



Government of India
Ministry of Power
Central Electricity Authority
PSP&PA-I Division
Sewa Bhawan, R. K. Puram, New Delhi-110066



[ISO: 9001:2008]

No. 100/1/EC (35) 2015-PSP&PA-I/

Dated: 24th September, 2015

To

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|---|---|
| 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: Minutes of the 35th meeting of the Empowered Committee (EC) on Transmission

Sir/Madam,

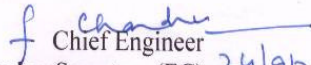
The 35th meeting of the Empowered Committee on Transmission was held on **14th September, 2015 (Monday)** under the chairmanship of Shri S.D.Dubey, Member (Power System), CEA in the Conference Room of CEA, 2nd Floor, Sewa Bhawan, R.K. Puram, New Delhi.

The minutes of the meeting is attached herewith. The same is also available at http://www.cea.nic.in/reports/powersystems/35_emp_com_meeting.pdf

This issues with the approval of Member (Power System),CEA.

Enclosure : As above

Yours faithfully,


Chief Engineer
& Member Secretary (EC) 24/9/2015

Copy to:

- (i) PPS to Member (PS), CEA
- (ii) Chief Engineer (PSP & PA-II)
- (iii) COO (CTU), POWERGRID, 'Saudamini', Plot No.2, Sector – 29, Gurgaon – 122 001 (Haryana)
- (iv) CEO, RECTPCL, Core-4 SCOPE Complex, 7 Lodhi Road, New Delhi – 110 003. (Fax- 011-24102576)
- (v) PFC Consulting Ltd, First Floor, Urjanidhi, 1 Barakhmba Lane, New Delhi -110001 (Fax- 011-23456170)

Minutes of the 35th meeting of the Empowered Committee on Transmission held on 14th September, 2015

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

List of Participants is enclosed at **Annexure-I**.

Member (Power System), CEA as Chairperson of the Empowered Committee welcomed the members to the 35th meeting of the Empowered Committee on Transmission to the meeting. After a brief opening remarks, he requested Chief Engineer (PSP&PA-I), CEA to take up the agenda for discussion.

1. Confirmation of the minutes of 34th meeting of Empowered Committee

- 1.1 Chief Engineer (PSP&PA-I), CEA informed that the 34th EC meeting on Transmission was held on 13th April, 2015. The minutes of the meeting were circulated vide CEA letter no. 100/ 1 / EC (34) /2013 – SP&PA dated 12th May, 2015. He requested members for confirmation of the minutes of the 34th EC meeting on Transmission.
- 1.2 Director (Projects), PGCIL stated that during the 34th meeting of EC, the scheme 'Creation of 400/220 kV, 2X315MVA GIS Substation in Baram (Jauljivi) area by LILO of both ckt. of 400 kV Dhauliganga - Bareilly (PGCIL) line (presently charged at 220 kV) at 400kV Baram (Jauljivi) (ISTS) was agreed to be under regulated tariff mechanism by PGCIL. The scheme inter-alia involves creation of 400/220kV, 2X315MVAGIS Substation in Baram (Jauljivi). Due to transportation problems in hilly terrain, PGCIL requested to implement 7x105 MVA transformers and 2x63 MVAR reactors.
- 1.3 The same was noted by the members. As no other comment on the minutes was received from any member, the minutes of the 34th EC meeting on Transmission were confirmed.

2. Implementation of the transmission schemes after approval by 34th Empowered Committee on Transmission (EC):

The following transmission schemes approved in the 34th meeting of EC for implementation under TBCB has been notified vide Gazette notification dated 22nd July, 2015:

Sl. No.	Name of the schemes	Name of the BPCs
1.	System strengthening scheme in Northern Region (NRSS-XXXVI)	RECTPCL
2.	Creation of new 400 kV Substations in Gurgaon area and Palwal area as a part of ISTS	PFCCCL
3.	Transmission System for evacuation of power from 2x500 MW Neyveli Lignite Corp. Ltd. TS-I (Replacement) (NNTPS) in Neyveli, Tamil Nadu	De-notified from TBCB; To be implemented through regulated tariff mechanism

The following schemes approved in the 34th meeting of EC are to be implemented ***under Regulated Tariff mechanism:***

1. Creation of 400/220kV, 2X315MVA GIS Substation in Baram (Jauljivi) area by LILO of both ckt. of 400 kV Dhauliganga-Bareilly (PGCIL) line (presently charged at 220 kV) at 400kV Baram(Jauljivi) (ISTS)
2. 132 kV Banka- Deoghar D/C lines (about 40 kms)

The members noted the same.

3. Constitution of the Committee for revision of Standard Bidding Documents for procurement of transmission services under Tariff Based Competitive Bidding (TBCB)

The members were informed that Ministry of Power vide Office Memorandum No.15/1/2010-Trans dated 31st August, 2015 has constituted a Committee under the Chairmanship of Member(E&C), CEA to discuss, deliberate and finalise changes required in the Standard bidding document for procurement of Transmission Services under Tariff Based Competitive Bidding (TBCD). OM dated 31st August, 2015 is attached at **Annexure – I**.

The members noted the same.

4. De-notification of Northern Region System Strengthening Scheme – XXXV

- 4.1.** This scheme was notified for implementation through TBCB route vide Gazette notification dated 15.7.2014 through the Bid Process Coordinator (BPC), PFC Consulting Limited (PFCCL). The scope of the transmission scheme is as under:

Name of the Scheme	Estimated Line Length (km)	Estimated Cost (Rs. Crore)
Mohindergarh – Bhiwani 400 kV D/C line with twin moose conductor	55	88

- 4.2.** It is mentioned that the RfQ stage for the project has been completed and the following bidders have been declared qualified for participation in the RfP stage:

1. Power Grid Corporation of India Limited (PGCIL)
2. Essel Infra Projects Limited (Essel)
3. Kalpataru Power Transmission Limited (KPTL)

- 4.3.** The RfP document was issued on April 21, 2015 and only one bidder, namely PGCIL had purchased the RfP document. Due to poor response from the bidders, the submission of RfP date was extended upto August 21, 2015, however, in spite of the extension, there was no further participation of the bidders. Further, as per the operational feedback received from POSOCO, Mohindergarh-Bhiwani 400 kV D/C line is urgently required to decongest this section of the transmission corridor.

- 4.4.** Chief Engineer (PSP&PA-I), CEA further stated that in view of the above, CEA vide letter dated 25th August, 2015 has written to MoP for de-notification and implementation by CTU under compressed time schedule through regulated tariff mechanism.

- 4.5.** COO (CTU) stated that due to RoW constraint in the Mohindergarh and Bhiwani areas and it would be difficult to implement the scheme in compressed time schedule.

4.6. The matter was deliberated at length and it was decided that PGCIL would make all out efforts to implement the scheme through regulated tariff mechanism in 24 months from the date of award.

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

5.1. Chief Engineer (PSP&PA-I), CEA stated that both the BPCs have informed CEA that they are facing a lot of problems, due to inclusion of construction of line bays in the sub-stations owned by STU. Some of the problems are as under:

- (i) Delay in providing technical details of existing system for proper interfacing with new component which in turn delay the completion of bidding process
- (ii) Non availability of layout drawings to be provided to the prospective bidders with concerned STU/TSP.
- (iii) Non availability of standard formats in the Standard Bidding Documents for agreements to be entered between TSP and the S/s owners viz. Implementation and O&M Agreement.
- (iv) Absence of various cost data viz. O&M cost, supervision charges, spare cost, which are be reimbursed to S/s owner

In order to avoid above issues, following options can be considered for construction of bays in the existing S/s of STUs or other Transmission Licensees after making some amendments in the regulations , if required:

- (i) Construction of bays by CTU in all the substations
- (ii) Construction of bays by concerned utility/ TSP. In such case they shall be entitled for Transmission charges from Central Pool (The possibility of this aspect needs to be examined from regulation point of view.) This shall ensure that Sub-station is owned & operated by one entity always.

5.2. After deliberations, it was decided that Member (PS), CEA would hold a meeting with the CTU and BPCs to further devise modalities in this respect. Till that time, the owners of the sub-stations/ switchyards (viz. State Transmission Utilities, NTPC, etc.) would provide the necessary space for the bays in their respective sub-stations/ switchyards and the execution of the bay extension works would be entrusted to under the scope of successful bidder.

6. Briefing by BPCs on the schemes under bidding process

RECTPCL and PFCCCL briefed the Empowered Committee about progress of schemes that are under bidding process. The status is attached at **Annexure – III** and **Annexure – IV** respectively.

7. New transmission schemes to be taken up through Tariff Based Competitive Bidding (TBCB)

7.1. Name of the Scheme: Transmission System for Khargone TPP (1320 MW)

7.2. Name of the Scheme: Transmission System Strengthening in WR associated with Khargone TPP (1320 MW)

7.2.1. The above transmission schemes were approved in the 38th Standing Committee on Power System Planning of Western Region held on 17th July, 2015.

7.2.2. Shri Ravinder, Member Empowered Committee stated that the proposed transmission system for evacuation of Khargone TPP (2 X 660 MWs) of NTPC, i.e. Indore – Khandwa PS – Dhule 765 kV D/C line with Khandwa pooling station was more than sufficient for the evacuation requirement of Khargone generation project of 1320 MW capacity. He suggested that either Khandwa PS – Indore 765 kV D/C line or Khandwa PS – Dhule 765 kV D/C line along with Khandwa PS may be taken up as evacuation system of Khargone TPP (NTPC). He also suggested to take-up the connectivity system and evacuation system of Khargone TPP as a single transmission scheme for implementation through TBCB route.

7.2.3. It was clarified that Indore – Khandwa PS – Dhule 765 kV D/C line has been planned to strengthen the existing Indore – Vadodara – Dhule 765 kV S/C corridor as well as for evacuation of power from Khargone STPP and Dwarkesh Energy Limited (DEL) TPP (2 X 660 MW). The power from these two generating plants will be pooled at 765 / 400 kV Khandwa PS. At present there is mismatch in the implementation schedule of Khargone TPP & DEL TPP as M/s DEL has not yet applied for LTA. Therefore implementation of the Indore – Khandwa PS – Dhule 765 kV D/C along with 765 / 400 kV Khandwa PS needs to be taken up in the matching time frame of Khargone STPP.

7.2.4. Shri Ravinder further observed that lot of pit head generating projects are coming in western region and the region has become power surplus, therefore there is a need for developing additional inter-regional links between WR – NR with future generation projects coming up in western region. Sufficient inter-regional links between WR – SR have already been planned and are under various stages of implementation.

7.2.5. After deliberations, the following scheme after clubbing schemes at Sl. No. 7.1 and 7.2 was agreed to be taken up for implementation through TBCB route:

Scope of the Transmission Scheme	Capacity (MVA/ km)	Estimated Cost (Rs. Crore)
1. Connectivity system for Khargone STPP (i) LILO of one ckt of Rajgarh-Khandwa 400kV D/C line at Khargone TPP (The LILO shall be used for startup power and commissioning activities requirement. After commissioning of balance transmission system, the LILO would be bypassed at Khargone generation switchyard and may be utilized only under contingency condition) (ii) Khargone TPP Switchyard – Khandwa pool 400 kV D/C (Quad) line		252
2. System strengthening in WR in time frame of Khargone TPP (i) Khandwa Pool – Indore 765kV D/C line (ii) Khandwa Pool – Dhule 765 kV D/C line (iii) Establishment of 765/400kV, 2x1500MVA pooling station at Khandwa pool 765 kV		2118

<ul style="list-style-type: none"> • ICTs: 7x500MVA, 765/400 kV (1 spare unit) • ICT bays: 2 no. • Line bays: 4 no. (2 no. for Khandwa pool – Indore 765 kV D/C & 2 no. for Khandwa Pool to Dhule 765 kV D/C) • Bus reactor: 3 X 80 MVAR • Bus reactor bay: 1 no. • Switchable Line reactors : 7 X 80 MVAR (1 unit is as a spare unit) for Khandwa Pool – Dhule 765 kV D/C (each reactor with 800 Ω NGR alongwith its auxiliaries) <ul style="list-style-type: none"> • Space for line bays (future): 4 no. • Space for ICT bays (future): 3 no. • Space for 1500 MVA, 765/400 kV ICTs (future) : 3 no. <p>400 kV</p> <ul style="list-style-type: none"> • ICT bays: 2 no. • Line bays for termination of Khargone – Khandwa PS 400 kV D/C line: 2 no. • Bus reactor: 1 X 125 MVAR • Bus reactor bay: 1 • Space for line bays (future): 6 no. • Space for ICT bays (future): 3 no. <p>(iv) 2 nos. of 765 kV bays and 7 X 80 MVAR line reactors (1 unit as spare) along with 800 Ω NGR & its auxiliaries for Khandwa Pool – Dhule 765 kV D/C at Dhule 765/400 kV substation of M/s BDTCL</p>		
Total Estimated Cost (Rs. Crore)		2370

Note:

- M/s PGCIL will provide 2 no. of 765 kV line bays for termination of Khandwa PS – Indore 765 kV D/C line and 6 X 80 MVAR switchable line reactors along with 700 Ω NGR & its auxiliaries at 765/400 kV Indore S/s.
- M/s PGCIL will provide 400 kV, 63 MVAR switchable line reactor along with 500 ohm NGR and its auxiliaries at Rajgarh (PG) 400 kV S/s for Khargone TPP – Rajgarh 400 kV S/C line formed after LILO of one circuit of Khandwa – Rajgarh 400 kV D/C line at Khargone TPP.
- M/s BDTCL will provide space for 2 no. of 765 kV line bays for termination of Khandwa Pool – Dhule 765 kV D/C alongwith 7 X 80 MVAR switchable line reactor at 765 kV Dhule S/s.
- NTPC will provide 4 no. of 400 kV line bays at Khargone TPP (2 no. for termination of Khargone – Khandwa Pool 400 kV D/C and 2 no. for LILO of one circuit of 400 kV Rajgarh – Khandwa D/C).
- NTPC will provide 400 kV, 1 X 125 MVAR bus reactor along with 400 kV reactor bay at Khargone TPP.

The scheme may be notified by the Government for implementation through TBCB.

7.3. Name of the Scheme: Transmission System for connectivity of DEL TPP (1320 MW)

7.3.1. The transmission scheme has been approved in the 38th Standing Committee on Power System Planning of Western Region held on 17th July, 2015. The scope of the transmission scheme is as under:

Scope of the Transmission Scheme	Capacity (MVA ckt. km)	Estimated Cost (Rs. Crore)
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DEL TPP Switchyard – Khandwa pool 400kV D/C (Quad) line		200
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7.3.2. Director (WR), CEA stated that the beneficiaries of Dwarkesh generation project are not known as the company has applied only for connectivity.

7.3.3. After deliberations, it was decided to discuss the above scheme in next Empowered Committee meeting.

7.4. Name of the Scheme: 765 kV System Strengthening Scheme in Eastern Region (ERSS-XVIII)

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

Scope of the Transmission Scheme	Capacity (MVA/ km)	Estimated Cost (Rs. Crore)
(i) Establishment of 765/400kV, 2x1500MVA substation at Medinipur <u>765 kV</u> <ul style="list-style-type: none"> • ICTs: 7x500MVA, 765/400 kV (1 spare unit) • ICT bays: 2 no. • Line bays: 4 no. • Bus reactor: 2x330 MVAR • Bus reactor bay: 2 no. • Space for line bays: 4 no. • Space for ICT bays: 2 no. <u>400 kV</u> <ul style="list-style-type: none"> • ICT bays: 2 no. • Line bays: 6 no. • Bus reactor: 2x125 MVAR • Space for line bays: 4 no. • Space for ICT bays: 2 no. 	3000 MVA	364
(ii) Establishment of 765/400kV, 2x1500MVA substations at Jeerat (New) <u>765 kV</u> <ul style="list-style-type: none"> • ICTs: 7x500MVA, 765/400 kV (1 spare unit) • ICT bays: 2 no. • Line bays: 2 no. • Bus reactor: 2x330 MVAR • Bus reactor bay: 2 no. • Space for line bays: 4 no. • Space for ICT bays: 2 no. <u>400 kV</u> <ul style="list-style-type: none"> • ICT bays: 2 no. • Line bays: 4 no. • Bus reactor: 2x125 MVAR • Space for line bays: 4 no. • Space for ICT bays: 2 no. 	3000 MVA	271

(iii)	Ranchi (New) – Medinipur 765kV D/C line with 2x330 MVAR switchable line reactor at both ends	300 km	1750
(iv)	Medinipur – Jeerat (New) 765kV D/C line	200 km	1166
(v)	Medinipur – Haldia New (NIZ) (WBSETCL) 400kV D/C line (quad / HTLS)	130 km	397
(vi)	LILO of both circuits of Chandithala – Kharagpur 400kV D/C line at Medinipur		10
(vii)	Jeerat (New) – Subhasgram 400 kV D/C line (quad/HTLS)	120 km	367
(viii)	Jeerat (New) – Jeerat (WB) 400 kV D/C line (quad/HTLS)		40
(ix)	LILO of Jeerat (WB) – Subhasgram (PG) 400 kV S/C section at Rajarhat (PG)		10
(x)	2 no. 400 kV line bays at Haldia New (NIZ) (WBSETCL)		16
(xi)	2 no. 400 kV line bays at Jeerat (WBSETCL)		16
Total Estimated Cost (Rs. Crore)			4407

Note:

- Powergrid to provide 2 no. 400 kV line bays at Subhasgram (PG)
- Powergrid to provide 2 no. 400 kV line bays at Rajarhat (PG)

7.4.2. Director (ER), CEA stated that 765 kV system strengthening in ER was approved along with transmission system associated with Odisha UMPP in the 6th SCM. However, in view of delay in the implementation of Odisha UMPP and other generation schemes, the 765 kV system strengthening scheme was reviewed and looking for the need of a strong East-West connection in the Eastern Region, the part of earlier proposed scheme i.e. Ranchi–Medinipur–Jeerat 765 kV D/C line may be taken up for implementation.

7.5. Name of the Scheme: Immediate evacuation for North Karanpura (3x660MW) generation project of NTPC

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

Name & Scope of the Transmission Scheme	Capacity (MVA ckt. km)	Estimated Cost (Rs. Crore)
(i) North Karanpura – Gaya 400 kV D/C with quad moose conductor.	140	
(ii) North Karanpura – Chandwa (Jharkhand) Pooling Station 400 kV D/C with quad moose conductor.	255	
Total Estimated Cost (Rs. Crore)		1200

Members approved the above scheme for implementation through TBCB route.

7.6. Name of the Scheme: Creation of 400/220 kV sub-station at Dhanbad - Proposal of JUSNL (ERSS-XIX)

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

Scope of the Transmission Scheme	Capacity (MVA/km)	Estimated Cost (Rs. Crore)
(i) Establishment of 400/220 kV, 2x500 MVA sub-station at Dhanbad <u>400 kV</u> ICTs: 400/220 kV, 2x500 MVA ICTs bays: 2 no. line bays: 4 no. bus reactor: 2x125 MVAR space for future bays: 4 no. <u>220 kV</u> ICTs bays: 2 no. line bays: 4 no. space for future bays: 4 no.		
(ii) LILO of both circuits of Ranchi-Maithon RB 400 kV D/C line at Dhanbad		
Estimated Cost (Rs. Crore)		190

Members approved the above scheme for implementation through TBCB route.

7.6.2. Members further agreed that the above two schemes at Sl. No. 7.5 and 7.6 may be clubbed together as a single package. The scheme may be notified by the Government accordingly.

7.7. Name of the Scheme: North Eastern Region Strengthening Scheme –V (NERSS-V)

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

Scope of the Transmission Scheme	Capacity (MVA/km)	Estimated Cost (Rs. Crore)
(i) Establishment of 400/132 kV, 2x315 MVA S/s at Surajmaninagar <u>400 kV</u> ICTs: 400/132 kV, 2x315 MVA ICTs bays: 2 no. line bays: 4 no. bus reactor: 2x125 MVAR space for future bays: 6 no. <u>132 kV</u> ICTs bays: 2 no. line bays: 4 no. space for future bays: 4 no. <i>Land for the Surajmaninagar 400/132kV S/s is identified and</i>		100

<i>available with Tripura and the same would be provided to the TSP at cost.</i>		
(ii) Establishment of 400/132 kV, 2x315 MVA S/s at P. K. Bari <u>400 kV</u> ICTs: 400/132 kV, 2x315 MVA ICTs bays: 2 no. line bays: 4 no. bus reactor: 2x125 MVAR space for future bays: 6 no. <u>132 kV</u> ICTs bays: 2 no. line bays: 4 no. space for future bays: 4 no.		100
(iii) Surajmaninagar - P. K. Bari 400 kV D/C line	65	200
(iv) 2 no. 400 kV line bays at Palatana GBPP switchyard for termination of Palatana – Surajmaninagar 400kV D/C line		32
(v) Construction of 132 kV D/C line with high capacity HTLS conductor (equivalent to single moose) from AGTPP (NEEPCO) to P. K. Bari (TSECL)		10
(vi) 2 no. 132 kV bays each at AGTPP (NEEPCO) and P. K. Bari (TSECL)		6
Estimated Cost (Rs. Crore)		448

Note:

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

7.7.2. Director (NER), CEA stated that due difficulty of space at Ranganadi HEP and other constraints, the NERSS –II scheme already notified for implementation through TBCB route was reviewed in the 5th Standing Committee on Power System Planning of North Eastern Region held on 8th August, 2015 and the scope got curtailed. Further, Imphal (POWERGRID) – New Kohima 400kV D/C line of NERSS-II is being made part of NERSS-VI. To make a consolidated scheme, it is therefore, **proposed to merge the remaining scope of NERSS – II with the NERSS-V.**

Members agreed on the proposal for clubbing as a single package for implementation through TBCB route. The scheme may be notified by the Government accordingly.

7.8. Name of the Scheme: North Eastern Region Strengthening Scheme (NERSS)-VI

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

Scope of the Transmission Scheme	Capacity (MVA/ km)	Estimated Cost (Rs. Crore)
(i) Establishment of 400/220 kV, 2x500 MVA S/S at New Kohima <u>400 kV</u> ICTs: 400/220 kV, 2x500 MVA ICTs bays: 2 no. line bays: 4 no. bus reactor: 2x125 MVAR space for future bays: 4 no. <u>220 kV</u> ICTs bays: 2 no. line bays: 4 no. space for future bays: 4 no.	1000 MVA	83
(ii) Imphal – New Kohima 400 kV D/C line	120	297
(iii) New Kohima – New Mariani 400kV D/C line	110	273
Estimated Cost (Rs. Crore)		653

Note:

- Powergrid to provide 2 no. 400 kV line bays at Imphal (PG) S/s for termination of Imphal – New Kohima 400kV D/C line and 1x125 MVAR bus reactor (2nd) at Imphal (PG)
- Powergrid to provide 2 no. 400kV line bays at New Mariani S/s for termination of New Kohima – New Mariani 400kV D/C line

Members approved the above scheme for implementation through TBCB route.

8. Change in scope of transmission schemes already awarded/ under award through TBCB route

8.1. Name of the Scheme: North Eastern Region Strengthening Scheme – II (NERSS-II): Part B

8.1.1. Director (NER), CEA stated that due difficulty of space at Ranganadi HEP and other constraints, the NERSS –II scheme already notified for implementation through TBCB route was reviewed in the 5th Standing Committee on Power System Planning of North Eastern Region held on 8th August, 2015 and the scope got curtailed. Further, Imphal (POWERGRID) – New Kohima 400kV D/C line of NERSS-II is being made part of NERSS-VI. To make a consolidated scheme, it is therefore, **proposed to merge the remaining scope of NERSS – II with the NERSS-V.**

8.1.2. The revised scope of the transmission scheme NERSS-II is as under:

Scope of the Transmission Scheme	Capacity (MVA ckt. km)	Estimated Cost (Rs. Crore)
(i) Biswanath Chariali - Itanagar (Zebra conductor) 132 kV D/C line	95	55
(ii) Silchar - Misa 400kV D/C line (Quad) line	200	606

(iii) 2 no. 132 kV line bays at Itanagar for termination of Biswanath Chariali - Itanagar (Zebra conductor) 132 kV D/C line		9
Estimated Cost (Rs. Crore)		670

Note:

- CTU (POWERGRID) would provide 2 no. 400kV GIS line bays each at Silchar and Misa for termination of Silchar - Misa 400kV D/C line (Quad) line
- CTU (POWERGRID) would provide 2 no. 132 kV line bays at Biswanath Chariali for termination of Biswanath Chariali - Itanagar (Zebra conductor) 132 kV D/C line. In case there is a space constraint, GIS bays would be provided.
- 80 MVAR bus reactor at Misa (PG) along with GIS bay
- 1x80 MVAR switchable line reactor with GIS bays at Misa end of each circuit of Silchar– Misa 400kV D/C line

8.2. Name of the Scheme: Connectivity Lines for Maheshwaram (Hyderabad) 765/400 kV Pooling S/s

The scope of the scheme agreed in the 32nd meeting of EC is as under:

Scope as per Gazette Notification	Estimated Cost as per EC (Rs. Crore)
(i) Maheshwaram (PG) - Mehboob Nagar 400 kV D/C line	396
(ii) 2 No. of 400 kV line bays at Mehboob Nagar S/S of TSTRANSCO	
(iii) Nizamabad -- Yeddumailaram (Shankarpalli) 400kV D/C line	

As decided in the 32nd meeting of EC, the bays at the existing sub-station of the STUs were under the scope of the transmission developer. Accordingly, modified scope of the scheme awarded to the successful bidder is as under:

Revised Scope	Estimated Cost as per EC (Rs. Crore)
<ul style="list-style-type: none"> • Maheshwaram (PG) - Mehboob Nagar 400 kV D/C line • 2 No. of 400 kV line bays at Mehboob Nagar S/S of TSTRANSCO 	396
<ul style="list-style-type: none"> • Nizamabad -- Yeddumailaram (Shankarpalli) 400kV D/C line • 2 No. of 400 kV line bays at Yeddumailaram (Shankarpalli) S/S of TSTRANSCO 	

Members noted the same.

8.3. Name of the Scheme: Strengthening of Transmission System beyond Vemagiri

The scope of the scheme agreed in the 33rd meeting of EC is as under:

Scope as per Gazette Notification	Estimated Cost as per EC (Rs. Crore)
(i) Vemagiri-II – Chilakaluripeta 765kV D/C line with 240 MVAR switchable line reactors at both ends	6300
(ii) Chilakaluripeta – Cuddapah 765kV D/C line with 240 MVAR switchable line reactors at both ends.	
(iii) Chilakaluripeta – Narsaraopeta 400kV (quad) D/C line	
(iv) Cuddapah – Madhugiri 400kV (quad) D/C line with 80 MVAR switchable line reactors at both ends	
(v) Cuddapah – Hindupur 400kV (quad) D/C line with 80 MVAR switchable line reactors at Hindupur end.	

(vi) Srikakulam Pooling Station – Garividi 400 kV (Quad) D/C line with 80 MVar switchable line reactor at Garividi end.	
(vii) Establishment of 765/400 kV substation at Chilakaluripeta with 2x1500 MVA transformers and 2x240 MVar bus reactors each. Transformers: 765/400 kV, 7 x 500 MVA (One unit spare) <u>765 & 400 kV Bays</u> 765 kV line bays at Chilakaluripeta: 4 no. 765/400 kV Transformer bays at Chilakaluripeta: 2 no. 400 kV line bays Chilakaluripeta : 2 no. Space for future 765 kV line bays at Chilakaluripeta: 6 no. Space for future 400 kV line bays at Chilakaluripeta: 8 no. Note: CTU to provide two nos. 765 kV bays at Vemagiri-II Pooling station for Vemagiri-II – Chilakaluripeta 765 kV D/C line CTU to provide requisite no. of 765 kV and 400 kV bays and line reactors for termination of transmission lines at Cuddapah CTU to provide two nos. 400kV bays & line reactors at Madhugiri 400 kV substation for Cuddapah – Madhugiri 400kV (quad) D/C line CTU to provide two nos. 400 kV bays at Srikakulam 400kV substation for Srikakulam Pooling Station – Garividi 400 kV (Quad) D/C line	

The scope of the scheme was discussed by CEA and CTU and accordingly modified scope of the scheme awarded to the successful bidder is as under:

Revised Scope	Estimated Cost as per EC (in Rs. Crore)
(i) Vemagiri-II – Chilakaluripeta 765kV D/C line with 240 MVar switchable line reactors at both ends of each circuit. (The line bays and line reactors at Chilakaluripeta to be in the scope of TSP and those at Vemagiri end in the scope of CTU).	
(ii) Chilakaluripeta – Cuddapah 765kV D/C line with 240 MVar switchable line reactors at both ends of each circuit. (The line bays and line reactors at Chilakaluripeta to be in the scope of TSP and those at Cuddapah end in the scope of CTU).	
(iii) Chilakaluripeta – Narsaraopeta (Sattenapalli) 400kV (quad) D/C line (The line bays at both ends to be in the scope of TSP)	
(iv) Cuddapah – Madhugiri 400kV (quad) D/C line with 50 MVar switchable line reactors at both ends of each circuit. (The line bays and reactors at both ends to be in the scope of CTU)	
(v) Srikakulam Pooling Station – Garividi 400 kV (Quad) D/C line (The line bays at Garividi end to be in the scope of TSP and those at Srikakulam Pooling Station end in the scope of CTU).	
(vi) Establishment of 765/400 kV substation at Chilakaluripeta with 2x1500 MVA transformers and 2x240 MVar bus reactors each. Transformers: 765/400 kV, 7x500 MVA (Single-Phase units with one spare) <u>765 kV Bays (at Chilakaluripeta)</u> ICT bays : 2 nos. Line bays : 4 nos. 765 kV Bus Reactor Bays : 2 nos. Spare bays (Space) : 6 nos.	

400 kV Bays		
ICT bays	: 2 nos.	
Line bays	: 2 nos.	
Spare bays (Space)	: 8 nos.	
<u>Note about provision of line reactors and bays:</u>		
<ul style="list-style-type: none"> • CTU to provide 2 nos. 765kV line bays along with 240 MVA switchable line reactors at Vemagiri-II Pooling station for termination of Vemagiri-II –Chilakaluripeta 765kV D/C line. • CTU to provide 2 nos. 765kV line bays along with 240 MVA switchable line reactors at Cuddapah 765/400kV substation for termination of Chilakaluripeta – Cuddapah 765kV D/C line. • CTU to provide 2 nos. 400kV line bays along with 50 MVA switchable line reactors at Cuddapah 765/400kV substation for termination of Cuddapah – Madhugiri 400kV (quad) D/C line. • CTU to provide 2 nos of 400kV line bays along with 50 MVA switchable line reactors at Madhugiri 400kV substation for termination of Cuddapah – Madhugiri 400kV (quad) D/C line. • CTU to provide 2 nos. 400kV line bays at Srikakulam 400kV substation for termination of Srikakulam Pooling Station – Garividi 400 kV (Quad) D/C line. • APTRANSCO to provide space for 2 no 400 kV line bays at Narsaraopeta (Sattenapalli) 400kV sub- station • APTRANSCO to provide space for 2 no 400 kV line bays at Garividi 400kV sub-station 		

Members noted the same.

8.4. Name of the Scheme: Transmission System associated with Gadawara STPS (2x800 MW) of NTPC Part-A

The scope of the scheme agreed in the 33rd meeting of EC is as under:

Scope as per Gazette Notification	Estimated Cost as per EC (in Rs. Crore)
(i) As per the interim arrangement, LILO of existing Seoni-Bina 765kV S/C line at Gadawara STPP would be established. At a later date, LILO portion would be delinked from Seoni-Bina 765kV S/C line to restore the Seoni-Bina 765kV S/C direct line, and the LILO portion would be extended to the Jabalpur 765/400kV Pooling Station to form the proposed Gadawara 765/400kV Pooling Station to form the proposed Gadawara-Jabalpur Pool 765kv D/C line	2525
(ii) Gadawara STPS- Jabalpur Pool 765kv D/C line	
(iii) Gadawara STPS- New Pooling Station within the jurisdiction/boundary of Warora 765kv D/C line	
(iv) LILO of both circuits of Wardha- Parli (PG) 400 kV D/C line at Warora* Pooling Station (Quad)	
(v) Establishment of 2X1500 MVA 765/400 kV (New Pooling Station within the jurisdiction/boundary Warora)	
<u>765 kV:</u> <ul style="list-style-type: none">• ICTs: 7X500 MVA 765/400 kV (1 spare unit)• ICT bays: 2 no• Line bays: 6 no (2 no bays for Gadawara STPS – Warora PS D/C line; 2 no bays for Warora PS – Parli (New) S/s D/C line covered under Transmission System Associated with Gadawara STPS	

<p>(2X800 MW) of NTPC (Part-B); 2 no bays for Rajnandgaon – Warora PS D/C line covered under additional system strengthening scheme for Chhattisgarh IPPs)</p> <ul style="list-style-type: none"> • Bus Reactor: 3X110 MVAR • Bus Reactor Bay: 1 no • Line Reactors: 7X110 MVAR (1 unit spare) along with associated NGR and its auxiliaries (for Gadawara line) • Line Reactors switchable: 6X110 MVAR along with associated NGR and its auxiliaries (for Parli line) • Space for future bays: 4 nos <p>400kV</p> <ul style="list-style-type: none"> • ICT Bays: 2 Nos. • Line Bays: 4 Nos. • Provision for future Bays: 4 Nos <p>NTPC to provide following at Gadawara STPS switchyard</p> <ul style="list-style-type: none"> • 765 kV line bay: 4 No • Bus Reactor Bay:1 No • Bus Reactor: 1X330MVAR <p>Switchable line reactor : 2X330MVAR along with associated NGR and its auxiliaries (for Gadawara-Warora 765 kV D/C line)</p>	
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The scope of the scheme was discussed by CEA and CTU and accordingly modified scope of the scheme awarded to the successful bidder is as under:

Revised Scope	Estimated Cost as per EC (in Rs. Crore)
<p>(i) As per the interim arrangement, LILO of existing Seoni-Bina 765kV S/C line at Gadawara STPP would be established. At a later date, LILO portion would be delinked from Seoni-Bina 765kV S/C line to restore the Seoni-Bina 765kV S/C direct line, and the LILO portion would be extended to the Jabalapur765/400kV Pooling Station to form the proposed Gadawara 765/400kV Pooling Station to form the proposed Gadawara- Jabalpur Pool 765kv D/C line</p>	2525
(ii) Gadawara STPS- Jabalpur Pool 765kv D/C line	
(iii) Gadawara STPS- New Pooling Station within the jurisdiction/boundary of Warora 765kv D/C line	
(iv) LILO of both circuits of Wardha- Parli (PG) 400 kV D/C line at Warora* Pooling Station (Quad)	
<p>(v) Establishment of 2X1500 MVA 765/400 kV (New Pooling Station within the jurisdiction/boundary Warora)</p> <p>765 kV</p> <ul style="list-style-type: none"> • ICTs: 7X500 MVA 765/400 kV (1 spare unit) • ICT bays: 2 no • Line bays: 6 no (2 no bays for Gadawara STPS – Warora PS D/C line; 2 no bays for Warora PS – Parli (New) S/s D/C line covered under Transmission System Associated with Gadawara STPS (2X800 MW) of NTPC (Part-B); 2 no bays for Rajnandgaon – Warora PS D/C line covered under additional system strengthening scheme for Chhattisgarh IPPs) • Bus Reactor: 3X110 MVAR • Bus Reactor Bay: 1 no • Line Reactors: 7X110 MVAR (1 unit spare) along with associated NGR and its auxiliaries (for Gadawara line) • Line Reactors switchable: 6X110 MVAR along with associated NGR and its auxiliaries (for Parli line) 	

<ul style="list-style-type: none"> 2x80 MVAR switchable line reactor along with 500 ohm NGR at Warora Pool end of Parli (PG) – Warora Pool 400 kV D/C line (Quad0 (one reactor at each ckt) (formed after LILO of Wardha-Parli (PG) 400 kV D/C quad line at Warora pool substation) Space for future bays: 4 nos <p>400kV</p> <ul style="list-style-type: none"> ICT Bays: 2 Nos. Line Bays: 4 Nos. Provision for future Bays: 4 Nos <p>NTPC to provide following at Gadarwara STPS switchyard</p> <ul style="list-style-type: none"> 765 kV line bay: 4 No Bus Reactor Bay:1 No Bus Reactor: 1X330MVAR <p>Switchable line reactor : 2X330MVAR along with associated NGR and its auxiliaries (for Gadarwara-Warora 765 kV D/C line)</p>	
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Members noted the same.

8.5. Name of Scheme: Additional inter-Regional AC link for import of Power to Southern Region i.e. Warora-Warangal - Hyderabad- Kurnool 765kV link

The scope of the scheme agreed in the 33rd meeting of EC is as under:

Scope as per Gazette Notification	Estimated Cost as per EC (in Rs. Crore)
(i) Establishment of 765/400kV substations at Warangal (New) with 2x1500 MVA transformers and 2x240 MVAR bus reactors	8570
(ii) Warora Pool – Warangal (New) 765kV D/c line with 240 MVAR switchable line reactor at both ends	
(iii) Warangal (New) –Hyderabad 765 kV D/c line with 330 MVAR switchable line reactor at Warangal end	
(iv) Warangal (New) – Warangal (existing) 400 kV (quad) D/c line	
(v) Hyderabad – Kurnool 765 kV D/c line with 240 MVAR switchable line reactor at Kurnool end	
(vi) Warangal (New) – Chilakaluripeta 765kV D/c line with 240 MVAR switchable line reactor at both ends	
(vii) Cuddapah – Hoodi 400kV (quad) D/c line with 63 MVAR switchable line reactor at both ends	
<u>765 & 400 kV Bay Requirements</u>	
(i) 765 kV line bays at Warangal (New)	
(ii) 765/400 kV Transformer bays at Warangal (New)	
(iii) 400 kV line bays Warangal (New)	
(iv) Space for future 765 kV line bays at Warangal (New)	
(v) Space for future 400 kV line bays at Warangal (New)	

Note:

- Warora Pool developer to provide space for 2 nos. 765 kV line bays at Warora Pool for termination of Warora Pool – Warangal (New) 765kV D/c line with 240 MVAR switchable line reactor
- CTU (Powergrid) to provide 2 nos. 765 kV bays at Hyderabad for termination of Warangal (New) – Hyderabad 765 kV D/c line
- CTU (Powergrid) to provide 2 nos. 765 kV bays at Hyderabad for termination of Hyderabad – Kurnool 765 kV D/c line
- CTU (Powergrid) to provide 2 nos. 765 kV line bays at Kurnool for Hyderabad – Kurnool 765 kV D/c line with 240 MVAR switchable line reactor at Kurnool end
- CTU (Powergrid) to provide 4 nos. 400 kV bays at Warangal (existing) for Warangal (New) – Warangal (existing) 400 kV (quad) D/c line

- M/s KPTL to provide 2 nos. 400 kV bays at Hoody for termination of Cuddapah – Hoodi 400kV (quad) D/c line along with 63 MVAR switchable line reactors

The scope of the scheme was discussed by CEA and CTU due to difficulty in obtaining RoW at existing Hoody 400 kV S/S for Chuddappah - Hoody 400 kV Line (200 kms). CEA has modified the scope and has advised the BPC to re-do the RfQ with modified scheme with the following scope:

Revised Scope	Estimated Cost as per EC (in Rs. Crore)
(i) Establishment of 765/400kV substations at Warangal (New) with 2x1500 MVA transformers and 2x240 MVAR bus reactors. (ii) Warora Pool – Warangal (New) 765kV D/c line with 240 MVAR switchable line reactor at both ends. (iii) Warangal (New) –Hyderabad 765 kV D/c line with 330 MVAR switchable line reactor at Warangal end. (iv) Warangal (New) – Warangal (existing) 400 kV (quad) D/c line. (v) Hyderabad – Kurnool 765 kV D/c line with 240 MVAR switchable line reactor at Kurnool end. (vi) Warangal (New) – Chilakaluripeta 765kV D/c line with 240 MVAR switchable line reactor at both ends.	
765 & 400 kV Bay Requirements (i) 765 kV line bays at Warangal (New) (ii) 765/400 kV Transformer bays at Warangal (New) (iii) 400 kV line bays Warangal (New) (iv) Space for future 765 kV line bays at Warangal (New) Space for future 400 kV line bays at Warangal (New)	
Estimated Cost (Rs Crore)	7760

Note:

- Warora Pool developer to provide space for 2 nos. 765 kV line bays at Warora Pool for termination of Warora Pool – Warangal (New) 765kV D/c line with 240 MVA switchable line reactor
- CTU to provide 2 nos. 765 kV bays at Hyderabad for termination of Warangal (New) –Hyderabad 765 kV D/c line
- CTU to provide 2 nos. 765 kV bays at Hyderabad for termination of Hyderabad – Kurnool 765 kV D/c line
- CTU to provide 2 nos. 765 kV line bays along with 240 MVA switchable line reactor at Kurnool end for Hyderabad – Kurnool 765 kV D/c line.
- CTU to provide 2 nos. 400 kV bays at Warangal (existing) for Warangal (New) – Warangal (existing) 400 kV (quad) D/c line

Members noted the same.

9. New transmission schemes to be taken up under compressed time schedule through regulated tariff mechanism

As per the extant Tariff Policy, except for few exceptions provided, all the transmission schemes w.e.f. 6th January, 2011, are to be implemented through TBCB route.

9.1. Name of the Scheme: Modification of Suratgarh Substation Location in Green Energy Corridor

Scope of the Transmission Scheme	Capacity (MVA/ ckt. km)	Estimated Cost (Rs. Crore)
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(i) Establishment of 2x1500 MVA, 765/400 kV substation at Bikaner (New)		
(ii) Ajmer (New) – Bikaner (New) 765kV D/C		
(iii) Bikaner (New) – Moga 765kV D/C		
(iv) Bikaner (New) – Bikaner (RVPN) 400kV D/C (Quad)		
Total Estimated Cost (Rs. Crore)		4000

9.2. Name of the Scheme: Maharaniabagh – Rajghat 400kV D/C additional line

Scope of the Transmission Scheme	Capacity (MVA/ km)	Estimated Cost (Rs. Crore)
(i) 400 kV Rajghat – Maharaniabagh D/C line with HTLS conductor	8	55
(ii) Two nos. of 400kV GIS bays each at Rajghat and Maharaniabagh		

9.3. Name of the Scheme: Provision of 2 nos. of 400/220kV, 315MVA ICTs (7x105 MVA single phase units) at Parbati Pooling Station

9.4. Name of the Scheme: Provision of 2 x 500MVA, 400/220kV ICTs at Parli (PG) switching station

9.5. Name of the Scheme: Provision of 2 no. of 220 kV bays for LILO of Khedamara – Borjhara line at 400/220 kV Raipur PGCIL substation

9.6. Name of the Scheme: Additional 2nd 1 X 500 MVA, 400/220 kV ICT at Itarsi (PG) 400 kV substation

9.7. Name of the Scheme: Provision of 2 no. of 400 kV GIS bays for termination of Gwalior-Morena 400 kV D/C quad line at Gwalior substation

9.8. Name of the Scheme: Provision of 2 no. of 400 kV bays for termination of Indore (PG) – Ujjain D/C 400 kV D/C line at Indore (765/400) S/S

9.9. Name of the Scheme: Additional 3rd 500MVA, 400/220kV ICT along with 2 no. of 220 kV bay at Satna (PG) S/s

9.10. Name of the Scheme: Provision of 2 no. of 220 kV bays at Mapusa (Colvale) 400/220 kV substation for termination of the proposed Mapusa (Colvale) - Teum 220 kV D/C line of GED.

9.11. Name of the Scheme: Provision of 330 MVAR, 765 kV Line Reactor with reactor bays along with 850 Ω NGR for Vindhychal Pooling station – Jabalpur pool 765 kV D/C line (in each circuit at both ends).

9.12. Name of the Scheme: Transmission system for Ultra Mega Solar Power Parks in Rewa, MP

Scope of the Transmission Scheme	Capacity (MVA/ km)	Estimated Cost (Rs. Crore)
(i) Establishment of 400/220kV, 3x500 MVA Pooling station at Rewa		54
(ii) LILO of Vindhychal – Jabalpur 400kV 2 nd D/C line (circuit-3&4) at Rewa Pooling Station		56
(iii) 6 x 220kV Line bays (for its interconnection with solar park)		23

(iv) 1 X 125 MVA bus reactor		7
Total Estimated Cost (Rs. Crore)		140

9.13. Name of the Scheme: Eastern Region Strengthening Scheme-XV (ERSS-XV): System strengthening in Eastern Region for transfer of additional 500MW power to Bangladesh

Scope of the Transmission Scheme	Capacity (MVA ckt. km)	Estimated Cost (Rs. Crore)
Transmission Line		
(i) Farakka - Baharampur 400kV D/C (HTLS) line		
(ii) Removal of the existing LILO of Farakka - Jeerat 400 kV S/C line at Baharampur		
(iii) LILO of the above Farakka - Jeerat 400 kV S/C line at Sagardighi		
(iv) LILO of Sagardighi - Subhasgram 400 kV S/C line at Jeerat		
Substation		
(i) Extension at 400/220 kV Farakka S/s of NTPC: 2 nos. 400kV line bays for Farakka– Behrampur 400kV D/C (HTLS) line		
(ii) Extension at 400/220 kV Sagardighi S/s of West Bengal: 2 nos. 400 kV line bays for LILO of Farakka – Jeerat 400kV S/C line (formed after removal of the existing LILO of Farakka – Jeerat 400kV S/C line at Baharampur) at Sagardighi		
(iii) Extension at 400/220 kV Jeerat S/s of West Bengal - 2 nos. 400 kV GIS line bays for LILO of Sagardighi – Subhasgram 400 kV S/C line		
(iv) Extension at 400 kV Baharampur s/s of POWERGRID - 2 nos. 400 kV line bays for termination of Farakka – Baharampur 400 kV D/C (HTLS) line - 125 MVA bus reactor at 400kV at Baharampur substation		
(v) Extension at 400 kV Subhasgram S/s of POWERGRID- Conversion of 50 MVA fixed line reactor at Subhasgram end of Sagaradighi - Subhasgram 400 kV S/C line to switchable line reactor		
Total Estimated Cost (Rs. Crore)		950

***Note:** 2 nos. of 400 kV line bays released after removal of existing LILO of Farakka - Jeerat 400 kV S/C line at Baharampur are proposed to be utilized for connection of one existing bus reactor which is presently connected to one end of the bus due to space constraint and one new bus reactor mentioned above.*

9.14. Name of the Scheme: Re-conductoring of Maithon RB - Maithon 400kV D/C line of POWERGRID (ERSS-XVII) with HTLS conductor

9.15. Name of the Scheme: Transformer augmentation requirements in Eastern Region - XVII (ERSS-XVII)

Scope of the Transmission Scheme	Capacity (MVA ckt. km)	Estimated Cost (Rs. Crore)
(i) Installation of 3rd 400/220 kV, 1x315 MVA ICT at Durgapur Substation.		200
(ii) Replacement of 400/220kV, 2x315 MVA ICTs at Malda Substation with 400/220 kV, 2x500 MVA ICTs.		
(iii) Installation of 3rd 400/220 kV, 1x315 MVA ICT at New Siliguri Substation.		
(iv) Replacement of 400/220 kV, 2x315 MVA ICTs at Jeypore Substation with 400/220 kV, 2x500 MVA ICTs.		
(v) Replacement of 400/220 kV, 2x315 MVA ICTs at Rourkela Substation with 400/220 kV, 2x500 MVA ICTs.		
(vi) Installation of 400/220 kV, 1x500 MVA ICT at Gaya Substation.		

Note: Replacement of transformers at Malda, Jeypore and Rourkela would create 6 units of 315 MVA transformers as spare and out of which 2 would be utilised at Durgapur and New Siliguri. The other 4 would be kept as regional spare.

9.16. Name of the Scheme: Conversion of fixed Line Reactors to switchable Line Reactors (ERSS-XVII) (to be used as Bus Reactors) for Lakhisarai – Biharsharif 400kV D/C and Keonjhar – Rengali 400 kV S/C

9.17. Name of the Scheme: Proposal of JUSNL (Jharkhand Urja Sancharan Nigam Limited) for provision of 2x160 MVA, 220/132 kV Auto transformer in proposed 400/220 kV GSS of M/s POWERGRID at Daltonganj with provision of 02 nos. 132 kV bays for JUSNL (POWERGRID Scope)

9.18. Name of the Scheme: Bypassing arrangement of LILO of 400kV lines at Angul (ERSS-17) (POWERGRID Scope)

Scope of the Transmission Scheme	Capacity (MVA ckt. km)	Estimated Cost (Rs. Crore)
(i) LILO of Meramundali – Bolangir / Jeypore 400 kV S/C line at Angul pooling station	50	
(ii) LILO of one ckt of Talcher - Meramundali 400 kV D/C line at Angul pooling station	40	
Total Estimated Cost (Rs. Crore)		210

9.19. Name of the Scheme: North Eastern Region Strengthening Scheme – V (NERSS - V)

Scope of the Transmission Scheme	Capacity (MVA/ ckt. km)	Estimated Cost (Rs. Crore)
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(i) Additional 400 kV D/C line at Palatana end for termination of Palatana-Surajmaninagar 400 kV D/C line (op. at 132 kV) at 400 kV Palatana switchyard		190
(ii) Additional 400 kV D/C line at Surajmaninagar end for termination of Palatana-Surajmaninagar 400 kV D/C line (op. at 132 kV) at 400 kV Surajmaninagar S/s		
(iii) Additional 400 kV D/C line at P. K. Bari end for termination of P. K. Bari-Silchar 400 kV D/C line (initially op. at 132 kV) at 400 kV P. K. Bari S/s		
(iv) Additional 400 kV D/C line at Silchar end for termination of P. K. Bari-Silchar 400 kV D/C line (initially op. at 132 kV) at 400 kV Silchar S/s		
(v) 2 no. 400 kV GIS line bays at Silchar for termination of P. K. Bari – Silchar 400kV D/C line		
(vi) Re-conductoring of Agartala-Agartala 132 kV D/C line		

9.20. Name of the Scheme: North Eastern Region Strengthening Scheme – VI (NERSS-VI)

Scope of the Transmission Scheme	Capacity (MVA/km)	Estimated Cost (Rs. Crore)
(i) Up-gradation of New Mariani substation to 400/220 kV with 2x500 MVA transformer along with associated bays.		
(ii) 2 no. 400kV line bays at New Mariani for termination of Misa-New Mariani 400 kV D/C (op. at 220 kV) at 400kV		
(iii) Termination of Misa-New Mariani section of existing LILO of Kathalguri-Misa 400 kV D/C line (circuit-1) (op. at 220 kV) at New Mariani from 220 kV to 400 kV		
(iv) Disconnection of Kathalguri - Mariani (AEGCL) - Misa line from Mariani (AEGCL) S/s and LILO of the same at New Mariani (POWERGRID) with Misa-New Mariani section connected at 400kV and Kathalguri – New Mariani section connected at 220kV at New Mariani		
(v) 2 no. 400 kV line bays (GIS) at Misa for termination of New Mariani – Misa 400kV D/C line (presently charged at 220kV) at 400kV		
(vi) Operation of New Mariani – Misa 400kV D/C line (presently charged at 220kV) at 400kV along with termination at Misa at 400kV		
(vii) Operation of New Mariani – Kathalguri 400kV D/C line (presently charged at 220kV) at 220kV		
Total Estimated Cost (Rs. Crore)		200

9.21. Name of the Scheme: Upgradation of existing inter-state 132 kV link between Imphal (PG) and Imphal (State)

Scope of the Transmission Scheme	Capacity (MVA/km)	Estimated Cost (Rs. Crore)
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(i) Re-conductoring of Imphal (PG)-Yurembam 132 kV S/C POWERGRID line with high capacity conductor (ii) Up gradation / modification of bay equipment at Imphal (PG) by POWERGRID because of the re-conductoring.		20
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9.22. Name of the Scheme: Installation of 3rd 315 MVA Transformer at 400/132/33kV at Silchar Sub Station

9.23. Name of the Scheme: Installation of 31.5 MVAR, 220 kV bus reactor at 220/132kV Mokokchung sub-station of POWERGRID

It was decided that CTU would indicate the timelines for completion of the above transmission elements.

10. 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).

The cost committee constituted for this purpose has estimated the cost of the following transmission schemes:

Sl. No.	Independent Transmission Projects	Cost as per Empowered Committee (in Rs. Crore)	Estimated Cost of the Project as per Cost Committee (in Rs. Crore)
1.	ATS of Tanda Expansion TPS (2 x 660 MW)	345	336
2.	Additional System Strengthening for Sipat STPS	867	1097
3.	System Strengthening for IPPs in Chhattisgarh and other Generation Projects in Western Region	823	1285
4.	Additional System Strengthening Scheme for Chhattisgarh IPPs (Part-B)	1930	2260
5.	Northern Region System Strengthening Scheme – XXXV	88	90
6.	Transmission System Strengthening in India System for transfer of power from new HEPs in Bhutan	1809	1272
7.	Transmission system associated with Gadawara STPS (2x800 MW) of NTPC (Part – B)	2360	3684
8.	Transmission System Strengthening associated with Vindhyachal - V	1200	2845

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

11.1. Bid Evaluation Committee (BEC) for “System strengthening scheme in Northern Region (NRSS-XXXVI)” - RECTPCL

Sl. 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.	Representative from NRPC	Member
3.	Representative from NRPC	Member
4.	Shri Pankaj Batra, Chief Engineer (F&CA) Central Electricity Authority Room No. 626, 6th floor, Sewa Bhawan, R.K.Puram, New Delhi-110066 Phone No. 011-26732688, 26732668, Mobile: 9350981062	Member (CEA)
5.	Shri Chandra Prakash Director (PSP&PA - I) Central Electricity Authority Sewa Bhawan, R.K.Puram, New Delhi-110066 Phone No. 011-2671 1015, Mobile: 9868807917	Member (CEA)
6.	Chairman of SPV constituted by RECPTCCL	Convener - Member

11.2. Bid Evaluation Committee (BEC) for “Creation of new 400kV Substations in Gurgaon area and Palwal area as a part of ISTS” - PFCCL

Sl. 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.	Representative from NRPC	Member

3.	Representative from NRPC	Member
4.	Shri Pankaj Batra, Chief Engineer (F&CA) Central Electricity Authority Room No. 626, 6th floor, Sewa Bhawan, R.K.Puram, New Delhi-110066 Phone No. 011-26732688, 26732668, Mobile: 9350981062	Member
5.	Shri Chandra Prakash Director (PSP&PA - I) Central Electricity Authority Sewa Bhawan, R.K.Puram, New Delhi-110066 Phone No. 011-2671 1015, Mobile: 9868807917	Member
6.	Chairman of SPV constituted by PFCCL	Convener - Member

Meeting ended with thanks to the chair.

List of participants in the 35th Meeting of Empowered Committee on Transmission chaired by Member (PS), CEA on 14.9.2015

Sl. No.	Name Shri/Smt	Designation
1.	S.D. Dubey	- Member (PS), CEA – in Chair
2.	Dr. Somit Dasgupta	- Member (E&C) CEA, Member EC
3.	Ravinder	- Member EC & Ex. Member (PS), CEA
4.	I.S. Jha	- Director (Project), PGCIL
5.	K.K.Arya	- Member Secretary, EC & CE (PSP&PA-I), CEA
6.	Surinder Singh	- Joint Adviser NITI Ayog
7.	Goutam Roy	- CE (EI), CEA
8.	B. Sarkhel	- Chief Engineer (PSP&PA-II), CEA
9.	Pradeep Jindal	- Director (PSP&PA-II), CEA
10.	Ravinder Gupta	- Director (PSP&PA-II), CEA
11.	Awdhesh Kumar Yadav	- Director (PSP&PA-I), CEA
12.	Chandra Prakash	- Director (PSP&PA-I), CEA
13.	Manjari Chaturvedi	- Dy. Director, CEA
14.	Santosh Kumar	- Dy. Director, CEA
15.	Satyendra Dotan	- Dy. Director, CEA
16.	Shiva Suman	- Dy. Director, CEA
17.	Priyam Srivastava	- Assistant Director, CEA
18.	Vikas Kr. Sahu	- Engineer
19.	Seema Gupta	- COO (CTU)
20.	Mukesh Khanna	- AGM (CTU)
21.	Sanjay Nayak	- AVP, PFFCL
22.	Subodh Garg	- CEO, RECTPCL
23.	Bhupender Gupta	- ACEO, RECTPL
24.	J.K. Nayak	- DGM (Fin), RECTPCL
25.	Vivek Agarwal	- Manager, RECTPL

No.15/1/2010-Trans
Government of India
Ministry of Power
Shram Shakti Bhawan, Rafi Marg, New Delhi

Dated, the 31st August, 2015

OFFICE MEMORANDUM

Subject:- Constitution of the Committee for revision of Standard Bidding Documents for procurement of transmission services under Tariff Based Competitive Bidding (TBCB).

The undersigned is directed to say that Competent Authority in the Ministry of Power has approved to constitute a Committee to discuss, deliberate and finalize the changes required in the Standing Bidding Documents with the following members:

- | | |
|--|--------------------|
| 1) Member (E&C), CEA | - Chairman |
| 2) Chief Engineer (System Planning and Appraisal Division), CEA | - Member |
| 3) Chief Engineer (Financial and Commercial Appraisal Division), CEA | - Member |
| 4) Chief Operation Officer (CTU), PGCIL | - Member |
| 5) Chief Executive Officer, PFCCL | - Member |
| 6) Representation from CERC | - Member |
| 7) Director (Trans), Ministry of Power | - Member |
| 8) Director (R&R), Ministry of Power | - Member |
| 9) Chief Executive officer, RECTPCL | - Member-Secretary |


Terms of Reference

To finalize the draft documents prepared by the Consultant i.e M/s PwC appointed by M/s RECTPCL. These documents should be aligned to facilitate the following:

- (i) Introduction of e-bidding in TBCB process.
- (ii) The e-reverse Auction is to be carried out on the transmission tariff derived from L-1 bidder discovered through TBCB Process.
- (iii) CTU to act as the counter-party to sign the Transmission Service Agreement (TSA), now renamed as Implementation & Service Agreement (ISA), on behalf of all Designated Inter-State Customers (DICs) due to introduction of PoC mechanism as per CERC regulations
- (iv) Provisions related to CERC, CEA, Companies Act, 2013 and any other changes due to change in regulation/ law.
- (v) To modify provisions of Penalty & Termination clauses.
- (vi) To deliberate on the role of BPCs after handing over of SPV till start of physical execution of transmission system.
- (vii) To modify the document w.r.t. practical difficulties being faced by BPCs during bidding process of concluded.
- (viii) Any other suggestions for facilitating development of transmission system under TBCB.

The Committee may also informally consult EPTA (Electric Power Transmission Association).

2. The Committee would expeditiously finalize the documents and submit its report to Ministry of Power within four weeks.


(S. Venkateshwarlu)
Under Secretary (Trans)
Telefax No. 23325242
E-mail : transdesk-mop@nic.in

To

All the concerned.

Copy to PPS to Secretary (Power) / AS (BNS) / JS (Trans) / Director (Trans) / Director (R&R).

Annexure – III

Status of Progress of Transmission Projects Awarded Through Tariff Based Competitive Bidding Route by

The representative of BPC, RECTPCL stated the following:

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

- (1) Transmission System associated with Gadarwara STPS (2x800 MW) of NTPC (Part- A) which is being implemented by M/s Power Grid Corporation of India Limited
- (2) Transmission System associated with Gadarwara STPS (2x800 MW) of NTPC (Part- B) which is being implemented by M/s Power Grid Corporation of India Limited
- (3) Connectivity Lines for Maheshwaram (Hyderabad) 765/400 kV Pooling S/s which is being implemented by Sterlite Grid 3 Limited

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

- (1) Strengthening of transmission system beyond Vemagiri whose RFP Submission is due in Sept, 2015
- (2) NER System Strengthening Scheme– II whose scope has been revised and its notification is pending
- (3) Transmission System Strengthening in Indian System for transfer of power from new HEPs in Bhutan whose RFP Submission is due in Sept, 2015
- (4) System Strengthening Scheme in Northern Region (NRSS-XXXVI)” along with LILO of Sikar-Neemrana 400kV D/C line at Babai (RRVPNL) whose RFQ has been issued on 25.08.2015

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

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

Status of projects under bidding process by PFCCL

The representative of BPC, PFCCL stated that the following nine (9) transmission projects were allocated to them for carrying out the bidding process for award of the project:

- 1. ATS for Tanda Expansion TPS (2X660 MW)**
- 2. Northern Region System Strengthening Scheme – XXXV**
- 3. System strengthening for IPPs in Chhattisgarh and other generation projects in Western Region**
- 4. Additional System Strengthening for Sipat STPS**
5. Additional System Strengthening Scheme for Chhattisgarh IPPs – Part B
6. Additional inter-Regional AC link for import into Southern Region i.e. Warora – Warangal and Chilakaluripeta - Hyderabad - Kurnool 765kV link
7. Common Transmission System for Phase-II Generation Projects in Odisha and Immediate Evacuation System for OPGC (1320 MW) Project in Odisha
- 8. Northern Region System Strengthening Scheme – XXXIII**
- 9. Creation of new 400kV GIS Substations in Gurgaon and Palwal area as a part of ISTS:**

He stated that for the transmission project mentioned at S.no.1, RfQ Stage has been completed and RfP has been issued to the qualified bidders w.e.f. 12.01.2015 with last date of submission of RfP Bid extended to 11.09.2015 on the advice of CEA. The scheme mentioned at S.no. 2 has been de-notified on recommendation of CEA and now it would be implemented by CTU under compressed schedule through regulated tariff mechanism. For the transmission scheme mentioned from S.no. 3 to 5, RfQ and RfP stage has been completed and LoI has been issued to the successful bidder Adani Power Ltd on 28.07.2015. The process for Transfer of SPV is under progress. He further stated that the scheme mentioned at S.no. 6 has been modified due to inconsistency in the scope of the scheme and further difficulty in obtaining RoW at existing Hoody 400 kV S/S for Cuddappah-Hoody 400 kV Line, so its RfQ is being re done with the modified scheme. Further for the transmission scheme mentioned at S.no. 7, RfQ evaluation has been completed. As the qualification status of one of the bidders namely Adani Transmission Ltd is under revise due to merger/demerger of Adani Group, the issuance of RfP documents to the qualified bidders are on hold. The representative of PFCCL further stated that for the transmission scheme mentioned at S.no 8, the bidding process is kept in abeyance till the dispute in PPA between Essar Power (Jharkhand) Ltd and Noida Power Company Ltd. is resolved and for the transmission scheme mentioned at S.no. 9, SPV incorporation is under process and bidding is yet to be started.