



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) 2016-PSP&PA-I/1032-1040

Dated: 12th September, 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 – Agenda of the meeting

Sir,

The 37th meeting of the Empowered Committee on Transmission is proposed to be held on **19th September, 2017 (Tuesday) at 3:00 PM** under the chairmanship of Shri P.S.Mhaske, Member (Power System), CEA in the Conference Room of CEA, 2nd Floor, Sewa Bhawan, R.K. Puram, New Delhi.

The agenda of the meeting is attached herewith. The same is also available at http://cea.nic.in/reports/committee/empowered/agenda_meeting_notice/37.pdf

Kindly make it convenient to attend the meeting.

Yours faithfully,

(Ravinder Gupta)

Chief Engineer &

Member Secretary (Empowered Committee)

Copy to:

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

Agenda note for the 37th meeting of the Empowered Committee on Transmission

Date and Time: 19th September 2017, 1500 hrs

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

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

The minutes of 36th meeting of Empowered Committee 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. Subsequently, 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. Further, CTU vide letter dated 11-11-2016 stated that views on technical input of CTU and some other modifications have not been incorporated. The letter is enclosed as Annexure-I.

1.1 The minutes of the meeting along with corrigendum may please be confirmed.

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

2.1 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 Further, 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 Thiruvalam
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 The scheme no. 1 is not to be implemented by POWERGRID as the associated Korna-Ajmer 765 kV D/C line (RVPNL line- intra state line) has been agreed to be dropped in the 39th SCM of NR.

- 2.4 The following transmission schemes associated with evacuation of solar parks in Karnataka, Rajasthan and Gujarat were agreed in the 36th meeting of EC on Transmission to be implemented through regulated tariff mechanism. MoP vide letter no. 11/64/2014-PG dated 8-01-2015 has, interalia, assigned the transmission system associated with these solar parks to POWERGRID on compressed time schedule basis.

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)

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

3.1 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 The issue of non-signing of TSA was discussed in 36th meeting of EC on Transmission held on 26.07.2016. In the meeting, it was decided that the PFCCL may take up the issue of non-signing of TSA with MoP and request MoP to direct NTPC to sign the TSA for balance portion of 140.42 MW for which the designated LTTCs i) PSPCL (53.96 MW) ii) Tata Power (51.79 MW) and iii) BSES Rajdhani (34.67 MW) have not signed the TSA. In case of non-signing of TSA, the implementation of the system may not be taken up. PFCCL vide letter dated 22.08.2016 requested MoP to advise NTPC to sign the TSA for the balance portion of 140.42 MW for which the designated LTTCs i) PSPCL ii) Tata Power and iii) BSES Rajdhani have not signed the TSA

3.4 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). It is also mentioned in the MoP's order that this additional allocation to UP from Central Sector Share unallocated power to the tune of 66 MW from the project shall be reviewed after every two years. Therefore, about 1010 MW capacity is allocated to UP. The matter has already been deliberated in meetings held in CEA on 11.11.2016, 11.04.2017 and in the 39th meeting of SCSPNR held on 29-30th May, 2017. In the 39th meeting of SCSPNR it was agreed to drop the Inter State transmission scheme - ATS for Tanda Expansion TPS (2x660) MW.

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

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

4.1 During the 39th meeting of Standing Committees on Power System Planning in NR, 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) Implementation agency for the Upgradation / augmentation in the existing sub-stations, addition of reactors, conversion of fixed reactors to switchable reactors at existing sub-stations

4.2 As the transmission asset is created to serve a life span of atleast 35 years and as per the existing tariff policy, all future inter-state transmission 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.

4.3 Thus as per the tariff policy, the augmentation works, if any, at existing s/s of one Transmission Service Provider (TSP) needs to be carried out through TBCB mechanism by another / new TSP, which involves a lot of issues relating to the sharing of common facilities. These issues become more complex when transmission asset is GIS. Members of the Standing Committees on Power system planning suggested that provisions should be made in the Tariff policy for upgradation / augmentation in the existing sub-stations by the owner of that substation under regulated tariff mechanism.

4.4 Member may deliberate.

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 RECTPCL and PFCCL may brief the EC on transmission about the progress of schemes that are under bidding process.

6.0 New inter-state transmission schemes

6.1. System strengthening Scheme in Northern Region

During the 39th meeting of SCSPNR 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	<ul style="list-style-type: none">• 400/220kV ICT, 500MVA	41.4

Sonepat (PG) S/s	<ul style="list-style-type: none"> • 400kV ICT bay -1 • 220kV ICT bay-1 • 220kV line bay-2 	
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	<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 (subject to confirmation of line bays by POWERGRID).	<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

These schemes involve implementation of bays, transformer, replacement of transformer, at different existing ISTS substations (POWERGRID).

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

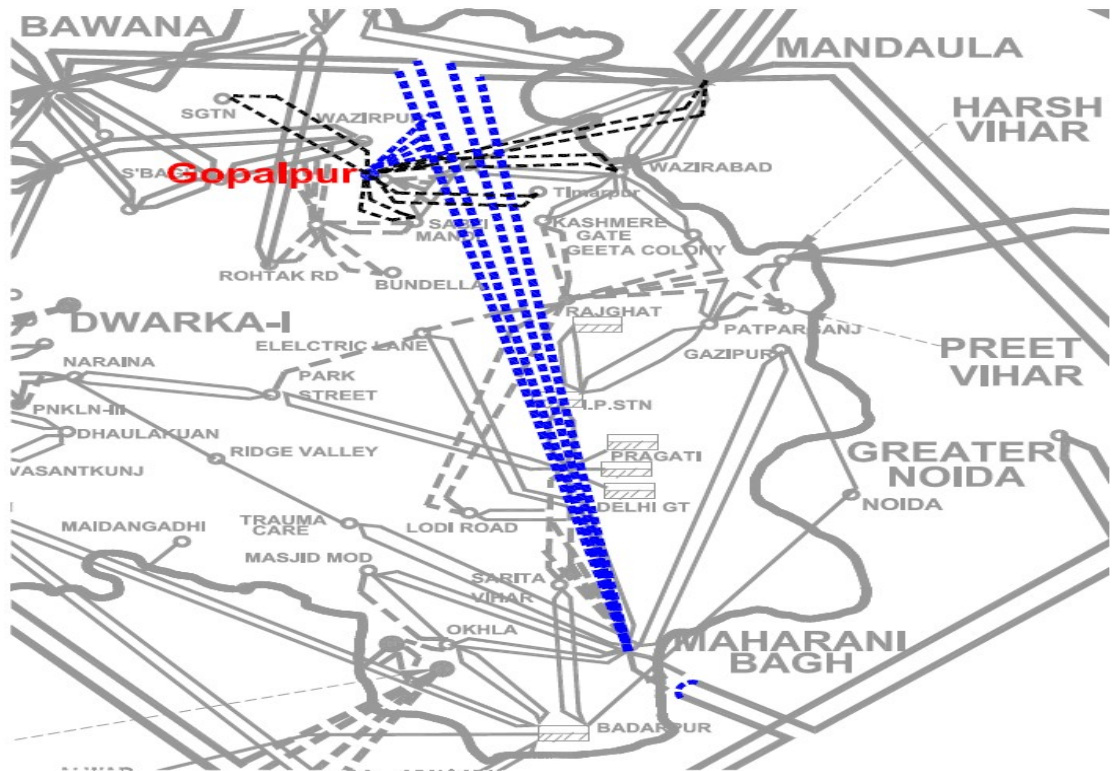
Members may like to deliberate on the mode of implementation of the above transmission schemes either through TBCB or exempt from TBCB on ground of technical upgradation to be implemented under RTM.

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

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, inteaalia, assigned the implemenation of above two projects to POWERGRID under compressed time schedule. However, due to non availability of land at Rajghat, its location was shifted to near 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 Maharani Bagh (GIS) sub-station, the scheme NRSS XXXIX was agreed to be dropped.

Subsequently, DTL 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 shifted to Gopalpur instead of Maharani Bagh-II 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 address the high fault level 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-	67.5

ii) Bawana 400 kV D/C line at Maharaniabagh (existing) By passing of LILO of one circuit of 400 kV Dadri–Ballabgarh D/C line at Maharaniabagh (existing) (to be used during emergency)	
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Members may like to deliberate on the mode of implementation of the above transmission schemes either through TBCB or exempt from TBCB on ground of technical upgradation to be implemented under RTM.

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

The problem of high short circuit level at following pockets (where each pocket consists of a group of substations having high fault level) in Northern Region were deliberated in 39th meeting of Standing Committee on Power System Planning of Northern Region held on 29-30th May, 2017:

- i. Substation associated with high capacity D/c (Quad Moose) ring of NCR,
- ii. Meerut, Bagpat, Abdullapur, Panchkula and Patiala,
- iii. Bhiwani, Hissar, Mohindergarh & Dhanonda,
- iv. Agra,
- v. Kanpur, Panki, Fatehpur and Allahabad,
- vi. Singrauli, Anpara and Rihand,
- vii. Lucknow, Bareilly and Unnao

The studies were presented and after detailed deliberations, members agreed for the proposed arrangement in the 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.

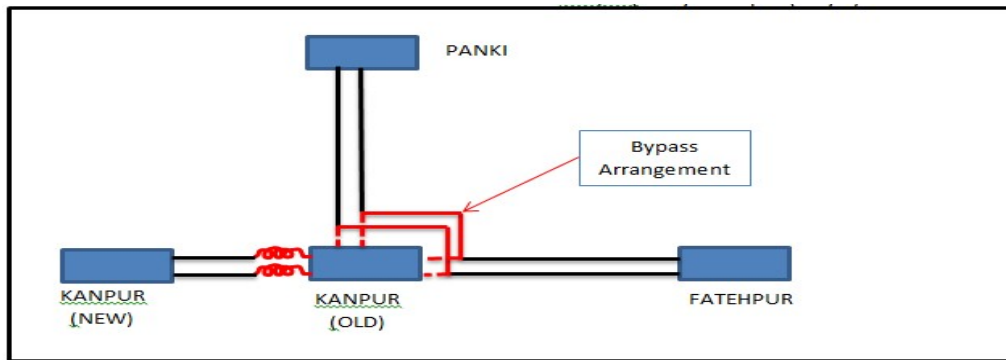
The scope of the transmission scheme is as under:

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

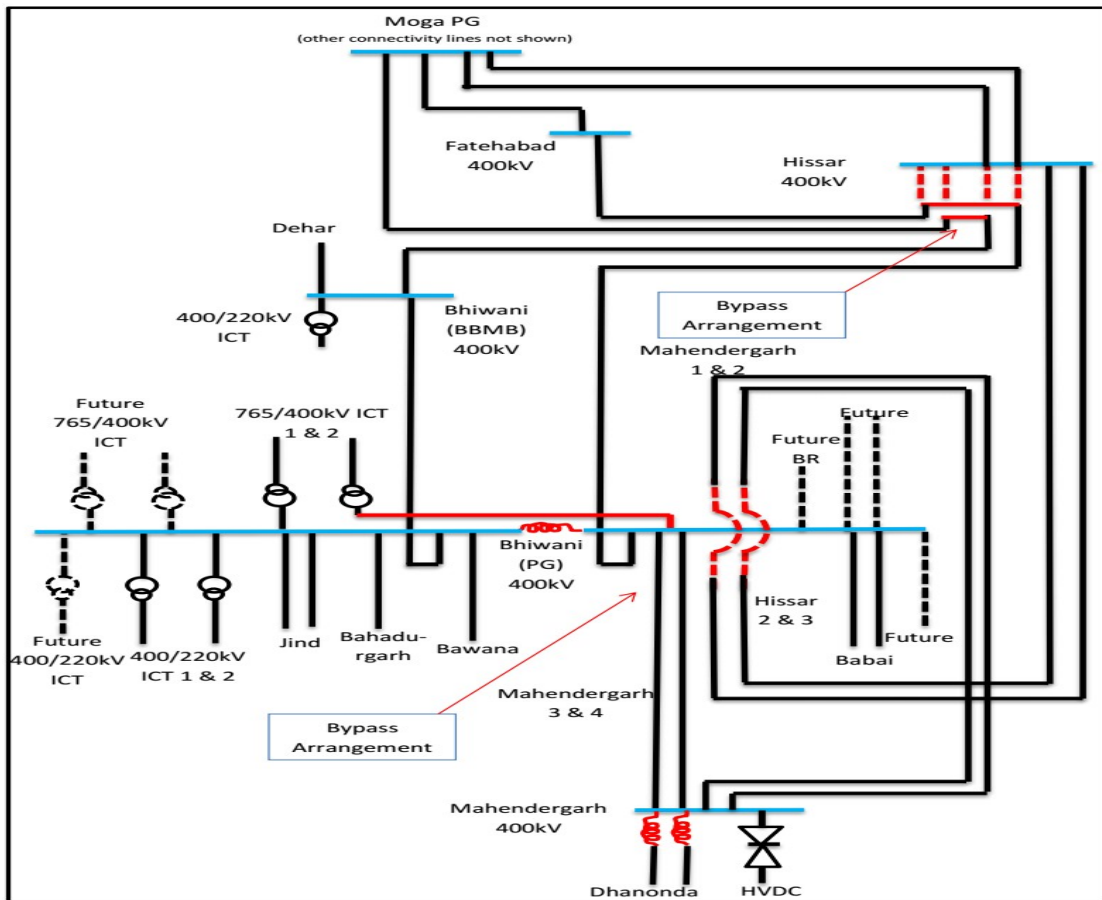
Note: For both Part-A & Part-B, Shifting/reorientation works inside substations may be required to accommodate the splitting/bypass arrangements

The scheme involves realignment of some 400kV lines at POWERGRID substations and installation of 12ohm Series reactors at various lines and buses.



After considering the above reconfiguration and series reactors at Kanpur (old), the short circuit level of Kanpur (old), Panki and Kanpur (new) is as follows:

Substation	3phase fault current
Base Case	
Kanpur (new)	53kAmp
Kanpur (old)	58kAmp
Panki	52kAmp
With proposed re-arrangement	
Kanpur(new)	33kAmp
Kanpur (old)	36kAmp
Panki	26kAmp



Short circuit levels at Bhiwani (PG), Hissar, Mohindergarh and Dhanonda before and after above re-arrangement are given in table below:

Substation	3phase fault current
Base Case	
Bhiwani(PG)	62kAmp
Hissar	50kAmp
Mohindergarh	53kAmp
Dhanonda	54kAmp
After proposed re- arrangement	
Bhiwani(PG) Section A	39kAmp
Bhiwani(PG) Section B	38kAmp
Hissar	33kAmp
Mohindergarh	36kAmp
Dhanonda	46kAmp

Members may like to deliberate on the mode of implementation of the above transmission schemes either through TBCB or exempt from TBCB on ground of technical upgradation to be implemented under RTM.

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

In order to control high voltages in the grid, adequate reactive compensation need to be provided at 400kV as well as at 220 kV level, so as the opening of lines during light load conditions can be avoided. The provision of providing reactive compensation to control high voltage in the grid was discussed and approved in the 39th meeting of Standing Committee on Power System Planning of Northern Region held on 29-30th May, 2017.

POWERGRID has observed increase in the voltage profile at Kurukshetra 400 kV bus during operation of Champa-Kurukshetra HVDC link. Further as the short circuit strength is low during light load conditions, large variation in voltage is observed with the switching of the filter banks. Also, as per the design of TOVC (Temporary Over Voltage Control) protection, whenever the voltage at Kurukshetra bus increases, the filter banks trips to bring down the voltage and automatic reduction in power flow occurs. This reduction of power flow result into voltage rise at Kurukshetra. Sudden reduction of power flow may also lead to increase the power transfer on Gwalior-Agra 2x S/c lines. Further, after drop in voltage, the filter bank switches on automatically leading to a voltage rise. Due to this, the operation of HVDC link may lead to serious operational constraints. Due to persistent high voltages, the 125 MVAR Bus Reactor is continuously in service. The Champa-Kurukshetra HVDC link is a very important link for import of power from Western Region generations to Northern Region load centres. This link also provides control on inter-regional power transfer. Considering this high voltage at Kurukshetra, 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 mentioned above. 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 present scheme 'Reactive Power Compensation in Northern Region' involves installation of bus reactors at various 220kV & 400kV buses and TCR of capacity 500 MVAR at Kurukshetra 400 kV bus. The scope of the transmission scheme is as under:

Scope of Transmission Scheme	MVAR	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	
6 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

Members may like to deliberate on the mode of implementation of the above transmission schemes either through TBCB or exempt from TBCB on ground of technical upgradation to be implemented under RTM.

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

There is a huge variation in load / generation pattern in Northern Region, therefore, 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. There are certain lines in NR, whose line lengths have been reduced, after being LILO at certain substation. The fixed reactive compensation that was initially provided for the parent line (line before LILO) has reached such a value, that there is a requirement of switching of the reactors during different operating conditions. Considering the fact that initially these line reactors were implemented as fixed line reactors (considering the initial line length), switching on/off the line reactor based on requirement is not possible. Therefore, POWERGRID proposed for converting the fixed Line reactors to switchable line reactors for the lines mentioned in the table given below.

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)	Kankroli - Zerda	Kankroli	50	Zerda (GETCO)	50	
iv)	Abdullapur- Panchkula I	Abdullapur	50		--	
v)	Abdullapur- Panchkula II	Abdullapur	50		--	
vi)	Bassi – Kotputli	Bassi	50		--	
Total Estimated Cost (Rs Crore)						77.6

Note:

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

Members may like to deliberate on the mode of implementation of the above transmission schemes either through TBCB or exempt from TBCB on ground of technical upgradation to be implemented under RTM.

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

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)	LILO 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

**LILO 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.*

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

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

In 39th meeting of SCPSPWR held on 30.11.2015, installation of 1x500 MVA 400/220 kV 3rd ICT at Khandwa (PG) substation was agreed. Subsequently in 41st SCM in WR held on 21.12.2016, MPPTCL requested for 2 nos. 220 kV feeder bays associated with 1x500 MVA, 400/220 kV 3rd ICT at Khandwa (PG) substation. MPPTCL stated that they have planned Khandwa – Chamera 220 kV D/C line and for this two nos. of 220 kV line bays are required at Khandwa (PG) substation. Hence, implementation of two nos. of additional 220 kV bays at Khandwa (PG) 400 /220 kV substation under ISTS was agreed.

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

Members may like to deliberate on the mode of implementation of the above transmission schemes either through TBCB or exempt from TBCB on ground of technical upgradation to be implemented under RTM.

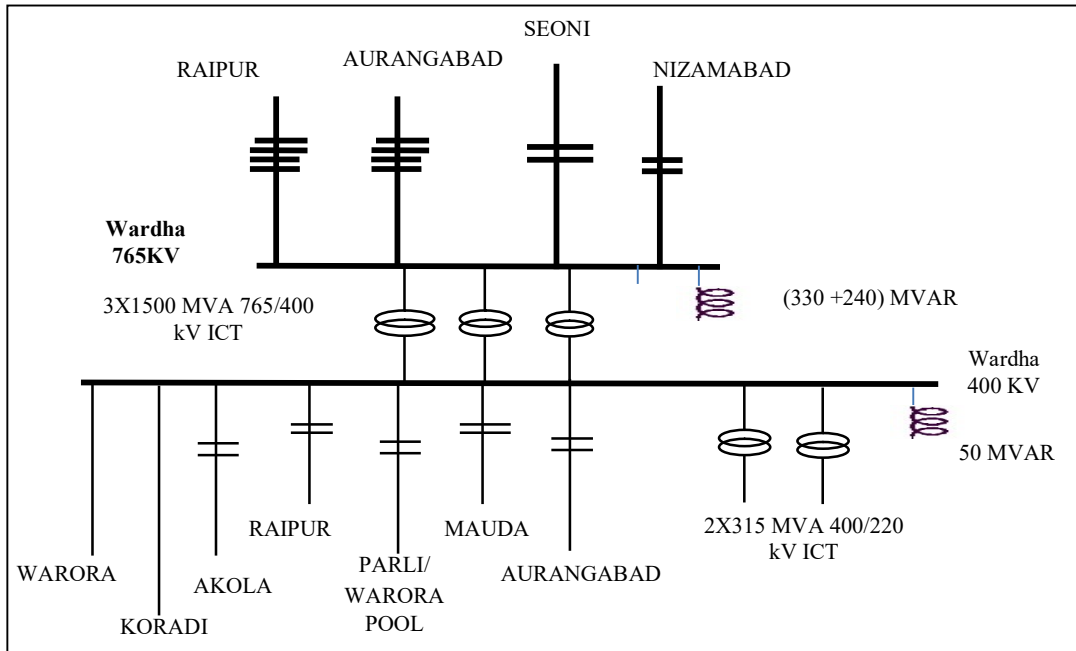
6.8. Name of the Scheme: Measures to control fault level at Wardha Substation

The scheme has been discussed in the 37th, 39th, 40th & 41st meeting of SCPSPWR and the following scheme involving bus splitting at Wardha with 12 Ohm fault limiting reactor to connect 400kV BUS Section A and BUS Section B of Wardha 400 kV BUS has been agreed to control the high fault level at Wardha 400 kV S/s.

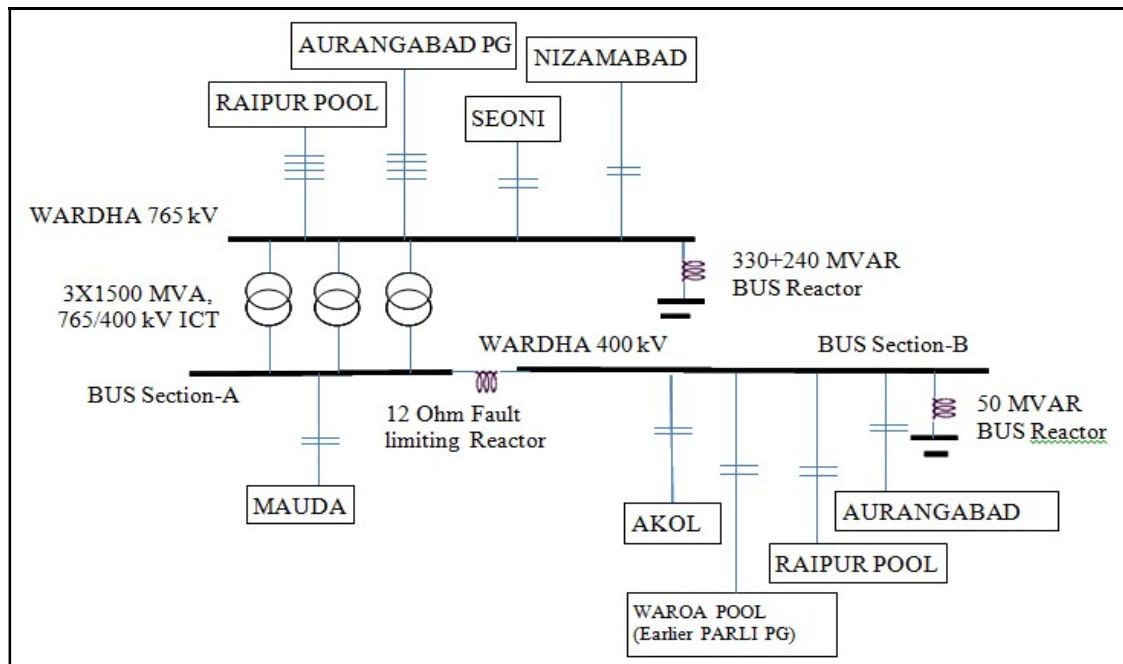
The scope of the transmission scheme is as under:

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 63MVA 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



Existing 765/400 kV Wardha substation

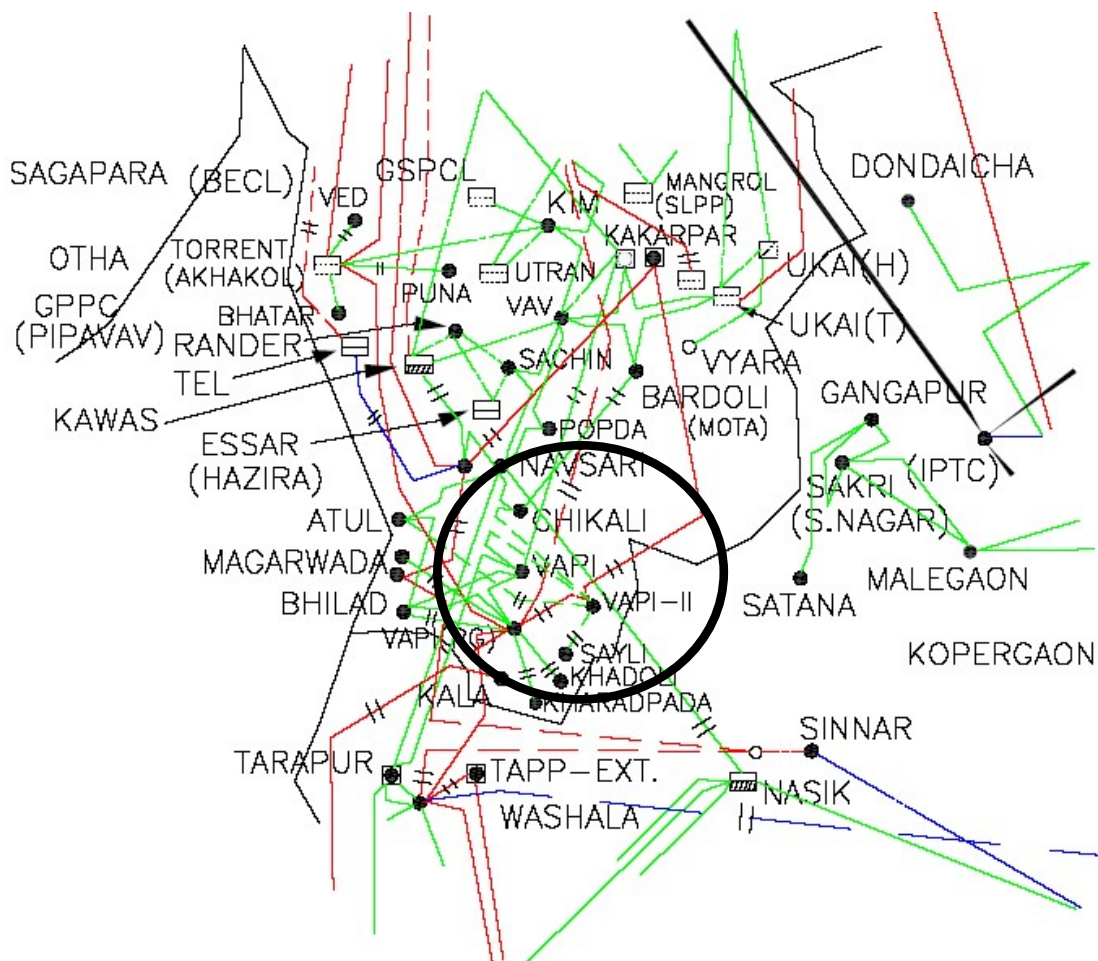


765/400 kV Wardha substation after bus splitting and line reconfiguration

Members may like to deliberate on the mode of implementation of the above transmission schemes either through TBCB or exempt from TBCB on ground of technical upgradation to be implemented under RTM.

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

Establishment of new substation near Vapi has been proposed to cater the demand of DNH and Daman & Diu (no space available for putting additional transformers at existing Vapi 400/220 kV) and provide 220 feed to south Gujarat substation. With this GETCO proposal of establishment of Kosamba-Vapi 400 kV D/C line under ISTS would not be required. The scheme has been deliberated in the 39th, 40th and 41st meeting of SCPSPWR. In the 41st SCM, 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. 	127.5

		<ul style="list-style-type: none"> Space for Line bays (future): 6 nos. 	
ii)	LILO of KAPP – Vapi 400 kV D/C line at Vapi – II	Route length- 10km	29.8
iii)	125 MVAR bus reactor at Vapi – II Substation	<ul style="list-style-type: none"> 125 MVAR bus reactor-1 Bus Reactor Bay: 1 no Space for 420kV additional Bus Reactor 1 no 	16
iv)	<p>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 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 	Route length: 30 km	25.2
	Total(in crore)		198.5

The above-finalized scope of works would be put up for ratification of the members in the next Standing Committee on Power System Planning in WR.

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

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

The issue of additional ISTS feed to Navi Mumbai 400/220 kV substation was agreed in the 25th meeting of SCPCPNR held on 30.09.2006 with following scope of works to be implemented by PGCIL as Western Regional system strengthening scheme (WRSS – V):

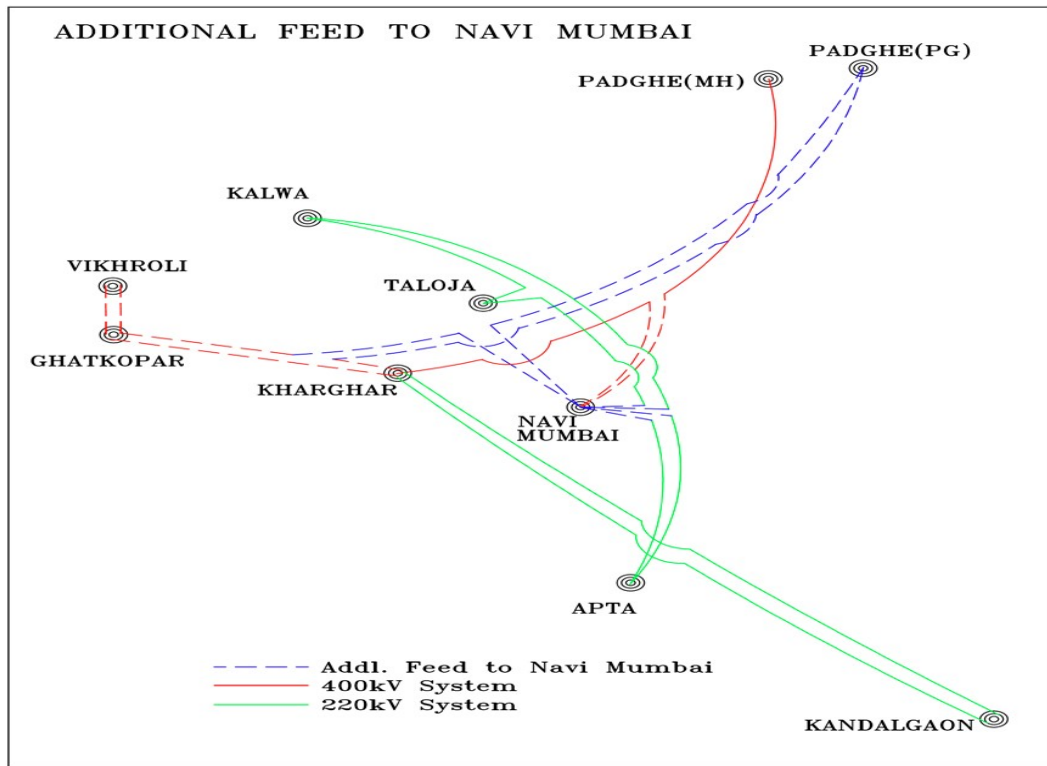
- i. 400 kV Vapi – Navi Mumbai D/C line.
- ii. LILO of 400kV Lonikhand / Pune – Kalwa line at Navi Mumbai.
- iii. Establishment of 400/220kV 2X315MVA new (GIS) at Navi Mumbai.
- iv. 220 kV Vapi – Khadoli D/C line.

Subsequently, PGCIL intimated that due severe RoW constraints in the vicinity of Navi Mumbai area, the above 400 kV lines couldn't be implemented upto Navi Mumbai S/s. The scheme was reviewed in 35th, 38th, 40th & 41st meeting of SCPSPWR and the following scheme 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 – Kalwa 220 kV S/C line at Navi Mumbai (PG).
- iv. LILO of 220 kV Apta – Kalwa S/C line at Navi Mumbai (PG).

Subsequently, in order to ascertain the implementation feasibility of 220 kV lines, joint site visit and meeting was held on 07.04.2017, the scheme has been modified as follows (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 - Taloja 220 kV S/C line at Navi Mumbai (PG)	2	1.3
iv)	LILO of 220 kV Apta – Kalwa S/C line at Navi Mumbai (PG)	2	1.3
	Total (in crore)		255.32

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 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).*

The above finalized scope of works would be put up for ratification of the members in the next Standing Committee on Power System Planning in WR.

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

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

The transmission scheme has been approved in the 6th Standing Committee on Power System Planning of North Eastern Region held on 03.10.2016. The scope of the transmission scheme is as under:

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 without 132/33 kV ICT at Jiribam, Aizawl and Kumarghat.		
	Total(in crore)		

Note:- Jiribam, Aizawl and Haflong are 132 kV switching-stations and Kumarghat is 132/33kV 5MVA substation of POWERGRID, which have completed 25 years of service.

Members may like to deliberate on the mode of implementation of the above transmission schemes either through TBCB or exempt from TBCB on ground of technical upgradation to be implemented under RTM.

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

The transmission scheme has been approved in the 6th Standing Committee on Power System Planning of North Eastern Region 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 (Rs. Crore)		

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)

Members may like to deliberate on the mode of implementation of the above transmission schemes either through TBCB or exempt from TBCB on ground of technical upgradation to be implemented under RTM.

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

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.

POWERGRID has 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.

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)			-

Members may please note.

7.0 Change / modification in the scope of works of transmission schemes under TBCB – for kind information of the EC

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

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.

The scope of transmission scheme is given below;

Original scope of works	Modified scope of works
<p>Name of Scheme-I: “Transmission system for Ultra Mega Solar Park in Fatehgarh, distt. Jaisalmer, Rajasthan”</p> <ol 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 	<p>Name of Scheme-I: Transmission system for Ultra Mega Solar Park in Fatehgarh, distt. Jaisalmer, Rajasthan</p> <ol 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</p>

	<p>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> <ol style="list-style-type: none"> Park Developer to construct 400 kV line from M/s AREPL solar park along with 1x125 MVAR bus reactor at generation switchyard. 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) The Solar park developer (M/s AREPL) 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. 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>Note:</p> <ol style="list-style-type: none"> 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. 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. The Solar park developer (M/s AREPL) to 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. 220 kV line bays at Fatehgarh Pooling station for other connectivity lines shall be under the scope of respective developer 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. 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.

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

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 SCSPNER 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.

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	Biswanath Chariyalli (POWERGRID) – Itanagar 132kV D/c (Zebra conductor) line
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 Biswanath Chariyalli (PG) – Itanagar at Gohpur (AEGCL).

Note (additional):

1. 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

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. 	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. <i>[2 no. for Palatana – Surajmaninagar</i>

Sl. No.	Scope as per 36 th ECM	Revised Scope
	<ul style="list-style-type: none"> • 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>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>	<p><i>and 2 no. for Surajmaninagar – P.K.Bari 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 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>

Sl. No.	Scope as per 36 th ECM	Revised Scope
		<ul style="list-style-type: none"> • Space for future line bays: 6 no. • Space for ICT bays: 1 no. 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.

The modified scheme may be notified in the Gazette.

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

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. No.	Scope as per 36 th ECM	Revised Scope
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 440kV
- (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

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)

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 WR SCM dated 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.

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.

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 as given below may also be notified in the Gazette.

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 (ii) Xeldem – Mapusa 400kV D/c (quad) line (iii) Establishment of 2x500MVA, 400/220kV substation at Xeldem <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 	120KM 40KM 1000MVA

	<p>Xeldem)</p> <ul style="list-style-type: none"> • 1x80MVAR switchable line reactor along with 500 Ohms NGR and its auxiliaries (for Narendra (New) –Xeldem 400kV (quad) line formed after LILO of one ckt of Narendra (existing) – Narendra (New) 400kV D/c quad line at Xeldem) <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.*

7.5. 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)

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 WR SCM 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. This is for kind information of the members.

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

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

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**”.

In the 6th NER Standing Committee Meeting 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 <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • ICT bays – 2 no. • Space for future line bays – 18 no. • Space for future ICT bay – 2 no. Space for future ICT <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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 Rangia / Rowta end for Dinchang - Rangia / Rowta Pooling Point 400 kV D/c (Quad) line – 2 no. • Space for future line bays – 12no. 	Establishment of 2x500MVA 400/220 kV Pooling station at Rangia / Rowta in Assam 400 kV <ul style="list-style-type: none"> • ICT 2x500MVA 400/220 kV • 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 Rangia / Rowta end for Dinchang - Rangia / Rowta Pooling Point 400 kV D/c (Quad) line – 2 no.

Sl. No.	Approved Scope	Revised Scope
	<ul style="list-style-type: none"> • Space for future ICT bays – 2 no. 220 kV <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. Space for future ICT <ul style="list-style-type: none"> • Space for 2x500MVA 400/220kV ICT 	<ul style="list-style-type: none"> • Space for future line bays – 12no. • Space for future ICT bays – 2 no. 220 kV <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. Space for future ICT <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.

Members may like to note.

8.0 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.”

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

PFCCL has incorporated a SPV in the name of “Bijawar-Vidarbha Transmission Limited” on January 13, 2017 for the purpose.

PFCCL 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.

CTU vide its letter no. C/CTU/W/00/TBCB dated June 13, 2017 informed PFCCL 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.

PFCCL 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

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 LVTPLPPL regarding resolution of financial issues.

Empowered Committee may deliberate.

9.0 Issues related to the transmission project: “Additional 400kV Feed to Goa and Additional System for Power Evacuation from Generation Projects pooled at Raigarh (Tamnar) Pool.”

Ministry of Power vide Gazette Notification dated October 28, 2016 appointed PFC Consulting Limited as the Bid Process Coordinator (BPC) for Independent Transmission “Additional 400kV Feed to Goa and Additional System for Power Evacuation from Generation Projects pooled at Raigarh (Tamnar) Pool.” to be developed through Tariff Based Competitive Bidding.

PFCCL has raised the following two issue:

- A) Based on the site visit carried out by one of the bidder, PFCCL vide their letter 03/ITP-24/17-18/RFP dated 23.8.2017 to CTU has raised the concern that Dharamjaygarh PS(sectionB) does not have sufficient space for termination of both circuits of Raigarh (Tamnar) –Dharmjaygarh 765kV D/c line and hence only one circuit can be terminated. PFCCL has also requested CTU to provide exact coordinates /location of bays/layout with marking of bays for termination of lines at Dharamjaygarh & Raigarh(Tamnar) substations of POWERGRID.

Powergrid vide its letter C/CTU-PLG/PFCCL/Goa-Tamnar dated 28.8.2017 confirmed about the availability of space for accommodation of two 765kV bays at Dharamjaygarh S/s. Regarding exact coordinates /location of bays/layout for termination of lines at Dharamjaygarh & Raigarh(Tamnar) substations, Powergrid has mentioned that the same shall be provided only to successful bidder and not during RfP stage.

It is to mention 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. However, in case of substations of CTU this information is not furnished. CTU should also provide details of bays location for termination of the line at their substations during the RfP stage.

Empowered Committee may deliberate.

- B) CEA vide its letter dated 03.05.2017 has furnished the details of 7 Long Term Transmission Customers (LTTCs) for the scheme. RfP documents were issued w.e.f 06.06.2017 with last date of submission of RfP bids scheduled on 07.08.2017. Due to non-signing of TSA, RfP Bid submission date has already been extended twice. Out of 7 LTTCs, 5 LTTCs have consented for signing of TSA except for two LTTCs namely Maharashtra State Electricity Distribution Company Limited (MSEDCL) and Chattisgarh State Power Distribution Company Limited (CSPDCL).

One of the LTTC namely CSPDCL has raised the query that under what legal binding CSPDCL should sign the TSA and another LTTC, MSEDCL is also not signing the TSA. CEA has also written to MSEDCL and CSPDCL for signing of the TSA.

Empowered Committee may deliberate.

10.0 Cost of the Project as per the Cost Committee

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

S.N.	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

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

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 for kind information of the members.

12.0 Any other item.

Any other item with the permission of Chair.

Annexure-I

पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड

(भारत सरकार का उद्यम)

POWER GRID CORPORATION OF INDIA LIMITED

(A Government of India Enterprise)



पावरग्रिड

केन्द्रीय कार्यालय: "सौदामिनी" प्लॉट सं. 2, सेक्टर-29, गुडगाँव-122 001, (हरियाणा) दूरभाष: 0124-2571700-719, फ़ैक्स : 0124-2571762, "Saudamini" Plot No. 2, Sector-29, Gurgaon-122 001, (Haryana) Tel. : 0124-2571700-719, Fax : 0124-2571762, Web.: www.powergridindia.com

CIN : L40101DL1989GOI038121

Ref: C/CTU-PIg/ECM

Date : 11-11-2016

Shri. S D Dubey
Member (Power System)
Central Electricity Authority
Sewa Bhawan, R. K. Puram
New Delhi - 110066.

Sub: Minutes of the 36th Meeting of the Empowered Committee on Transmission – Corrigendum reg.

Dear Sir,

This is with reference to the corrigendum issued by CEA on the minutes of 36th Meeting of the Empowered Committee on Transmission held on 26.07.2016. Majority of our observations were incorporated in the corrigendum. However, views on technical inputs of CTU and some other modifications as highlighted in Annexure – I have not been incorporated.

It is requested to kindly arrange to incorporate above modifications in the Minutes of the meeting suitably.

Thanking you,

Yours faithfully,

(Subir Sen)

Chief Operating Officer(CTU-Planning)

Modifications / Additions / Deletions suggested the Minutes of 36th Meeting of the Empowered Committee on Transmission

A. Following matter was also discussed in the EC meeting (the same may be included in minutes)

Technical inputs by CTU:

POWERGRID informed that for carrying out TBCB process, lots of Technical inputs are sought by BPCs. The main inputs include RfQ inputs (includes requirement of the scheme, drawing for the scheme, estimated line length etc.), details about coordinates of various substations, technical specifications for transmission system (includes line, substation, communication, protection, commercial etc.), clarifications to bidders, costing of the projects after survey etc. which involves lot of coordination and manpower. With the increase in number of projects through TBCB, this work is increasing day by day. It was stated that although 3-4 years have elapsed in bidding regime, however, BPCs still desires all technical inputs from CEA/CTU. It was also mentioned that BPCs are getting a consultancy fee for carrying out the bidding but there is no compensation to CTU for the extra manpower utilized for this purpose. It was suggested that BPC should also develop technical expertise. BPCs were of the view that technical inputs should to be given by CTU/CEA. Matter was deliberated in detail and following was agreed:

- (a) For collection of coordinate data for various POWERGRID substations, it was agreed that BPCs would coordinate with various site offices of POWERGRID similar to STU substations and would collect the data directly. BPCs may send their representative to different locations for this purpose.
- (b) It was also agreed that Member (PS), CEA would call a separate meeting to discuss the issue of providing technical inputs including bidder clarifications and compensation to CTU.

B. General corrections required

- In tables 12.1 to 12.8, 13.1 to 13.10, and 14.1 to 14.9, the header “capacity” to be replaced by **Capacity/ Estimated Line Length (MVA /km)**. In some tables, line length has been mentioned in “ckt. km.”. To avoid confusion, the units may be made consistent in all the tables.

C. Item specific modifications

Item No. 12.2 (Page No. 10)

Name of the Scheme: Modification in line bays and cost for “Transmission system for Ultra Mega Solar Park in Fatehgarh, distt. Jaisalmer Rajasthan”

Following may be modified:

- In Item no. **iv** of the table, the estimated cost of 125MVAR Bus reactor has been mentioned as “Rs. 8 Cr”. The same may be modified as “**Rs. 18 Cr**”.
- Total estimated cost of works in TBCB scope has been mentioned as “Rs.536 Cr.” The same may be modified as “**Rs.546 Cr**”.
- In Item no. **iii** of the table, has been mentioned as “2 nos of 400kV line bays at Fatehgarh Pooling sub-station”. The same may be modified as “**2 nos of 400kV line bays at Fatehgarh Pooling sub-station for termination of 765kV Fatehgarh Pooling sub-station – Bhadla(PG) D/c line (initially to be charged at 400 kV)**”.
- In Item no. **iv** of the table, has been mentioned as “1x125 MVAR Bus reactor at 400kV Fatehgarh Pooling sub-station”. The same may be modified as “**1x125 MVAR Bus reactor at 400kV Fatehgarh Pooling sub-station along with associated bays**”.

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

Following may be modified:

- In the item no. **iv** at Page 16, it has been mentioned that “PTCUL to provide space for 2 Nos. 400kV Bays at Wangtoo S/s”. The same may be modified as “**HPPTCL to provide space for 2 Nos. 400kV Bays at Wangtoo S/s (To be confirmed from HPPTCL).**”

Item No. 12.8 (Page No. 16)

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

- Sl. no. (v) Substation extension at Motihari S/s, transformation capacity of **315MVA** to be included in table

Item No. 13.3 (Page No. 22)

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

- Sl. no. (x) 80MVAR, 765kV, Single Phase Spare Reactor unit at Ranchi (New) 765/400kV sub-station of POWERGRID should be modified as - **Installation of 80MVAR, 765kV, Single Phase Spare Reactor unit at Ranchi (New) 765/400kV sub-station of POWERGRID**

Item No. 14.0 (Page No. 28)

Following point may be added:

Name of the Scheme: Modification in line lengths and cost for “Transmission System Strengthening in WR associated with Khargone TPP (1320 MW)”

➤ Revised costs and line lengths as furnished by the BPC for RfP preparation are as mentioned below:

Sr. No.	Name of the Scheme	Line length as per the Minutes of 35 th EC Meeting	Line length as per the Agenda of 35 th EC Meeting	LINE LENGTH TO BE TAKEN	Estimated Cost (In Crore)
1.	Connectivity system for Khargone STPP				
	i. LILO of one ckt of Rajgarh-Khandwa 400kV D/C line at Khargone TPP	NIL	78 ckt. km	7 km	32.30
	ii. Khargone TPP Switchyard – Khandwa pool 400 kV D/C (Quad) line	NIL	85 ckt. km	85 km	222.61
	System strengthening in WR in time frame of Khargone TPP				
	i. Khandwa Pool – Indore 765kV D/C line	NIL	130 ckt. km	130 km	587.36
	ii. Khandwa Pool – Dhule 765 kV D/C line	NIL	242 ckt. km	242 km	1135.14
	Khandwa pooling substation				554.1
	Line bays at Dhule substation				145.8
	Total				2677.31

Item No 14.1 (Page No. 28)

Costing issue in the ERSS-XVIII scheme: The element wise cost was provided by CEA for preparation of RfP of ERSS-XVIII. However, the MoM of 36th EC meeting indicates old cost as recorded in MoM of 35th EC meeting. May be reviewed by CEA.

Sl. No.	Scope of works	Cost as per 35 th EC MoM	Revised Cost

		(repeated in 36 th EC MoM)	provided by CEA for RfP
(i)	Establishment of 765/400kV, 2x1500MVA substation at Medinipur	364	409
(ii)	Establishment of 765/400kV, 2x1500MVA substations at Jeerat (New)	271	418
(iii)	Ranchi (New) – Medinipur 765kV D/c line with Hexa ACSR Zebra conductor along with 765kV, 240MVAR switchable line reactor with 750Ω NGR in each circuit at Medinipur end (total: 765kV, 7x80MVAR single phase units, 1 unit as spare)	1750	1285
(iv)	Medinipur - Jeerat (New) 765kV D/c line with Hexa ACSR Zebra conductor along with 765kV, 240MVAR switchable line reactor with 600Ω NGR in each circuit at Jeerat (New) end (total: 765kV, 7x80MVAR single phase units, 1 unit as spare)	1166	841
(v)	LILO of both circuits of Chandithala – Kharagpur 400 kV D/c line at Medinipur	10	82
(vi)	Jeerat (New) – Subhasgram 400 kV D/c line (ACSR Quad Moose current rating at 85° C)	367	136
(vii)	Jeerat (New) – Jeerat (WB) 400 kV D/c line (ACSR Quad Moose current rating at 85° C)	40	19
(viii)	LILO of Jeerat (WB) – Subhasgram (PG) 400 kV S/c section at Rajarhat (PG)	10	9
(ix)	2 no. 400 kV GIS line bays at Jeerat (WBSETCL)	16	35
	Total	3994	3234

Item No. 14.3 (Page No. 31)

- Sl. no. (i) transformation capacity **630MVA** to be included in the table
- Sl. no. (ii) transformation capacity **630MVA** to be included in the table

Item No. 14.5 (Page No. 34)

- Total cost of the project to be replaced by **235.03 Cr** in place of 235.3 Cr

Item No. 14.7 (Page No. 36)

- Sl. no. (iii) transformation capacity **1000MVA** to be included in the table

- Sl. no. (iv) transformation capacity **1000MVA** to be included in the table
- Revised 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.”. may be modified as “M/s Dirang Energy Pvt. Ltd. to construct 2 no. 220kV **GIS** line bays at Dinchang pooling station for termination of their Dirang HEP – Dinchang 220kV D/c line.”

Item No. 14.8 (Page No. 37)

- S.No (i) Space for **future** ICT bays: 1 no. in place of Space for ICT bays: 1 no. in both 400kV and 220kV side
- **Addition in Note: (e) CTU (POWERGRID) to provide 420kV, 2x125MVAR bus reactor at New Mariani**

Item No 15 Cost of the Project as per the Cost Committee [page 44]

The table for estimated cost may be modified as below:

S.No	Name of the Transmission Project	Estimated Cost as per previous EC Minutes (in Rs. Crore)	Cost provided by CEA for the preparation of RfP (in Rs. Crore)	Estimated Cost derived by Cost Committee (in Rs. Crore)
1	System Strengthening Scheme in Northern Region (NRSS-XXXVI) along with LILO of Sikar-Neemrana 400kV D/C line at Babai (RRVPNL)	303	-	401
2	Transmission System Strengthening in WR associated with Khargone TPP (1320 MW)	2370	2677.31	2137
3	Immediate evacuation for North Karanpura (3x660MW) generation project of NTPC alongwith creation of 400/220 kV sub-station at Dhanbad – Proposal of JUSNL (ERSS-XIX)	1390	692.77	472
4	Common Transmission System for Phase- II Generation Projects in Odisha and Immediate Evacuation System for OPGC (1320 MW) Project in Odisha	2596	2748	1698
5	Additional inter-Regional AC link for import into Southern Region i.e. Warora – Warangal and Chilakaluripeta - Hyderabad - Kurnool 765kV link	7760	7880	5200
6	Creation of new 400kV GIS Substations in Gurgaon and Palwal area as a part of ISTS	1759	No Change	1640

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
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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.) M : 9425805230 Ph: 0761 – 2702134 Email : iterp@mptransco.nic.in, mpptcl_trans@hotmail.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 (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

