the provision of bus reactors at various 220kV and 400kV buses (listed above) for implementation through TBCB route. The provision of TCR of capacity 500 MVAR at Kurukshetra 400 kV bus, being a technical upgradation work/new technology, was agreed to be implemented through regulated tariff mechanism by POWERGRID.

6.5 Name of the Scheme: Converting Fixed Line Reactors into Switchable Line Reactors in Over Compensated lines

6.5.1 The transmission scheme ‘Converting Fixed Line Reactors into Switchable Line Reactors in Over Compensated lines’ has been approved in the 39th meeting of Standing Committee on Power System Planning of Northern Region held on 29-30th May, 2017. The scope of the transmission scheme is as under:

Sl. No.	Name of the Line	Substation (sending end)	Reactor (MVAR)	Substation (receiving end)	Reactor (MVAR)	Estimated Cost (Rs. Crore)
i)	Sohawal - Ballia I	Sohawal	50	Balia	63	
ii)	Sohawal - Ballia II	Sohawal	50	Balia	63	
iii)	Abdullapur-Panchkula I	Abdullapur	50		--	
iv)	Abdullapur-Panchkula II	Abdullapur	50		--	
Total Estimated Cost (Rs Crore)						

Note: Provision should be kept to use these line reactors as bus reactors in case the line is not in operation.

6.5.2 CEA stated that due to huge variation in load / generation pattern in Northern Region, the line reactors are very much required in the system during light load conditions and need to be taken out of service during peak load conditions. The above scheme is urgent in nature and is based on the operational feedback given by POSOCO

6.5.3 After deliberations, members approved the above scheme for implementation through Regulated Tariff Mechanism by POWERGRID as technical upgradation.

6.6 Name of the Scheme: Additional 400 kV outlets from Banaskantha 765/400 kV S/S

6.6.1 Following Transmission scheme was agreed in the 41st meeting of Standing Committee Meeting on Power System Planning in WR held on 21.12.2016 to relieve overloading on Banaskantha – Sankhari 400 kV D/c line. The scope of work under the transmission scheme is as follows:

Sl. No.	Scope of the Transmission Scheme	Details	Estimated Cost (Rs. Crore)
i)	LILLO of 2 nd circuit of 400 kV Zerda – Ranchodpura D/C line at Banaskantha (PG) PS*	Route length-30km	62
ii)	400 kV line bays at Banaskantha (PG) PS	400kV line bays -2	
	Total(in crore)		62

*LILLO of other circuit of Zerda – Ranchodpura 400kV D/c line at Sankhari(GETCO) is already under implementation by GETCO.

Note:

- The line lengths mentioned above are approximate as the exact length shall be obtained after the detailed survey.
- POWERGRID to provide space for 2 nos. 400kV line bays at Banaskantha(PG)

6.6.2 **Members recommended the above scheme for implementation through TBCB route. Members suggested that small schemes may be clubbed together to form a single package and the scheme may be notified accordingly.**

6.7 Name of the Scheme:2 nos. 220 kV feeder bays associated with 1x500 MVA, 400/220 kV 3rd ICT at Khandwa (PG) substation

6.7.1 The scheme was agreed in 41st Meeting of SCPSPWR held on 21.12.2016. The scope of work under the transmission scheme is as follows:

Sl. No.	Scope of the Transmission Scheme	Details	Estimated Cost (Rs. Crore)
i)	220 kV line bays associated with 3 rd ICT 500 MVA, 400/220 kV at Khandwa (PG) S/s	220kV line bay-2 nos.	10.12
	Total(in crore)		10.12

Note:

(i) POWERGRID to provide space for 2 numbers of 220kV line bays at Khandwa (PG) S/s

6.7.2 CTU stated that the MPPTCL has requested for implementation of 2 nos. 220kV line bays at Khandwa(PG) 400/220kV substation by December 2018 as MPPTCL has placed the order for construction of Khandwa(PG) 400/220kV –Chhenera 220kV D/c line with target completion of December 2018. 500MVA, 3rd ICT at Khandwa 400/220kV substation is already under implementation by POWERGRID and the same is expected by Sep'19.

6.7.3 **Therefore, looking into the fact that the scheme is required in compressed time schedule, after deliberations, members recommended the above scheme for implementation through Regulated Tariff Mechanism (RTM) by POWERGRID.**

6.8 Name of the Scheme: Measures to control fault level at Wardha Substation

6.8.1 CEA stated that the measures to control high short circuit level at Wardha 400 kV sub-station of POWERGRID were discussed in the 37th, 39th, 40th & 41st meetings of SCPSPWR. In the 41st meeting of SCPSPWR scheme involving bus splitting at Wardha with 12 Ohm fault limiting reactor between 400kV Bus Section A & Bus Section B and realignment of 400 kV lines has been agreed to control the high fault level at Wardha 400 kV S/s. The scope of the transmission scheme is as under:

Sl. No.	Scope of the Transmission Scheme	Estimated Cost (Rs. Crore)
i)	Split of 400 kV Wardha substation into two sections, Section – A and Section-B as per diagram, with necessary switching arrangement	75
ii)	Interconnecting Wardha - Koradi II 400 kV quad with Warora – Wardha 400 kV (Quad) line at outskirts of Wardha substation so as to form Warora – Koradi II 400 kV (Quad) line	
iii)	All necessary arrangement for Change in termination of Warora Pool -Wardha 400 kV D/C (Quad) line by disconnecting it from Wardha 400kV BUS Section A and terminating in vacant 400 kV bays of Warora and Koradi II 400 kV (Quad) lines at Wardha 400kV BUS Section B.	
iv)	12 Ohm fault limiting reactor to connect 400kV BUS Section A and BUS Section B of Wardha 400 kV BUS.	
v)	2 X 63MVAR line reactors at Wardha end of Wardha – Warora Pool 400 kV D/C (quad) line to be used as bus reactors at Wardha S/s - section A (by using the two nos. of 400 kV bays which shall be vacant in Wardha Bus Section-A after shifting of Warora pool - Wardha 400 kV D/C line from Section - A to Section-B)	
vi)	Necessary modification at Wardha sub-station like change of some elements including CTs if those are not designated for 50 kA fault level	
	Total (in Crore)	75

6.8.2 CTU stated that implementation of these works through TBCB would be very difficult as this involves splitting of 400kV bus & insertion of series reactor between the split bus sections of the existing substation of POWERGRID. Further, this would involve shifting of lines from one split section to other as well as change of some existing equipments including CTs if they are not designed for 50kA. In view of the complexity of implementation of the above scheme in the existing facility of POWERGRID, it is desirable that the same may be carried out by POWERGRID. From economic point of view also, it is not desirable that some other agency (other than POWERGRID) executes the project as most of the facilities installed in a substation are shared and all these would have to be duplicated.

6.8.3 **The scheme was deliberated and Members opined that the scheme is similar to the scheme covered under item no. 6.3 above. Therefore, CTU may make the presentation describing the complexities involved in the execution of the works through TBCB route in the next meeting. The decision regarding implementation of**

the scheme through TBCB or RTM by POWERGRID would be taken after the presentation by CTU in the next meeting of the Empowered Committee.

6.9 Name of the Scheme: Establishment of new substation at Vapi/Ambethi area and its associated transmission lines

6.9.1 CEA stated that the scheme was deliberated in the 39th, 40th and 41st meeting of SCPSPWR. In the 41st meeting of SCPSPWR, it was agreed that the 220 kV lines to DNH from Vapi-II and the intrastate system strengthening in DNH would be reviewed separately by CEA, DNH and POWERGRID. Accordingly, the review meeting was held on meeting was held on 01.06.2017 & 02.06.2017 and the scope of the transmission scheme has been finalized, as given below:

Sl. No.	Scope of the Transmission Scheme	Details	Estimated Cost (Rs. Crore)
i)	Establishment of 2x500MVA, 400/220 kV S/s near Vapi / Ambheti (Vapi – II)	<ul style="list-style-type: none"> • ICTs :2x500MVA, 400/220kV • ICT bays: 2 nos. • Line bays: 4 nos. • Space for 2x500MVA, 400/220kV ICTs (future) • Space for 400/220kV ICT bays (future): 2 nos. • Space for Line bays along with Line Reactors (future): 4 nos. <p><u>220kV</u></p> <ul style="list-style-type: none"> • ICT bays: 2 nos. • Line bays: 6 nos. (2 for Sayali(DNH) and 4 nos. for GETCO) • Space for 400/220kV ICT bays (future): 2 nos. • Space for Line bays (future): 6 nos. 	127.5
ii)	LILO of KAPP – Vapi 400 kV D/C line at Vapi – II	Route length- 10km	29.8
iii)	125 MVA bus reactor at Vapi – II Substation	<ul style="list-style-type: none"> • 125 MVA bus reactor-1 • Bus Reactor Bay: 1 no • Space for 420kV additional Bus Reactor 1 no 	16
iv)	<ul style="list-style-type: none"> • Vapi-II – Sayali D/C 220kV line (From Vapi-II upto LILO point of one circuit of Vapi(PG) –Khadoli 220kV D/C line at Sayali substation 	Route length: 30 km	25.2

	<p>with ampacity equivalent to twin zebra conductor).</p> <ul style="list-style-type: none"> • Interconnection with LILO section (of LILO of one circuit of Vapi(PG) – Khadoli 220kV D/C line at Sayali substation) so as to establish Vapi-II – Sayali 220 kV D/C line and Vapi-Khadoli 220 kV D/C line. The LILO section is with zebra conductor 		
	Total(in crore)		198.5

6.9.2 CEA added that the above-finalized scope of works would be put up for ratification of the members in the next meeting of SCPSPWR.

6.9.3 **After deliberations, it was decided that the scheme may be implemented through TBCB route after ratification in the next meeting of SCPSPWR and in case there is any modification /change in the scope of works, the same may be intimated to the Empowered Committee.**

6.10 Name of the Scheme: Additional ISTS feed to Navi Mumbai 400/220 kV substation of POWERGRID

6.10.1 CEA stated that the transmission scheme for providing additional ISTS feed to Navi Mumbai 400/220 kV sub-station was deliberated in the 35th, 38th, 40th & 41st meeting of SCPSPWR and following scheme was agreed in 41st meeting of SCPSPWR subject to implementation feasibility of 220 kV lines:

- i. Padghe (PG) – Kharghar 400 kV D/C quad line to be terminated into one ckt. of Kharghar – Ghatkopar 400 kV D/C line (thus forming Padghe (PG) - Kharghar 400 kV S/C quad line, Padghe (PG) - Ghatkopar 400 kV S/C quad line)
- ii. LILO of Padghe (PG) – Ghatkopar 400kV S/C line at Navi Mumbai (PG).
- iii. LILO of Taloja – Kalwa 220 kV S/C line at Navi Mumbai (PG).
- iv. LILO of 220 kV Apta – Kalwa S/C line at Navi Mumbai (PG).

6.10.2 CEA added that a joint site visit and meeting was held on 07.04.2017, in order to ascertain the implementation feasibility of 220 kV lines and the scheme has been modified as given below (instead of LILO of Taloja – Kalwa 220 kV S/C line at Navi Mumbai (PG), LILO of Taloja – Apta 220 kV S/C line at Navi Mumbai (PG) was agreed):

- (i) Padghe (PG) – Kharghar 400 kV D/C quad line to be terminated into one ckt. of Kharghar – Ghatkopar 400 kV D/C line (thus forming Padghe (PG) – Kharghar 400 kV S/C quad line, Padghe (PG) - Ghatkopar 400 kV S/C quad line)
- (ii) LILO of Padghe (PG) – Ghatkopar 400kV S/C line at Navi Mumbai (PG).
- (iii) LILO of Taloja – Apta 220 kV S/C line at Navi Mumbai (PG).
- (iv) LILO of 220 kV Apta – Kalwa S/C line at Navi Mumbai (PG).

The scope of the transmission scheme is as under:

Sl. No.	Scope of the Transmission Scheme	Route length (km)	Estimated Cost (Rs. Crore)
i)	Padghe (PG)–Kharghar 400 kV D/C quad line to be terminated into one ckt. of Kharghar–Ghatkopar 400 kV D/C line (thus forming Padghe (PG)–Kharghar 400 kV S/C quad line, Padghe (PG)-Ghatkopar 400 kV S/C quad line) 2 nos. of 400 kV bays at (POWERGRID) Phadge 765/400 kV (GIS)	60	202
ii)	LILO of Padghe (PG) – Ghatkopar 400kV S/C line at Navi Mumbai GIS (PG)	10	50.72
iii)	LILO of Apta – Kalwa/Taloja 220 kV D/C line (i.e. Apta – Kalwa and Apta Taloja 220kV lines) at Navi Mumbai (PG)	2	2.6
	Total (in crore)		255.32

Note:

- a. The line lengths mentioned above are approximate as the exact length shall be obtained after the detailed survey.
- b. POWERGRID to provide space for 2 nos. 400kV line bays at 765/400kV Padghe (PG) for Padghe (PG) – Kharghar 400 kV D/C (quad) line termination.
- c. POWERGRID to provide 2 nos. 400kV line bays at Navi Mumbai (GIS) (PG) for LILO of Padghe (PG) – Ghatkopar 400kV S/C line and 4 nos. 220kV line bays at Navi Mumbai 400/220kV substation for LILO of Apta – Taloja and Apta- Kalwa sections of the Apta-Taloja/Kalwa 220 kV D/c line (already constructed by POWERGRID under WRSS 5)
- d. TSP/BPC to coordinate with MSETCL regarding point of termination of Padghe (PG) – Kharghar 400 kV D/C (quad) line into one ckt. of Kharghar – Ghatkopar 400 kV D/c (quad) line and LILO of Apta – Taloja and Apta – Kalwa section of the Apta-Taloja/Kalwa 220 kV D/c line at Navi Mumbai (PG).

CEA stated that the above finalized scope of works would be put up for ratification of the members in the next meeting of SCPSPWR.

6.10.3 After deliberations, it was decided that the scheme may be implemented through TBCB route after ratification in the next meeting of SCPSPWR and in case there is any modification /change in the scope of works, the same may be intimated in the next meeting of EC on Transmission.

6.11 Name of the Scheme: North Eastern Region Strengthening Scheme –VIII

6.11.1 CEA stated that following transmission scheme has been approved in the 6th meeting of SCPSPNER held on 03.10.2016.

Sl. No.	Scope of the Transmission Scheme	Details	Estimated Cost (Rs. Crore)
i)	Installation of 3 rd 220/132 kV Mokokchung (POWERGRID) S/S by 30 MVA (3x10 MVA single phase) along with associated bays		
ii)	Upgradation of Dimapur (POWERGRID) S/s a) Replacement of existing 4x33.33MVA, 220/132kV Single phase unit transformers by 1x160 MVA, 220/132kV 3-phase unit and addition of one more 1x160 MVA 3 phase transformer at Dimapur (PG). Thus, the final transformation capacity would be 220/132kV, 1x100MVA + 2x160MVA. b) Conversion of 132kV Bus Bar Scheme from Single Main and Transfer to Double Main GIS along with future provision. c) Conversion of 220kV Switchyard from AIS to GIS to accommodate additional transformer and also creation of space for future provision. d) Provision of tertiary loading for auxiliary supply from 160MVA ICT		
iii)	Up-gradation of Jiribam, Aizawl, Kumarghat and Haflong substations of POWERGRID from AIS to GIS with incorporation of Double Bus Arrangement, LBB & Bus Bar Protection and associated works-		
Total (in Rs. crore)			312

6.11.2 CTU stated that the above scheme mainly involves conversion of 132kV single main transfer bus switching scheme to Double Main bus GIS, Conversion of 220kV Switchyard from AIS to GIS, up-gradation of Jiribam, Aizawl, Kumarghat and Haflong substations of POWERGRID from AIS to GIS.

6.11.3 **After deliberation, members opined that as the scheme falls under the category of technical upgradation of existing sub-stations of POWERGRID, scheme may be implemented by POWERGRID under Regulated Tariff Mechanism.**

6.12 Name of the Scheme: North Eastern Region Strengthening Scheme – IX

6.12.1 CEA stated that following transmission scheme has been approved in the 6th meeting of SCPSPNER held on 03.10.2016. The scope of the transmission scheme is as under:

Sl. No.	Scope of the Transmission Scheme	Capacity (MVA/ ckt.km)	Estimated Cost (Rs. Crore)
1.	Pare HEP (NEEPCO) (from LILO point) – North Lakhimpur (AEGCL) 132kV D/c line (with ACSR Zebra conductor) along with 2 no. 132kV line bays at North Lakhimpur end <i>Note: Two bays at pare HEP would be spare due to Bypassing of LILO of Ranganadi (NEEPCO) - Naharlagun / Nirjuli (POWERGRID) at Pare HEP (NEEPCO). It will be used for connecting with North Lakhimpur (AEGCL) S/s and this line will be constructed from LILO portion.</i>		
2.	LILO of one circuit of Pare HEP – North Lakhimpur (AEGCL) 132kV D/c line (with ACSR Zebra) at Nirjuli (POWERGRID) substation		
Estimated Cost (in Rs. Crore)			70

Note:

- a. CTU (POWERGRID) to provide 2 no. 132 kV line bays at Nirjuli S/S for termination of LILO of one circuit of Pare HEP – North Lakhimpur (AEGCL) 132kV D/c line (with ACSR Zebra)
- b. **NEEPCO would implement following:**
 - (i) Bypassing of LILO of Ranganadi (**NEEPCO**) - Naharlagun (**Arunachal Pradesh**) / Nirjuli (**POWERGRID**) at Pare HEP (**NEEPCO**) so as to form direct Ranganadi - Naharlagun / Nirjuli 132 kV S/C line
 - (ii) Re-conductoring of LILO portion at Pare end (of Ranganadi (**NEEPCO**) – Naharlagun / Nirjuli (**POWERGRID**) 132kV S/c line) with HTLS (HTLS equivalent to ACSR Zebra) along with modification of 132kV bay equipment at Pare HEP (**NEEPCO**)

6.12.2 **After deliberations, members approved the above scheme for implementation through TBCB route.**

6.13 Name of the Scheme: Baharampur – Bheramara 400kV 2nd D/c line

6.13.1 CEA stated that in the 11th Joint Working Group (JWG) / Joint Steering Committee (JSC) meetings for co-operation in power sector between India and Bangladesh held on 13th-14th July 2016, it was decided that for reliable supply of 1000MW from India to Bangladesh, additional 400kV transmission line would be required between Baharampur and Bheramara. In the 12th JSC/JWG meeting between India and Bangladesh held on 10th-11th Dec 2016, it was decided to undertake implementation of Baharampur (POWERGRID) – Bheramara (Bangladesh) 2nd 400kV D/c transmission line. It was also decided that POWERGRID and PGCB shall implement the Indian and Bangladesh portion of the line respectively.

6.13.2 The scope of the transmission scheme is as under:

Sl. No.	Scope of the Transmission Scheme	Capacity (MVA/ ckt.km)	Estimated Cost (Rs. Crore)
i)	Baharampur (POWERGRID) – Bheramara (Bangladesh) 2 nd 400kV D/c line with Twin Moose conductor (Indian Portion)	170	-
ii)	2 nos. 400kV line bays at Baharampur (POWERGRID) for Baharampur – Bheramara 2 nd 400kV D/c line	-	-
Estimated Cost (Rs. Crore)			-

6.13.3 CTU stated that the scheme is of strategic importance and they have started the implementation activity and obtained section-68 for Indian portion of the transmission system vide CEA letter dated 15-02-2017. MoP vide letter No. 9/5/2016-Trans-Vol2 dated 01-03-2017 has approved the implementation of Indian portion of the transmission system by POWERGRID through regulated tariff mechanism route. The investment approval of the project is expected by Sep'17.

6.13.4 **Members noted the same.**

7.0 Change / modification in the scope of works of transmission schemes under TBCB

7.1. Modification in the Agreed Scope for “Transmission system for Ultra Mega Solar Park in Fatehgarh, distt. Jaisalmer, Rajasthan”

7.1.1 CEA stated that this scheme was agreed in the 36th meeting of the Empowered Committee (EC) on Transmission held on 26th July, 2016 and notified in Gazette Notification dated 28th October, 2016 for implementation through TBCB by PFC Consulting Ltd. as BPC. Subsequently, in a meeting held on 27.06.2017 in CEA, the scope of works for the transmission scheme was modified in view of no. of connectivity applications received by CTU from renewable energy projects developers at Fatehgarh. The modifications in the scope of the transmission scheme is given below: -

- i) Inclusion of provision of 220kV level at 400kV Pooling Station at Fatehgarh.
- ii) 1x500 MVA, 400/220kV Transformer at Fatehgarh PS as a part of Common Transmission system required for grant of Connectivity to the applicants (subject to the submission of Construction Bank Guarantee by the applicants in line with the CERC regulations.)
- iii) Deletion of provision of upgradation of Fatehgarh pooling station to 765 kV level.

7.1.2 The scope of transmission scheme is given below;

Original scope of works	Modified scope of works
Name of Scheme-I: “Transmission system for Ultra Mega Solar Park in	Name of Scheme-I: Transmission system for Ultra Mega Solar Park in Fatehgarh, distt.

Fatehgarh, distt. Jaisalmer, Rajasthan”	Jaisalmer, Rajasthan
<ul style="list-style-type: none"> i. Establishment of 400kV Pooling Station at Fatehgarh (with a provision to upgrade at 765 kV level) ii. 765 kV Fatehgarh Pooling sub-station - Bhadla (PG) D/C line (initially to be operated at 400 kV) iii. 2 nos of 400 kV line bays at Fatehgarh Pooling substation iv. 1x125 MVAR Bus reactor at 400kV Fatehgarh Pooling sub-station v. Space for future 220 kV (6 Nos), 400 kV (6 Nos) and 765 kV (4 nos.) line bays along with line reactors at Fatehgarh Pooling station vi. Space for future 220/400 kV transformers (2 nos.), 400/765 kV transformers (2 nos) along with associated transformer bays at each level vii. Space for future 765 kV bus reactor along with associated bays 	<ul style="list-style-type: none"> i. Establishment of 400kV Pooling Station at Fatehgarh ii. Provision of 220kV level at 400kV Pooling Station at Fatehgarh iii. Fatehgarh Pooling station-Bhadla (PG)765 kV D/C line (to be operated at 400 kV). iv. 2 Nos. of 400kV line bays at Fatehgarh Pooling station. v. 1x500 MVA, 400/220kV transformer along with associated transformer bays and Bus Coupler and Transfer Bus bay to be provided at 220kV level vi. 1x125 MVAR Bus reactor at 400kV Fatehgarh Pooling station along with associated bay. vii. Space for future 220 kV (12 Nos.) line bays. viii. Space for future 400kV (8 Nos.) line bays along with line reactors at Fatehgarh Pooling station. ix. Space for future 220/400kV transformers (04 Nos.) along with associated transformer bays at each level. x. Space for future 400kV bus reactor (2 Nos.) along with associated bays. <p>Note: Transmission system mentioned at Point nos. i, iii, iv and vi are for 1000 MW LTA to M/s AREPL. Transmission system mentioned above at Point Nos. i, ii, iii, iv & v along with 2 nos. of 400 kV line bays at Bhadla (PG), shall be the Common Transmission system for grant of Connectivity at Fatehgarh (subject to the submission of Construction Bank Guarantee by applicants in line with the CERC Regulations). Transmission system mentioned above at Point Nos. ii and v to be included in the TBCB scope only after submission of Construction Bank Guarantee by connectivity applicants(s)</p>
<p>Note:</p> <ul style="list-style-type: none"> a) Park Developer to construct 400 kV line from M/s AREPL solar park along with 1x125 MVAR bus reactor at generation switchyard. b) Powergrid to provide 2 nos. of 400 kV line bays at Bhadla (PG) for Fatehgarh Pooling Station- Bhadla D/C line (initially to be operated at 400 kV) c) The Solar park developer (M/s AREPL) 	<p>Note:</p> <ul style="list-style-type: none"> a) Park Developer to construct 400kV D/C line from M/s AREPL solar park to Fatehgarh along with 1x125 MVAR bus reactor at generation switchyard. b) POWERGRID to provide 2 nos. of 400kV line bays at Bhadla (PG) for termination of 765kV Fatehgarh PS-Bhadla (PG) D/c line (to be operated at 400kV) at Bhadla end. c) The Solar park developer (M/s AREPL) to

<p>to provide adequate land for 765/400 kV pooling station adjacent to the proposed solar park for which transmission licensee shall coordinate with M/s AREPL including commercial aspects for transfer of land.</p> <p>d) Solar park developer (M/s AREPL) to provide 2 nos. of 400kV line bays at Fatehgarh Pooling Station for termination of 400kV D/C line from AREPL solar park to 400kV Fatehgarh Pooling station.</p>	<p>provide adequate land for 400kV and 220 kV pooling station adjacent to the proposed solar park for which, transmission licensee shall coordinate with M/s AREPL including commercial aspects for transfer of land.</p> <p>d) 220 kV line bays at Fatehgarh Pooling station for other connectivity lines shall be under the scope of respective developer</p> <p>e) Solar park developer (M/s AREPL) to provide 2 nos. of 400kV line bays at Fatehgarh Pooling Station for termination of 400kV D/C line from AREPL solar park to 400kV Fatehgarh Pooling station.</p> <p>f) CEA advised CTU to furnish revised RfP inputs except for (ii) & (v) to BPC so that the bidding process for the scheme may continue. After receipt of BG from connectivity applicants within stipulated time, elements at (ii) & (v) would be included in the scope along with requisite RfP inputs.</p>
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7.1.3 **Members noted the same. The modified scheme may be notified in the Gazette.**

7.2. **Name of the scheme: North Eastern Region Strengthening Scheme- NERSS-II Part-B &NERSS-V**

7.2.1 CEA stated that in the 35th meeting of EC on transmission held in CEA, it was decided that the transmission scheme would be implemented through TBCB. Subsequently, in 6th meeting of SCPSPNER held on 03.10.2016 at Imphal following modifications in the above transmission scheme were agreed.

- i) Addition of LILO of one circuit of 132kV Biswanath Chariyalli (PG) – Itanagar at Gohpur (AEGCL) along with 2 nos. line bays at Gohpur (Assam) S/s.
- ii) Reduction of 132 kV line bays at Surajmaninagar and P.K.Bari 400/132 kV sub-stations from 4 no. to 2 no.

7.2.2 CEA vide its letter No. 81/16/2016/PSPA-2/566-568 dated 23.12.2016 has given the “in-principle” approval for change in the transformer ratings from 400/132kV, 2x315 MVA three phase to 400/132 kV, 7x105 MVA single phase (including one spare) at Surajmaninagar and P. K. Bari S/s. Therefore, the revised scope of works for the scheme ‘North Eastern Region Strengthening Scheme- NERSS-II Part-B &NERSS-V’ are given as under:

NERSS-II Part-B

Sl. No.	Scope as per 36 th ECM	Revised Scope
1.	Biswanath Chariyalli (POWERGRID) – Itanagar 132kV D/c (Zebra conductor) line	No change

2.	Silchar (POWERGRID) – Misa (POWERGRID) 400kV D/c (Quad) line	No change
3.	2 nos. 132kV line bays at Itanagar for termination of Biswanath Chariyalli (POWERGRID) – Itanagar 132kV D/c (Zebra conductor) line	No change
4.	-	LILO of one circuit of 132kV D/c Biswanath Chariali (PG) – Itanagar line at Gohpur (AEGCL).

Note:

1. *POWERGRID would provide following:*

- (i) 2 no. 400kV GIS line bays each at Silchar and Misa substations for termination of Silchar - Misa 400kV D/c line (Quad) line
- (ii) 2 no. 132kV AIS line bay at Biswanath Chariyalli S/s for termination of Biswanath Chariyalli –Itanagar 132kV D/c line. In case of space constraint GIS bays would be provided.
- (iii) 420kV, 1x80MVAR bus reactor at Misa (POWERGRID) along with GIS bay
- (iv) 80MVAR switchable line reactor with GIS bays at Misa end of each circuit of Silchar- Misa 400kV D/c line

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

3. AEGCL to provide 2 no. of 132kV GIS line bays at Gohpur 132kV S/s.

4. AEGCL to implement the double main bus switching scheme at Gohpur 132kV GIS S/s before Dec 2019.

NERSS-V

Sl. No.	Scope as per 36 th ECM	Revised Scope
1.	Establishment of 400/132 kV, 2x315MVA S/s at Surajmaninagar 400 kV <ul style="list-style-type: none"> • ICTs: 400/132 kV, 2x315 MVA • ICTs bays: 2 no. • Line bays: 4 no. • Bus reactor: 2x125 MVAR • Bus reactor bays: 2 no. • Space for future line bays (Incl. space for sw. line reactor): 4 no. • Space for ICT bays: 1 no. 	Establishment of 400/132 kV, 7x105MVA Single Phase (including one spare) S/s at Surajmaninagar 400 kV <ul style="list-style-type: none"> • ICTs: 400/132 kV, 7x105 MVA single phase (including one spare) • ICTs bays: 2 no. • Line bays: 4 no. [2 no. for Palatana – Surajmaninagar and 2 no. for Surajmaninagar – P.K.Bari 400kV D/c lines] • Bus reactor: 2x125 MVAR

Sl. No.	Scope as per 36 th ECM	Revised Scope
	<p>132 kV</p> <ul style="list-style-type: none"> • ICTs bays: 2 no. • Line bays: 4 no. • Space for future line bays: 4 no • Space for ICT bays: 1 no. <p>Space for future 400/132 kV, 315MVA ICT</p> <p>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</p>	<ul style="list-style-type: none"> • Bus reactor bays: 2 no. • Space for future line bays (including space for switchable line reactor): 6 no. • Space for ICT bays: 1 no. <p>132 kV</p> <ul style="list-style-type: none"> • ICTs bays: 2 no. • Line bays: 2 no. <p><i>[2 no. for Surajmaninagar (TSECL) – Surajmaninagar (TBCB) 132kV D/c high capacity / HTLS (equivalent of single moose) line]</i></p> <ul style="list-style-type: none"> • Space for future line bays: 6 no. • Space for ICT bays: 1 no. <p>Space for future 400/132 kV, 315 MVA ICT</p> <p>TSP is free to choose the location of Surajmaninagar S/s within a radius of 10km from the Surajmaninagar (TSECL) S/s</p>
2.	<p>Establishment of 400/132 kV, 2x315 MVA S/s at P.K. Bari</p> <p>400 kV</p> <ul style="list-style-type: none"> • ICTs: 400/132 kV, 2x315 MVA • ICTs bays: 2 no. • Line bays: 4 no. • Bus reactor: 2x125 MVAR • Bus reactor bays: 2 no. • Space for future line bays (Incl. space for sw. line reactor): 4 no. • Space for ICT bays: 1 no. <p>132 kV</p> <ul style="list-style-type: none"> • ICTs bays: 2 no. • Line bays: 4 no. • Space for future line bays: 4 no • Space for ICT bays: 1 no. <p>Space for future 400/132 kV, 315MVA ICT</p>	<p>Establishment of 400/132 kV, 7X105MVA Single Phase (including one spare) S/s at P.K. Bari</p> <p>400 kV</p> <ul style="list-style-type: none"> • ICTs: 400/132 kV, 7x105 MVA single phase (including one spare) • ICTs bays: 2 no. • Line bays: 4 no. <p><i>[2 no. for Surajmaninagar – P.K.Bari and 2 no. for P.K.Bari – Silchar 400kV D/c lines]</i></p> <ul style="list-style-type: none"> • Bus reactor: 2x125 MVAR • Bus reactor bays: 2 no. • Space for future line bays (including space for switchable line reactor): 6 no. • Space for ICT bays: 1 no. <p>132 kV</p> <ul style="list-style-type: none"> • ICTs bays: 2 no. • Line bays: 2 no. <p><i>[2 no. for P.K. Bari (TSECL) – P.K. Bari (TBCB) 132kV D/c high capacity / HTLS (equivalent of single moose) line]</i></p> <ul style="list-style-type: none"> • Space for future line bays: 6 no. • Space for ICT bays: 1 no.

Sl. No.	Scope as per 36 th ECM	Revised Scope
		Space for future 400/132 kV, 315MVA ICT
3.	Surajmaninagar – P. K. Bari 400 kV D/c line with Twin Moose	No change
4.	AGTPP (NEEPCO) – P.K. Bari (TSECL) 132 kV D/c line with high capacity HTLS conductor (equivalent to single moose ampacity at 85 ^o C)	No change
5.	2 no. 132kV line bays each at AGTPP (NEEPCO) and P.K. Bari (TSECL)	No change
6.	2 no. 400 kV line bays at Pallatana Generation Switchyard for 400kV operation of Pallatana – Surajmaninagar 400kV D/c line	No change

Note:

1. TSECL would implement the following:

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

2. OTPC would implement the following:

- a. 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.

3. 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.

7.2.3 Members noted the same. The modified scheme may be notified in the Gazette.

7.3. Name of the Scheme: North Eastern Region Strengthening Scheme- NERSS-VI

7.3.1 CEA stated that the above scheme has been decided to be implemented through TBCB in the 35th meeting of Empowered Committee on Transmission. Subsequently, the scope of works has been revised in the 6th Standing Committee Meeting on Power System Planning of North Eastern Region held on 03.10.2016 at Imphal (Manipur). CEA vide letter no. 81/16/2016/PSPA-2/320-322 dated 07-10-2016 has given the in-principle approval for change in the transformer ratings from 400/220kV, 2x500MVA to 400/220kV, 7x167 MVA single phase (including one spare) at New Kohima. Additionally, the matter for connectivity at 220kV level at Mariani (AEGCL) substations was finalized in a meeting held in CEA on 04.11.2016. Accordingly, the revised scope of the scheme is as under:

Sl.	Scope as per 36 th ECM	Revised Scope
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No.		
1.	<p>Establishment of 400/220 kV, 2x500 MVA S/S at New Kohima</p> <p>400 kV ICTs: 400/220 kV, 2x500 MVA ICTs bays: 2 no. Line bays: 4 no. Bus reactor: 2x125 MVAR Bus reactor bay: 2 no. Space for future line bays (Incl. space for sw. line reactor): 4 no. Space for future ICT bays: 1 no.</p> <p>220 kV ICTs bays: 2 no. Line bays: 4 no. Space for future line bays: 4 no. Space for future ICT bays: 1 no.</p> <p>Space for 400/220kV, 500MVA ICT</p>	<p>Establishment of 400/220 kV, 7x167MVA Single Phase (including one spare) S/S at New Kohima</p> <p>400 kV ICTs: 400/220kV, 7x167MVA Single Phase (including one spare) ICTs bays: 2 no. Line bays: 4 no. Bus reactor: 2x125 MVAR Bus reactor bay: 2 no. Space for future line bays (Incl. space for sw. line reactor): 4 no. Space for future ICT bays: 1 no.</p> <p>220 kV ICTs bays: 2 no. Line bays: 2 no. Space for future line bays: 6 no. Space for future ICT bays: 1 no.</p> <p>Space for 400/220kV, 500MVA ICT</p>
2.	Imphal – New Kohima 400 kV D/C line with Twin ACSR Moose	No change
3.	New Kohima – New Mariani 400kV D/C line with Twin ACSR Moose	No change

Note:

1. CTU (POWERGRID) to provide 2 no. 400kV line bays at Imphal (POWERGRID) S/s for termination of Imphal – New Kohima 400kV D/C line
2. CTU (POWERGRID) to provide 2 no. 400kV line bays at New Mariani S/s for termination of New Kohima – New Mariani 400kV D/C line
3. **AEGCL, Assam would implement following:**
 - (i) New Mariani – Mariani 220kV D/c line (with high capacity Conductor)
 - (ii) Termination of one circuit of Samaguri – Mariani 220kV 2xS/c line from Mariani (Assam) to New Mariani
 - (iii) Establishment of 220/132kV, 2x160MVA substation at Khumtai
 - (iv) LILO of Samaguri – New Mariani 220kV 2xS/c lines at Khumtai
4. **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
5. **Revised scope to be implemented through by POWERGRID through RTM:**

- (i) 420kV, 1x125 MVAR bus reactor (2nd) at Imphal (PG)
- (ii) Up-gradation of New Mariani substation to 400/220kV with 2x500MVA transformer along with associated bays
- (iii) Disconnection of Mariani (AEGCL) – Misa 400kV line (presently operated at 220kV) from Mariani (AEGCL) and termination of the same at New Mariani (POWERGRID) and operation of the resultant Mariani (POWERGRID) – Misa line (ckt-1) at 400kV
- (iv) Operation of existing Misa – New Mariani (POWERGRID) 400kV (presently operated at 220kV) line (ckt-2) at rated voltage level of 400kV
- (v) 2 no. 400kV line bays at New Mariani for termination of Misa - New Mariani 400kV D/c line [formed after (iii) and (iv)]
- (vi) 2 no. 400 kV line bays (GIS) at Misa for termination of New Mariani – Misa 400kV D/c line [formed after (iii) and (iv)]
- (vii) 420kV, 2x125MVAR bus reactors at New Mariani
- (viii) 2 no. 220kV line bays at New Mariani for termination of New Mariani – Mariani (AEGCL) 220kV D/c twin moose line (line under AEGCL scope)
- (ix) 2 no. 400kV line bays at Imphal (PG) S/s for termination of Imphal – New Kohima 400kV D/c line (line under TBCB)
- (x) 2 no. 400 kV line bays at New Mariani S/S for termination of New Kohima-New Mariani 400 kV D/C line (line under TBCB)

Note:

- (a) * 2 no. 420kV, 50MVAR fixed line reactors installed at Misa end of the Misa – New Mariani line are required to be charged at rated voltage level of 400kV in view of 400kV operation of the Misa – New Mariani D/c line.
- (b) With 400kV operation of Misa – New Mariani D/c line, 2 no. 220kV line bays vacated at Misa shall be utilised by AEGCL for Misa – Sankardeb Nagar 220kV D/c line (line under AEGCL scope)
- (c) With 400kV operation of Misa – New Mariani (ckt-2) at 400kV, the 220kV bay vacated at New Mariani shall be utilised by AEGCL for termination of one of the 220kV Samaguri - Mariani (AEGCL) 2xS/C lines from Mariani (AEGCL) to New Mariani (POWERGRID) thus forming Samaguri-New Mariani (POWERGRID) and Samaguri-Mariani (AEGCL) 220kV S/C lines

7.3.2 **Members noted the same. The modified scheme may be notified in the Gazette.**

7.4. **Change / modification in the scope of “Additional 400kV feed to Goa” Scheme (currently under RfP stage)**

7.4.1 CEA stated that this scheme was agreed in the 36th meeting of the Empowered Committee (EC) on Transmission held on 26th July, 2016 and notified in Gazette Notification dated October 28, 2016 for implementation through TBCB to PFC Consulting Ltd. Subsequently, in the 41st meeting of SCPSWR held on 21.12.2016, it was agreed to convert 1x 80 MVAR, 420 kV switchable line reactor at Narendra (New) S/s (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) to fixed line

reactor, in view of space constraints at line bay module at Narendra (New) GIS substation. Further, a meeting amongst CEA, PFCCL, CTU and GED was held on 25-04-2017 at Xeldem 220 kV sub-station of Goa Electricity Department (GED) to finalize interconnection of proposed New Xeldem 400/220 kV sub-station with existing Xeldem S/s at 220 kV level. In the meeting, it was decided that interconnection between the two sub-stations would be through 220 kV HTLS D/C line (under the scope of TBCB) with ampacity equivalent to twin moose conductor. The two no. of 220 kV line bays of adequate rating required for the interconnection at Xeldem existing sub-station would be provided by GED.

- 7.4.2 RfP document for selection of TSP through TBCB has been issued by PFCCL on 06.06.2017 with the modified scope i.e. (i) Xeldem (proposed) substation - Xeldem (existing) inter- connection 220kV D/c line with HTLS conductor (ampacity equivalent to twin moose conductor) and (ii) POWERGRID to provide 1x80MVAR, 420kV **fixed** line reactor along with 500Ohm NGR and its auxiliaries at its Narendra (New) S/s {for Narendra (New) – Xeldem 400kV (quad) line section} instead of switchable line reactor. The modified scheme is given below.

Sl.	Scope of the Transmission Scheme	Capacity (MVA/KM)
A	Additional 400kV Feed to Goa	
	(i) LILO of one ckt. of Narendra (existing) – Narendra (New) 400kV D/c (quad) line at Xeldem	120KM
	(ii) Xeldem – Mapusa 400kV D/c (quad) line	40KM
	(iii) Establishment of 2x500MVA, 400/220kV substation at Xeldem	1000MVA
	<u>400kV</u>	
	<ul style="list-style-type: none"> • ICTs : 2x500MVA, 400/220kV • ICT bays: 2 nos. • Line bays: 4 nos. (2 nos. for Xeldem – Mapusa 400kV D/c (quad) line & 2 nos. for LILO of one ckt of Narendra (existing) – Narendra (New) 400kV D/c quad line at Xeldem) • Bus Reactor: 1x125MVAR • Bus Reactor Bay: 1 no • Space for 2x500MVA, 400/220kV ICTs (future) • Space for ICT bays (future): 2 nos. • Space for Line bays along with Line Reactors (future): 4 nos. • 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) • 1x80MVAR fixed line reactor along with 500 Ohms NGR and its auxiliaries (for Narendra (New) –Xeldem 400kV 	

	<p>(quad) line formed after LILO of one ckt of Narendra (existing) – Narendra (New) 400kV D/c quad line at Xeldem)</p> <p><u>220kV</u></p> <ul style="list-style-type: none"> • Inter- connection with Xeldem (existing) substation through 220kV D/c line with HTLS conductor (ampacity equivalent to twin moose conductor) • ICT bays: 2 nos. • Line bays: 6 nos. (2 nos. for New Xeldem (400 kV) - Xeldem (GED) 220kV D/c line, 2 nos. for New Xeldem (400 kV)-Verna (GED) 220kV D/c line and 2 nos. for LILO of 2nd circuit of Ambewadi-Ponda 220 kV D/C line at New Xeldem (400kV) • Space for ICT bays (future): 2 nos. • Space for Line bays (future): 6 nos. 	
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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.). Accordingly, POWERGRID to provide 1x80MVAR, 420kV **fixed line reactor** along with 500Ohm NGR and its auxiliaries at its Narendra (New) S/s {for Narendra (New) – Xeldem 400kV (quad) line section}.*
- c. *POWERGRID to provide 2 nos. of 400kV line bays at its Mapusa S/s for Xeldem – Mapusa 400kV D/c (quad) line.*

7.4.3 **Members noted the same. The modified scheme may be notified in the Gazette.**

7.5. **Change / modification in the scope of “Transmission System for Banaskantha (Radhanesda) Ultra Mega Solar Power Park in dist. Banaskantha, Gujarat (700 MW)” Scheme (Agreed for implementation through regulated tariff mechanism)**

7.5.1 This scheme was agreed for implementation through regulated tariff mechanism in the 36th meeting of the Empowered Committee (EC) on Transmission held on 26th July, 2016. Subsequently, the scheme was reviewed in the 41st meeting of SCPSPPWR held on 21.12.2016 and in a joint meeting amongst CEA, CTU, GPCL (SPPD) & GETCO held on 17.01.2017. The revised scope of works under the subject scheme is as given below:

Sl. No.	Scope of the Transmission Scheme	Capacity (MVA/KM)
A	Transmission system for 700 MW Banaskantha (Radhanesda) Ultra Mega Solar Park Project (UMSPP)	

(i) Establishment of 2x500MVA, 400/220kV pooling station at Banaskantha (Radhanesda) [GIS] along with 1x125MVA bus reactor	1000MVA
(ii) 4 nos. 220kV line bays at 400/220kV at Banaskantha (Radhanesda) pooling station for Solar Park Interconnection.	
(iii) Banaskantha (Radhanesda) Pooling Station – Bansakantha S/s (PG) 400 kV D/c (twin AL59) line	60KM
(iv) 2 Nos. of 400kV line bays each at Banaskantha (PG) S/s & Banaskantha (Radhanesda) PS.	
(v) Provision of space for 8 nos. 220 kV bays (4 nos. for solar injection and 4 nos. of GETCO drawl)	
(vi) Provision of space for future 400/220kV, 1X500 MVA ICT along with bays at Banaskantha (Radhanesda) [GIS]	

For the Banaskantha (Radhanesda Solar Park), GPCL has already been granted connectivity & LTA and they have also submitted Construction Phase Bank Guarantee in June '17. The location of common pooling station (400/220kV-GIS) in between Radhanesda solar park and proposed Harshad solar park has already been identified by POWERGRID in consultation with M/s GPCL.

The above scheme is being implemented by POWERGRID under RTM.

7.5.2 Members noted the same. The modified scheme may be notified in the Gazette.

7.6. Name of the Scheme: Transmission System for Phase- I generation projects in Arunachal Pradesh

7.6.1 CEA stated that this scheme was approved in the 3rd meeting of SCSPNER held on 21st Dec., 2011 at NRPC, New Delhi as evacuation system from 4 no. of hydro projects in Arunachal Pradesh in Kameng basin. Further, it was decided in the 35th Empowered Committee meeting on transmission that this scheme would be implemented through TBCB. The BPC of this scheme is RECPTCL. The Scope of the transmission scheme is as under:

- (i) Dinchang- Rangia/ Rowta Pooling Point 400 kV D/C (Quad).
- (ii) LILO of both ckts of Balipara- Bongaigaon 400 kV D/C (Twin Moose) line at Rangia/ Rowta (2x D/C)
- (iii) Establishment of 7x166 MVA ,400/220 kV Pooling station (GIS) at Dinchang
- (iv) Establishment of 2x500 MVA 400/220 kV Pooling station at Rangia/ Rowta in Upper Assam

7.6.2 Further, based on decision in the meeting held on 21.11.2016 in CEA, a team comprising of CEA, CTU, PGCIL and BPC visited the Gongri H.E. Project (2x72 = 144 MW), Arunachal Pradesh, being executed by M/s Dirang Energy Pvt Ltd, in March, 2017 to review the progress of works. The team observed that the construction work was only at one project i.e. Gongri H. E. Project and no construction activities was at three

other projects i.e. Sew Nafra Power Corporation Ltd. (120 MW), Adishankar Khuitam Power Pvt. Ltd. (66 MW) and KSK Dibbin Hydro Power Pvt. Ltd. (120 MW). The commissioning schedule of Gongri HEP was also uncertain. Therefore, team had recommended for review of the implementation schedule of scheme under “**Transmission System for Phase- I generation projects in Arunachal Pradesh**”. The scheme would be taken up for implementation after ascertaining the progress of hydro projects by CEA

7.6.3 In the 6th meeting of SCSPNER held on 03rd Oct 2016, 220kV line bays at Rangia S/s were increased from 4 no. to 6 no. Hence, the revised scope of the scheme is as under:

Sl. No.	Approved Scope	Revised Scope
1.	Dinchang - Rangia / Rowta Pooling station 400kV D/c (ACSR Quad Moose)	No change
2.	LILO of both ckts of Balipara - Bongaigaon 400kV D/c (ACSR Twin Moose) line at Rangia / Rowta Pooling station	No change
3.	Establishment of 7x166 MVA 400/220 kV Pooling station (GIS) at Dinchang in Arunachal Pradesh 400 kV • ICT single phase 7x166 MVA, 400/220 kV (including 1 spare unit) • ICT bays – 2 no. • Line bays – 2 no. • Bus Reactor 80 MVAR – 2 no. • Bus reactor bays – 2 no. • Space for future line bays – 4 no. • Space for future ICT bay – 2 no. 220 kV • ICT bays – 2 no. • Space for future line bays – 18 no. • Space for future ICT bay – 2 no. Space for future ICT • Space for 1-phase 6x166MVA 400/220kV future ICT	No change
4.	Establishment of 2x500MVA 400/220 kV Pooling station at Rangia / Rowta in Assam 400 kV • ICT 2x500MVA 400/220kV • ICT bays – 2 no. • Line bays – 6 no. • Bus Reactor 125 MVAR – 2 no. • Bus Reactor bays – 2 no. • Switchable Line Reactor of 63 MVAR at	Establishment of 2x500MVA 400/220kV Pooling station at Rangia / Rowta in Assam 400 kV • ICT 2x500MVA 400/220 kV • ICT bays – 2 no. • Line bays – 6 no. • Bus Reactor 125 MVAR – 2 no. • Bus Reactor bays – 2 no.

Sl. No.	Approved Scope	Revised Scope
	<p>Rangia / Rowta end for Dinchang - Rangia / Rowta Pooling Point 400 kV D/c (Quad) line – 2 no.</p> <ul style="list-style-type: none"> • Space for future line bays – 12no. • Space for future ICT bays – 2 no. <p>220 kV</p> <ul style="list-style-type: none"> • ICT bays – 2 no. • Line bays – 4 no. • Space for future line bays – 4 no. • Space for future ICT bays – 2 no. <p>Space for future ICT</p> <ul style="list-style-type: none"> • Space for 2x500MVA 400/220kV ICT 	<ul style="list-style-type: none"> • Switchable Line Reactor of 63 MVAR at Rangia / Rowta end for Dinchang - Rangia / Rowta Pooling Point 400 kV D/c (Quad) line – 2 no. • Space for future line bays – 12no. • Space for future ICT bays – 2 no. <p>220 kV</p> <ul style="list-style-type: none"> • ICT bays – 2 no. • Line bays – 6 no. • Space for future line bays – 4 no. • Space for future ICT bays – 2 no. <p>Space for future ICT</p> <ul style="list-style-type: none"> • Space for 2x500MVA 400/220kV ICT

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.

7.6.4 **Members noted the same. The modified scheme may be notified in the Gazette.**

7.7. **Name of the Scheme: “Connectivity System for Lanco Vidarbha Thermal Power Pvt. Ltd. (LVTPPL) and Inter State Transmission system strengthening in Chhatarpur area in Madhya Pradesh.”**

7.7.1 CEA stated that this scheme was agreed in the 36th meeting of the Empowered Committee (EC) on Transmission held on 26th July, 2016 and notified in Gazette Notification dated 28th October, 2016 for implementation through TBCB to PFC Consulting Ltd. The scheme comprises of the following;

(i) **Scope of “Connectivity System for Lanco Vidarbha Thermal Power Pvt. Ltd. (LVTPPL)”**

Transmission Scheme “Connectivity System for Lanco Vidarbha Thermal Power Pvt. Ltd. (LVTPPL)”	Length (km)	Estimated Cost (Rs. Cr.)
a) LVTPPL TPS switchyard – Warora Pool 765kV D/c line	80	312
b) 2 nos of 765kV Line bays at Warora Pool (for LVTPPL TPS switchyard – Warora Pool 765kV D/c line)		39
Estimated cost (Rs crores)		351

(ii) **Scope of “Inter State Transmission system strengthening in Chhatarpur area in Madhya Pradesh”**

Transmission Scheme “Inter State Transmission system strengthening in Chhatarpur area in Madhya Pradesh”	Length (km)	Estimated Cost (Rs. Cr.)
a) LILO of both circuits of Satna – Bina 400kV (1st) D/c line at Bijawar. (There are 2 nos. of 400kV D/c lines between Satna and Bina. One circuit of 2nd D/c line is proposed to be LILOed at Sagar (MPPTCL) Substation. This LILO is to be done on	140	210
b) Establishment of 2x500MVA, 400/220kV substation at Bijawar*	1000 MVA	182
Estimated cost (Rs crores)		392

7.7.2 PFCCCL has incorporated a SPV in the name of “Bijawar-Vidarbha Transmission Limited” on January 13, 2017 for the purpose. PFCCCL vide its letter dated November 22, 2016, December 16, 2016, January 25, 2017 and June 08, 2017 has requested CTU to furnish RfQ inputs so that RfQ bid process could be initiated. However, the RfQ bid process could not be initiated due to non-availability of RfQ inputs from CTU.

7.7.3 CTU vide its letter no. C/CTU/W/00/TBCB dated June 13, 2017 informed PFCCCL that due to delay in submission of Construction Bank Guarantee in proper format from M/s Lanco Vidarbha Ltd the requisite inputs for RfQ documents could not be provided. PFFCL vide its letter dated 28.07.2017 and 10.08.2017 has requested CEA to kindly intervene and resolve the issue so that RfQ bid process could be initiated without any further delay. Further, it may be mention that as per MoP timelines, the RfQ bid process shall be initiated within 40 days of Gazette Notification i.e. December 07, 2016 however, till now bid process could not be initiated due to due to delay in submission of Construction Bank Guarantee in proper format from M/s Lanco Vidarbha Ltd

7.7.4 A meeting was held in CEA on 28.08.2017 to assess the status of the Lanco Vidarbha generation project and the Chhatarpur solar park in Madhya Pradesh. In the meeting it was decided that the bidding process for the scheme shall be kept in abeyance till the resolution of financial issues pertaining to Lanco Vidarbha generation project and decision regarding starting the bidding process will be taken in a review meeting after intimation from M/s LVTPPL regarding resolution of financial issues.

7.7.5 **The matter was deliberated and Empowered Committee decided that the scheme ‘Connectivity System for Lanco Vidarbha Thermal Power Pvt. Ltd. (LVTPPL)’ may be taken up for implementation only after resolution of financial issues and after ascertaining the progress of project.**

8.0 Issues related to the providing of information to bidders for terminal bays at POWERGRID sub-stations:

8.1 CEA stated that the transmission scheme “Additional 400kV Feed to Goa and Additional System for Power Evacuation from Generation Projects pooled at Raigarh (Tamnar) Pool” is under bidding and PFCCCL is the BPC for the scheme. The scheme interalia include Raigarh (Tamnar)–Dharmjaygarh 765kV D/c line. PFCCCL vide their letter dated 23-08-2017 has stated that the bidding for scheme is at RfP stage and bidders have requested furnishing of exact co-ordinates / location of bays / S/S layout with marking of bays for termination of Raigarh (Tamnar)–Dharmjaygarh 765kV D/c line at Dharamjaygarh PS (section B) and Raigarh (Tamnar). CTU vide its letter

C/CTU-PLG/PFCCL/Goa-Tamnar dated 28.8.2017 has mentioned that exact coordinates / location of bays / layout for termination of lines at Dharamjaygarh & Raigarh(Tamnar) substations, shall be provided only to successful bidder and not during RfP stage.

8.2 CEA stated that wherever the transmission lines are terminating at substation of STU / TSP, the relevant details of bays location for termination of the line is furnished by them. Therefore, CTU should also provide the details.

8.3 After further deliberations, CTU agreed to provide the bay location details to BPC at RfP stage for the lines terminating at POWERGRID's sub-stations.

8.4 **Members noted the same.**

9.0 Cost of the Project as per the Cost Committee

9.1 Empowered Committee during its 32nd 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 has 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.	Independent Transmission Projects	Cost as per Empowered Committee (in Rs. Crore)	Estimated Cost of the Project as per MoM of the Cost Committee (in Rs. Crore)
1.	Additional 400kV Feed to Goa and Additional System for Power Evacuation from Generation Projects pooled at Raigarh (Tamnar) Pool.	863	1531
2.	Connectivity and Long Term Access (LTA) to HPPCL 450 MW from Shongtong Karcham HEP.	351	272.00
3.	Transmission system for Ultra Mega Solar Park in Fatehgarh, distt. Jaisalmer, Rajasthan.	536	624.00
4.	Transmission System For Eastern Region Strengthening Scheme -XXI (ERSS-XXI)	1321	1348.56
5.	Transmission System For New WR- NR 765 kv Inter-Regional	916	1076.21
6.	Transmission System For Eastern Region Strengthening Scheme -XVIII (ERSS-XVIII)*	3997	3246

* The estimated cost for the scheme ERSS-XVIII as per 35th EC was 4407Crore. Due to some modification in the scope of works, cost intimated in 36th EC was 3997 crore. The cost committee meeting for arriving at cost of ERSS XVIII was held on 26.8.2016(i.e. after 36th Meeting of EC on Transmission held on 26.7.2016)

9.2 **Members noted the same.**

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

10.1 The Bid Evaluation Committee (BEC) for the six projects were constituted by CEA in consultation with RPCs and intimated to BPC. The scheme wise BEC is enclosed as Annexure- III.

10.2 Members noted the same.

11.0 Apportionment of transmission charges among individual transmission elements of Power Grid N M Transmission Limited (PNMTL) which was approved as an integrated system to be executed through TBCB.

11.1 CEA stated that Empowered Committee on Transmission in its 25th meeting held on February 01, 2011 recommended "Transmission System Associated with IPPs of Nagapattinam/Cuddalore Area – Package A" for implementation through Tariff Based Competitive Bidding route. Ministry of Power vide its notification dated March 15, 2011 notified PFC Consulting Ltd as the Bid Process Coordinator (BPC) for the purpose of selection of bidder as Transmission Service Provider (TSP). The transmission system comprised the following elements, namely:

(a) Nagapattinam Pooling Station - Salem 765 kV D/C transmission line

(b) Salem - Madhugiri 765 kV S/C transmission line.

Power Grid Corporation of India Limited (PGCIL) was selected as the successful bidder and POWERGRID acquired the SPV i.e. Nagapattinam-Madhugiri Transmission Company Limited on March 29, 2012. The SPV was renamed as POWERGRID NM Transmission Limited (PNMTL), a 100% wholly owned subsidiary of PGCIL. The transmission tariff was adopted by CERC on May 9, 2013 and CERC granted the transmission license on June 20, 2013.

POWERGRID has informed that PNMTL has filed a petition No. 62/MP/2017 before CERC seeking apportionment of transmission charges between 765 kV D/C Nagapattinam-Salem and 765 kV S/C Salem-Madhugiri transmission lines, due to delay in completion of 765 kV S/C Salem-Madhugiri line because of severe RoW problems. CERC vide Record of Proceeding (RoP) on the hearing dated 09.05.2017 sought CEA to assist the Commission on the methodology of apportionment of transmission charges between 765 kV D/C Nagapattinam-Salem transmission line and Salem Madhugiri transmission lines in the next date of hearing. Thereafter, vide RoP on the hearing dated 18.07.2017, CERC requested CEA to certify by 22.8.2017, whether the commissioning of the asset will be in the interest of safety and security of the grid and whether the asset can be put to useful service after its commissioning. Subsequently, CERC in its hearing dated 29.8.2017 has requested the Empowered Committee on Transmission to consider whether a transmission project which was approved as an integrated system to be executed through TBCB can be segregated time-wise for execution and the tariff can be proportionately apportioned.

CEA vide its letter no. CEA/PSPA-II/2017/52/8/1121 dated 05-09-2017 has advised CERC about the utilization of Nagapattinam-Salem 765 kV D/C and apportionment of transmission charges between the two lines. The apportionment of transmission charges was based on the cost per km indicated in Empowered Committee meeting and actual length of the transmission lines. CEA in the letter has indicated that apportionment of transmission charges between the two lines i.e. Nagapattinam-Salem 765 kV D/C and Salem-Madhugiri 765 kV S/C could be considered in the ratio of 60:40 respectively

- 11.2 Empowered Committee endorsed the views of CEA on segregation of the elements time wise and apportionment of transmission charges of the two lines.**
- 12.0 Compensation to CTU for providing technical inputs to BPC.**
- 12.1** CEA stated that subsequent to the issue of corrigendum, CTU has written a letter stating that the issue of compensation to CTU for providing technical inputs for transmission schemes under bidding to BPC was not reflected in the minutes of the meeting.
- 12.2** The issue of compensation to CTU was deliberated and it was decided that the issue does not fall under the purview of Empowered Committee on Transmission and CTU should take up the issue separately with Ministry of Power.

Meeting ended with thanks to Chair.

List of participants in the 37th Meeting of Empowered Committee on Transmission chaired by Member (PS), CEA on 20.09.2017

Sl. No.	Name Shri/Smt	Designation
Members Empowered Committee		
1.	P.S. Mhaske	- Member (PS), CEA – in Chair
2.	Dr. Somit Dasgupta	- Member (E&C) CEA - Member
3.	Bharati	- J.S., MOP -Member
4.	P. Singh	- Director (Projects), Powergrid - Member
5.	Surinder Singh Sur	- Joint Adviser (Energy) NITI Aayog- Member
6.	V.V.R.K. Rao	- Ex-Chair Person, CEA - Member
7.	Ravinder	- Ex-Chairperson, CEA -Member
8.	Ravinder Gupta	- Chief Engineer (PSP&A – I) CEA – Member Secretary
Other Participants		
9.	S.K. Ray Mohapatra	- Chief Engineer (PSP&A – II) CEA
10.	Awdhesh Kumar Yadav	- Director (PSP&PA-I), CEA
11.	Rishika Sharan	- Director (PSP&PA-II), CEA
12.	Irfan Ahmad	- Director, MOP
13.	Manjari Chaturvedi	- Dy. Director(PSP&PA-I), CEA
14.	Shiva Suman	- Dy. Director(PSP&PA-I), CEA
15.	Satyendra Kr. Dotan	- Dy. Director(PSP&PA-II), CEA
16.	Jitesh Shrivastava	- Astt Director (PSP&PA-I), CEA
17.	Priyam Shrivastava	- Astt Director (PSP&PA-I), CEA
18.	Nitin Deshwal	- Astt Director (PSP&PA-I), CEA
19.	Vikas Sachan	- Astt Director (PSP&PA-I), CEA
20.	Suyash Ayush Verma	- Astt Director (PSP&PA-II), CEA
21.	Ashok Pal	- GM (CTU-Plg.), Powergrid
22.	Mukesh Khanna	- GM (CTU-Plg.), Powergrid
23.	Kailash Rathore	- GM (Engg-s/s), Powergrid
24.	Yogesh Juneja	- GM, PFCCL
25.	Sanjay Nayak	- AVP, PFCCL
26.	Vivek Agarwal	- Chief Manager, RECTPCL

Annexure-II (A)

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

Projects for which bidding has been completed from 1st April, 2016 to till date are as under:

Sl. No	Name of Transmission Project	Name of Selected Bidder	Date of Transfer of project specific SPV
1.	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
2.	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	August 22, 2016
3.	Transmission system Strengthening in WR associated with Khargone TPP (1320 MW)	M/s Sterlite Grid 4 Limited	August 22, 2016
4.	NER System Strengthening Scheme- II(B) & V	M/s Sterlite Grid 4 Limited	March 31, 2017

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

S. No.	Name of Transmission Project	Present Status
1.	Transmission System For Eastern Region Strengthening Scheme -XXI (ERSS-XXI)	<ul style="list-style-type: none">• 10 bidders submitted the Response to RFQ• All 10 bidders shortlisted to participate in RFP• RFP issued on 27.02.2017• Responses against RFP (Non-Financial bids) were opened on 11.08.2017• 6 bidders participated at RFP stage• Evaluation of the responses against RFP is under process.
2.	Transmission System For New WR- NR 765 kv Inter-Regional	<ul style="list-style-type: none">• 10 bidders submitted the Response to RFQ• All 10 bidders shortlisted to participate in RFP• RFP issued on 27.02.2017• Responses against RFP scheduled for opening on 08.09.2017

Annexure-II (B)

Progress of Transmission Projects Awarded Through Tariff Based Competitive Bidding Route to PFC Consulting Limited

Sr. No.	Transmission Project	Status
1.	Transmission system for Ultra Mega Solar Park in Fatehgarh, distt. Jaisalmer, Rajasthan	RfQ evaluation under process
2.	(i) Additional 400kV feed to Goa & (ii) Additional System for Power Evacuation from Generation Projects pooled at Raigarh (Tamnar) Pool	RfQ was initiated on 06.06.2017 with last date of submission on 19.09.2017
3.	(i) Connectivity System for Lanco Vidarbha Thermal Power Ltd. (LVTPL) & (ii) Inter State Transmission system strengthening in Chhatarpur area in Madhya Pradesh	RfQ input awaited from CTU.
4.	Connectivity and Long Term Access (LTA) to HPPCL 450 MW from Shongtong Karcham HEP	RfP initiated on 31.07.2017 with last date of submission on 29.09.2017.

Bid Evaluation of Committee for projects under bidding**1. Bid Evaluation Committee (BEC) for “Transmission system for Ultra Mega Solar Park in Fatehgarh, distt. Jaisalmer, Rajasthan”-PFCCL**

S. No.	Name	Designation
1.	Head, SBI Capital Markets, 6th floor, World Trade Tower, Barakhamba Lane, Connaught Place, New Delhi- 110001 Phone No. 011-23418770 Fax: 011 -23418773	Chairman
2.	Sh. Kamlesh Kumar Meena, Superintending Engineer (Contracts – II) RVPN, Jaipur	Member
3.	Sh. Mukul Bhargava, Executive Engineer (Contracts – II) RVPN, Jaipur	Member
4.	Chief Engineer (PSETD) Central Electricity Authority 3 rd floor, Sewa Bhawan, R.K.Puram, New Delhi-110066	Member
5.	Director (PSPA-I) Central Electricity Authority 3 rd Floor, Sewa Bhawan, R.K.Puram, New Delhi-110066	Member
6.	Chairman of SPV constituted by PFC Consulting Limited	Convener - Member

2. Bid Evaluation Committee (BEC) for “Eastern Region Strengthening Scheme- XXI (ERSS-XXI)”

S. No.	Name	Designation
1.	Head, SBI Capital Markets, 6th floor, World Trade Tower, Barakhamba Lane, Connaught Place, New Delhi- 110001 Phone No. 011-23418770 Fax: 011 -23418773	Chairman

2.	Director(Project), Bihar State Power Transmission Company Limited, Vidyut Bhawan, Bailey Road, Patna – 800 021 M: 9771496900, email: bsharma2407@gmail.com	Member
3.	Chief Engineer (Trans.), Jharkhand Urja Sancharan Nigam Ltd., Engineering Building, HEC, Dhurwa, Ranchi – 834004 M: 9431584785, email: cet.jusnl@gmail.com	Member
4.	Chief Engineer (PSETD) Central Electricity Authority 3 rd floor, Sewa Bhawan, R.K.Puram, New Delhi-110066	Member
5.	Director (PSPA-II) Central Electricity Authority 3 rd Floor, Sewa Bhawan, R.K.Puram, New Delhi-110066	Member
6.	Chairman of SPV constituted by REC Transmission Projects Company Limited.	Convener - Member

3. **Bid Evaluation Committee (BEC) for “New WR- NR 765 kV Inter-regional corridor”**

S. No.	Name	Designation
1.	Head, SBI Capital Markets, 6th floor, World Trade Tower, Barakhamba Lane, Connaught Place, New Delhi- 110001 Phone No. 011-23418770 Fax: 011 -23418773	Chairman
2.	Shri Suman Guchh Chief Engineer (Transmission Planning) 3rd Floor, Shakti Bhawan Extn., 14 – Ashok Marg, Lucknow – 226 001 Email ID: setppss@gmail.com Phone: 0522 - 2218366	Member
3.	Shri S. P. Gupta, Addl. Chief Engineer (IT), MPPTCL, Block No. 2, Shakti Bhawan, Rampur, P.O. : Vidhyut Nagar, Jabalpur – 482 008 (M.P.) M : 9425805230 Ph: 0761 – 2702114 Email : iterp@mptransco.nic.in	Member

4.	Chief Engineer (PSETD) Central Electricity Authority 3 rd floor, Sewa Bhawan, R.K.Puram, New Delhi-110066	Member
5.	Director (PSPA-I) Central Electricity Authority 3 rd Floor, Sewa Bhawan, R.K.Puram, New Delhi-110066	Member
6.	Chairman of SPV constituted by REC Transmission Projects Company Limited	Convener - Member

4. **Bid Evaluation Committee (BEC) for “Connectivity and Long Term Access (LTA) to HPPCL 450 MW from Shongtong Karcham HEP.”**

S. No.	Name	Designation
1.	Head, SBI Capital Markets, 6th floor, World Trade Tower, Barakhamba Lane, Connaught Place, New Delhi- 110001 Phone No. 011-23418770 Fax: 011 -23418773	Chairman
2.	Director(Planning & Contracts), HPPTCL, Hinfed Bhawan, Panjari (Below Old MLA Quarters), Shimla – 171 005	Member
3.	General Manager(Contracts & Design), HPPTCL, Hinfed Bhawan, Panjari (Below Old MLA Quarters), Shimla – 171 005	Member
4.	Chief Engineer (PSETD) Central Electricity Authority 3 rd floor, Sewa Bhawan, R.K.Puram, New Delhi-110066	Member
5.	Director (PSPA-I) Central Electricity Authority 3 rd Floor, Sewa Bhawan, R.K.Puram, New Delhi-110066	Member
6.	Chairman of SPV constituted by PFC Consulting Limited	Convener - Member

5. **Bid Evaluation Committee (BEC) for “(i) Additional 400kV feed to Goa & (ii) Additional System for Power Evacuation from Generation Projects pooled at Raigarh (Tamnar) Pool.”**

S. No.	Name	Designation
1.	Head, SBI Capital Markets, 6th floor, World Trade Tower, Barakhamba Lane, Connaught Place, New Delhi- 110001 Phone No. 011-23418770 Fax: 011 -23418773	Chairman
2.	Shri Y.B. Jain, General Manager(Fin), CSPTCL, 3rd Floor, SLDC Building, Danganiya – 492013 Raipur, Chattisgarh Mobile: 7987333457 Office No. : 0771-2574321 Email: yb.jain@gmail.com	Member
3.	Shri G.T. Munde, Director (Operation), MSETCL, Prakash Ganga, Bandra Kurla Complex, Bandra (East), Mumbai – 400 051 M: 8411004321, Ph: 022 26595003 Fax No: 022 26590383 Email: dirop@maharashtransco.in	Member
4.	Chief Engineer (PSETD) Central Electricity Authority 3rd floor, Sewa Bhawan, R.K.Puram, New Delhi-110066	Member
5.	Director (PSP & PA - 1) Central Electricity Authority Sewa Bhawan, R.K.Puram, New Delhi-110066	Member
6.	Chairman of SPV constituted by PFC Consulting Limited	Convener - Member

6. Bid Evaluation Committee (BEC) for “(i) Connectivity System for Lanco Vidarbha Thermal Power Ltd. (LVTPL) (ii) Inter State Transmission system strengthening in Chhatarpur area in Madhya Pradesh “

S. No.	Name	Designation
1.	Head, SBI Capital Markets, 6th floor, World Trade Tower, Barakhamba Lane, Connaught Place, New Delhi- 110001 Phone No. 011-23418770 Fax: 011 -23418773	Chairman
2.	Shri S. P. Gupta, Addl. Chief Engineer (IT), MPPTCL, Block No. 2, Shakti Bhawan, Rampur, P.O. : Vidhyut Nagar, Jabalpur – 482 008 (M.P.)	Member

	M : 9425805230 Ph: 0761 – 2702134 Email : iterp@mptransco.nic.in, mpptcl_trans@hotmail.com	
3.	Shri G.T. Munde, Director (Operation), MSETCL, Prakash Ganga, Bandra Kurla Complex, Bandra (East), Mumbai – 400 051 M: 8411004321, Ph: 022 26595003 Fax No: 022 26590383 Email: dirop@maharashtransco.in	Member
4.	Chief Engineer (PSETD) Central Electricity Authority 3rd floor, Sewa Bhawan, R.K.Puram, New Delhi-110066	Member
5.	Director (PSPA-I) Central Electricity Authority 3rd Floor, Sewa Bhawan, R.K.Puram, New Delhi-110066	Member
6.	Chairman of SPV constituted by PFC Consulting Limited	Convener - Member

