



Government of India
Ministry of Power
Central Electricity Authority
SP&PA Division



Sewa Bhawan, R. K. Puram, New Delhi-110066

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No. 100/1/EC/2012-SP&PA/

Dated: 07-02-2013

To

1. Shri S. Jayaraman
Member, CERC
Chanderlok Building,
36 Janpath,
New Delhi - 110001
2. Dr. Jaipal Singh
Member (E&C),
Central Electricity Authority
Sewa Bhawan, R.K. Puram,
New Delhi - 110066
3. Joint Secretary (Trans.),
Ministry of Power,
Shram Shakti Bhawan, Rafi Marg,
New Delhi - 110001
4. Shri I.A. Khan
Adviser, Planning Commission,
Yojana Bhawan, Parliament Street,
New Delhi - 110001
5. Director (Transmission)
Ministry of Power,
Shram Shakti Bhawan, Rafi Marg,
New Delhi - 110001
6. Shri I. S. Jha
Director (Projects), POWERGRID
Saudamini, Plot No. 2, Sector-29,
Gurgaon - 122001
7. Secretary, CERC
Chanderlok Building,
36, Janpath,
New Delhi-110001
8. Shri V. V. R. K. Rao
Former Chairman, CEA
B-9/C, DDA Flats, Maya Puri,
New Delhi -110064
9. Shri A. K. Mago
Former Chief Secretary(Govt. of Maha.),
C/o Dr. Rita Malhotra,
40, Pushpanjali, Vikas Marg Extension,
(opp. Anand Vihar Colony),
Delhi - 110092
(Tel. 9811088098).

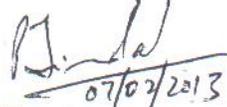
Subject: **31st meeting of the Empowered Committee on Transmission - meeting notice - change in time (03:00 PM) instead of 3:30 PM)**

Sir/Madam,

The 31st meeting of the Empowered Committee on Transmission constituted in accordance with Guidelines for Encouraging Competition in development of transmission projects, would now be held **at 3:00 PM**, instead of 3:30 PM as earlier informed.

The date and venue of the meeting remain same, i.e. 18-February-2013 (Monday) in the Conference Room of CERC, 3rd Floor, Chanderlok Building, 36 Janpath, New Delhi.

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


07/02/2013
(Pardeep Jindal)
Director (SP&PA)

Copy to:

- i) Shri Y.K. Sehgal, COO(CTU), POWERGRID, 'Saudamini', Plot No.2, Sector - 29, Gurgaon - 122 001 (Haryana)
- ii) Shri S. K. Gupta, CEO, RECTPCL, Core-4 SCOPE Complex, 7 Lodhi Road, New Delhi - 110 003. (Fax-011-24102576)
- iii) Shri N. D Tyagi, CEO, PFC Consulting Ltd, First Floor, Urjanidhi, 1 Barakhmba Lane, New Delhi -110001 (Fax- 011-23456170)

Special Invitees:

1. Shri R. N. Nayak, CMD, POWERGRID | - with the request to explain item (1) of the agenda
2. Shri A.K. Jha, Director(Tech.), NTPC |
3. Shri A.K. Gupta, ED(Engg.), NTPC | - w.r.t. item (4) of the agenda (in respect of ATS for Lara STPP, Darlapalli STPP)

Agenda note for the 31st meeting of the Empowered Committee on Transmission

Date and Time: 18-February-2013 (Monday) at 3:30 PM

Venue: CERC, 3rd Floor, Chanderlok Building, 36 Janpath, New Delhi, New Delhi

1.0 Proposal of POWERGRID to review the project selection procedure for Tariff based Competitive Bidding for Transmission sector.

1.1 Shri R. Nayak, CMD, POWERGRID has written a letter in this regard on October 3, 2012 and a copy of the same is enclosed herewith. The letter dated 20th November, 2012 received from MoP addressed to CEA in this regard is also enclosed herewith. The points made by CMD, POWERGRID are listed below:

- (i) Out of the 6 schemes, awarded to the private sector 2 schemes are under litigation and work has not started on ground.
- (ii) The transmission charges are a fraction of the cost of electricity and therefore there is a little scope in optimization of transmission charges.
- (iii) Only some selected transmission systems identified by the Empowered Committee should be offered for competitive bidding.
- (iv) Alternatively, joint venture route may be adopted for private sector participation

1.2 The first schemes through competitive bidding i.e. WRSS-II set B & C were awarded to Reliance Power Transmission Ltd. long time ago (22.11.2007). Several time extensions have been given and the following elements are yet to be completed:

- a) Parli (PG)- Pune (PG)
- b) Pune (PG)-Aurangabad (MSETCL)
- c) Rajgarh (PG)-Karamsad (GETCO)

1.3 CMD, POWERGRID has argued that transmission is a crucial link in the supply of the electricity from the source of generation to the point of drawl. It also facilitates competition among suppliers.

1.4 CMD, POWERGRID has highlighted the following perils of private sector participation in the transmission:

- (a) It may not be prudent to develop transmission system associated with nuclear power project through private sector.
- (b) A number of foreign countries including China are participating in bids for development of inter-State transmission system. Allowing the control of

important sub-stations, HVDC lines and high capacity corridors to foreign entities may adversely affect national security. Outage or tripping of any large capacity links or substation may have catastrophic effect on our strategic installations.

- (c) Since we are operating as large synchronized grid and moving towards an all-India grid even a small aberration in the transmission system has the potential of causing widespread damage.
- (d) The transmission system implemented by POWERGRID are based on transparent and competitive bids called for various packages, strictly speaking competition in procurement of various items is already taken care of by POWERGRID even under the regulated tariff regime. Moreover, the cost incurred by POWERGRID is subject to prudence check by CERC and CAG.
- (e) POWERGRID has endorsed the opinion of CEA to allow CTU to implement critical 400 kV and 765 kV transmission schemes.

1.5 Chairman, CEA had written a letter to MoP in August, 2011 in the context of hold up in North-Karanpura transmission scheme and Talchar II augmentation scheme awarded to Reliance Power Transmission Company Limited in 2010. (These schemes are still under litigation and no work is going on). The excerpts of CEA letter dated 23rd August, 2011 is quoted below:

“Transmission system is a common carrier of electricity and any hold up in the implementation of planned transmission links on legal grounds such as the above can cause transmission constraints, bottle up generation and prevent delivery of electricity to the end consumers. Already there are many challenges in developing transmission schemes and the above developments are a matter of great concern. It is a pointer to the danger that private developers can hold up a transmission scheme by rushing to the courts.

In view of above, it is for consideration whether it would be prudent to exempt critical 400 kV and 765 kV transmission schemes from competitive bidding based on the recommendation of the Empowered Committee and to allow the CTU to implement such schemes under regulated regime.”

1.6 At present the following cases are exempted from competitive bidding route

- Upgradation/strengthening of existing lines and associated substations
- Projects for which the PPA(s) have been signed on or before 5.12.11
- Works required to be done to cater to an urgent situation or which are required in a compressed time schedule by CTU/STUs as decided by the Central Government on a case to case basis.
- First two experimental works for 1200 kV HVDC line.

- The intra-state transmission projects by STUs will be exempted from competitive bidding route for further 2 years beyond 6.1.2011.
- 1.7 It was recommended in the 30th Meeting of Empowered Committee that projects of estimated cost less than Rs 200 crore may be exempted from TBCB and the cut off limit may be reviewed by the Government from time to time.
- 1.8 Further to above, it would be pertinent to bring to the notice of the Empowered Committee that implementation of transmission system matching with generation has become a very challenging task in the market scenario due to uncertainties in the generation project which require flexibility for implementation. **Such flexibility of implementation is not available in the tariff based competitive bidding route because the scope and completion schedule are to be frozen well in advance on the basis of which tariff is quoted.** Subsequent change in scope or in the completion date gives rise to dispute and litigation.
- 1.9 CEA Suggestions:
- (i) FDI in transmission should be restricted to 49% instead of 100%
 - (ii) Schemes of estimated cost less than Rs. 200 crore may be exempted from TBCB.
 - (iii) Experimental works for 1200 kV AC should be exempted from TBCB
- 1.10 POWERGRID has not indicated how JV partners would be selected.
- 1.11 The Empowered Committee may consider the above suggestions and give its recommendations to the Ministry of Power.

2.0 Review of scope of the schemes “Transmission system associated with DGEN TPS (1200 MW) Torrent Power Limited” and “Transmission system associated with IPPs of Nagapattinam / Cuddalore Area – Package C”

2.1 Review of scope of the scheme “Transmission system associated with DGEN TPS (1200 MW) Torrent Power Limited”.

2.1.1 During the 29th Empowered Committee meeting, the scope of the above scheme was fixed as follows with PFFCL as BPC.

Transmission System	Estimated Line length	Estimated cost (Rs crore)
i) DGEN TPS-Vadodara 400 kV D/C (twin Moose) line	100 km	120
ii) Two no. 400 kV line bays (GIS) at Vododara (PG) S/S		20
iii) Navsari-Bheestan 220 kV D/C line	15 km	12

Transmission System	Estimated Line length	Estimated cost (Rs crore)
iv) Two no. 220 kV line bays at Navsari (PG) S/S		4
v) Two no. 220 kV line bays at Bhestan (GETCO) S/S (new S/S at Popda(Bhestan))		4
Estimated cost (Rs crore)		160

2.1.2 In this regard, POWERGRID vide their letter dated 10.12.2012 has informed that the Vadodara and Navasari substations are existing substations owned by POWERGRID, whereas, the Popda (Bhestan) substation is being constructed by GETCO. As such, it is desirable that bay extension/augmentation works in those substations are carried out by the utility which owns them for smooth implementation of works. This is also in line with the Ministry of Power's communication dated 9th December, 2010 issuing clarification to the para-7(1) of original Tariff policy vide which strengthening / augmentation works of the existing substation have been exempted from tariff based competitive bidding route.

2.1.3 Accordingly, it is proposed that the bays at 400kV Vadodara (PG) substation and 220kV Navasari (PG) Substation may be implemented by POWERGRID and 220kV bays at Popda (Bhestan) substation may be implemented by GETCO, and the scope of the scheme “**Transmission system associated with DGEN TPS (1200MW) of Torrent Power Limited**” may be modified as follows:

Modified Scope:

Transmission System	Estimated Line length	Estimated cost (Rs crore)
i) DGEN TPS-Vadodara 400 kV D/C (twin Moose) line	100 km	120
ii) Navsari-Bheestan 220 kV D/C line	15 km	12
Estimated cost (Rs. crore)		132

2.2 Review of scope of the scheme “Transmission system associated with IPPs of Nagapattinam / Cuddalore Area – Package C”

2.2.1 This scheme, which has been approved in the 25th meeting of the Empowered Committee on Transmission and subsequently notified, has the following scope:

- Madhugiri – Narendra 765kV D/c line.
- Kolhapur – Padghe 765kV D/c line (one ckt. via Pune).

This scheme was originally planned for evacuation of power from the generation projects coming up in Nagapattinam / Cuddalore area. However, as only one project i.e. ILFS is coming in this area, it was decided during the 29th meeting of the Empowered Committee that the 'Kolhapur – Padghe line' may not be needed as of now and may be deleted from this package. Also, the first element has been included as "Narendra (New) – Madhugiri 765kV D/c line", along with other transmission elements, in the scheme "Transmission System required for evacuation of power from Kudgi TPS (3x800 MW in Phase - I) of NTPC Limited", which was also approved by the Empowered Committee in the same meeting.

2.2.2 In view of the above, this scheme is left with no transmission elements in its scope for implementation. As such, the scheme may be de-notified.

3.0 Revision of Standard Bid Documents (SBD) for aligning with the POC(Point of Connection) mechanism of sharing of transmission charges.

3.1 The existing RfQ, RfP and TSA documents for Tariff Based Competitive Bidding are based on the regional postage stamp method of sharing of transmission charges. The sharing of transmission charges of the ISTS is now based on the methodology of Point of Connection (PoC) after the implementation of the new mechanism from 1-07-2011. Using existing SBD under the present PoC based mechanism is causing considerable difficulties in carrying out the bidding process. Now the charges are not to be recovered individually by each TSP, the "long term customers" now are all the utilities, drawing entities and generators using the ISTS (now known as DIC), "lead long term customer " cannot be identified and existing SBD does not have provisions to accommodate these new concepts. In view of the above and other changes, the existing RfQ/RfP and TSA forming part of SBD need to be revised urgently so that the bidding of the schemes already in process or pipeline is not delayed.

3.2 This matter was taken up in previous meetings of the Empowered Committee (EC) also, wherein, Chairperson, EC stated that MoP should expedite the modifications to the SBD (RfP and TSA) aligning with the PoC mechanism. The Committee may discuss as to how to proceed with the new projects in the absence of revised SBDs.

4.0 New transmission schemes to be taken up through Tariff Based Competitive Bidding.

4.1 Inter-State works of comprehensive scheme for Strengthening of Transmission System in NER & Sikkim (NERSSS-II):

- (a) The comprehensive scheme for Strengthening of transmission and distribution system in Sikkim and the states of NER was conceived as a consequence of Passighat proclamation in 2007. In a meeting of NER constituents, held at

Guwahati on 30-10-2012 to review the inter-state transmission works, the following scope of works for inter-state transmission system was decided and the scheme was named as “**System Strengthening Scheme in NER-II (NERSSS-II)**”.

1. 2nd 400/220 kV, 315 MVA transformer at Balipara (PG)
2. LILO of 2nd ckt. of Silchar - Bongaigaon 400 kV D/c line at Byrnihat (MeECL)
3. NER PP (Biswanath Chariyalli) – Itanagar (Ar. Pradesh) 132 kV D/C line (Zebra conductor)
4. Silchar - Misa 400 kV D/c line (Quad) line
5. Replacement of existing 132/33kV, 2x10MVA ICT at Nirjuli by 2x50MVA ICT
6. Ranganadi HEP-Nirjuli (PG) 132kV D/c line with one ckt. to be LILOed at Itanagar S/s (Ar. Pradesh) or routed via Itanagar
7. Imphal (PG) – New Kohima (Nagaland) 400kV D/c line (to be initially operated at 132kV)

- (b) Out of these, the first and fifth elements come under augmentation/ renovation work of the existing Sub-stations, and as such are exempted from TBCB.
- (c) The name and scope of the proposed scheme to be implemented through tariff based competitive bidding, are given below:

Name of the Scheme: “NER System Strengthening Scheme - II (TBCB Part)”

Scope:

Transmission Scheme	Estimated Line Length (km)	Estimated Cost (Rs. crore)
(i) LILO of 2 nd ckt. of Silchar – Bongaigaon, 400kV D/c line at Byrnihat 400kV substation (of MeECL)	5	10
(ii) Biswanath Chariyalli (NER PP) – Itanagar, (Zebra conductor) 132 kV D/C	95	70
(iii) Silchar– Misa, 400kV D/c quad line	200	600
(iv) Ranganadi - Nirjuli 132 kV D/c line with one circuit loop-in-loop-out at Itanagar 132/33 kV sub-station	40	25
(v) Imphal - New Kohima 400 kV D/c line (to be initially operated at 132 kV)	150	300
Estimated Cost (Rs. crore)		1005

Note:

- CTU to provide 2 no. of 400kV line bays at Byrnihat 400kV substation (of MeECL)

- CTU to provide 2 no. of 132kV line bays each at Bishwanath Chariyali (PGCIL), Nirjuli(PGCIL) and Imphal(PGCIL) S/Ss
 - CTU to provide 2 no. of 400kV line bays each at Silchar (PGCIL) and Misa (PGCIL)
 - CTU to provide Switchable line reactors, 1x80 MVAR at Misa ends of the each circuit of the Silchar– Misa 400kV D/c line
 - CTU to provide 4 no. of 132kV line bays at Itanagar S/s (of DoP, Arunachal Pradesh)
 - NEEPCO to provide 2 no. of 132 kV line bays at Ranganadi Sw. yard
 - CTU to provide 2 no. of 132kV line bays at its New Kohima S/s (of DoP, Nagaland)
- (e) Keeping in view the urgency of the scheme and poor vendor response, NER constituents in a meeting on 30-10-2012 at Guwahati, have agreed to implement the above transmission works by POWERGRID under regulated tariff mechanism. The EC may deliberate.

4.2 Name of the Scheme: ‘HVDC Bipole Strengthening in Southern Region’

- (a) The provision of an HVDC bipole line within SR grid was agreed as system strengthening scheme which would cater to above needs during the 34th meeting of the Standing Committee on Power System Planning of Southern Region held on 16th April, 2012 at Hyderabad. This system is planned to be linked with already planned Wardha – Hyderabad 765kV D/C line & Srikakulam Pooling Station – Vemagiri-II 765kV D/C line that was earlier agreed and is also very helpful in case of import of power by Southern Region. The scheme - ‘**HVDC Bipole Strengthening in Southern Region**’, having following scope, was put up before the Empowered Committee in its 29th meeting held on 15.06.2012, and then again in its 30th meeting held on 31.10.2012, when CEA and CTU were advised to review the scheme from the point of view of optimization based on latest assessment of the demand generation scenario of SR.

Scope:

Transmission Scheme	Estimated Line Length (km)	Estimated Cost (Rs. Crore)
i) Establishment of a New Pugalur HVDC terminal (2500 MW) with 400kV Switchyard. ii) Establishment of a New Hyderabad HVDC terminal (2500 MW) with 400kV Switchyard * - New Hyderabad HVDC station to be located near Hyderabad * - New Pugalur HVDC station to be located near Pugalur	2500 MW	2000

Transmission Scheme	Estimated Line Length (km)	Estimated Cost (Rs. Crore)
iii) Space for six no. of future line bays at each of New Hyderabad and New Pugalur HVDC stations	--	--
iv) New Pugalur HVDC – New Hyderabad HVDC bipole of \pm 500kV, 2500 MW	900 km	1350
v) New Pugalur HVDC – Udumalpet 400kV quad D/C line	100 km	200
vi) New Pugalur HVDC – Pugalur 400kV quad D/C line	100 km	200
vii) New Pugalur HVDC – Tuticorin Pooling Station 400kV quad D/C line	150 km	300
viii) New Hyderabad HVDC – Hyderabad(765/400kV PG S/S) 400kV quad 2xD/C line	50 km	200
ix) New Hyderabad HVDC – Kurnool (765/400kV PG S/S) 400kV quad D/C line	200 km	400
Estimated Cost Rs. crore		4650

- (b) Accordingly, the scheme was once again discussed in the Standing Committee on Power System Planning of Southern Region during its 35th meeting held on 04.01.2013, and the constituents felt that in view of the need to (i) transmit power from the northern part of the Southern Region to the southern part of the Southern Region, and (ii) to operate the grid under intermittency of wind generation by regulating power flow, the above system as system strengthening scheme is very much essential.
- (c) It is now proposed to bid out the scheme in three (3) packages/schemes as follows:
1. HVDC Bipole in Southern Region – HVDC Terminals
 2. HVDC Bipole in Southern Region – HVDC Transmission Line
 3. HVDC Bipole in Southern Region – 400kV AC Lines

Scheme-I :

Name of the Scheme: 'HVDC Bipole in Southern Region – HVDC Terminals'

Scope:

Transmission Scheme	Estimated Line Length (km)/ Capacity/ bays	Estimated Cost (Rs. Crore)
i) Establishment of a new Hyderabad(HVDC) 400kV GIS S/S with \pm 500kV, 2500 MW capacity HVDC terminal	2500 MW	2000
ii) 400kV line/transformer bays at Hyderabad(HVDC) S/S – 4 bays	4 bays	
iii) Space for future 400kV line/transformer bays at Hyderabad(HVDC) S/S	6 bays (space only)	
iv) Space for future 400kV ICT at Hyderabad(HVDC) S/S – 1 no.		
v) Establishment of a new Pugalur(HVDC) 400kV GIS S/S with \pm 500kV, 2500 MW capacity HVDC terminal	2500 MW	
vi) 400kV line/transformer bays at Pugalur(HVDC) S/S	6 bays	
vii) Space for future 400kV line/transformer bays at Pugalur(HVDC) S/S	6 bays (space only)	
viii) Space for future 400kV ICT at Pugalur(HVDC) S/S – 1 no.		
* the Hyderabad(HVDC) station to be located near Hyderabad, and the new Pugalur(HVDC) station to be located near Pugalur		
Estimated Cost Rs. crore		2000

Scheme-II :

Name of the Scheme: 'HVDC Bipole in Southern Region – HVDC Transmission Line'

Scope:

Transmission Scheme	Estimated Line Length (km)	Estimated Cost (Rs. Crore)
i) \pm 500kV HVDC bipole line from Hyderabad(HVDC) S/S to Pugalur(HVDC) S/S for 2500 MW capacity	900 km	1350
Estimated Cost Rs. crore		1350

Scheme-III :**Name of the Scheme: 'HVDC Bipole in Southern Region – 400kV AC Lines'****Scope:**

Transmission Scheme	Estimated Line Length (km)	Estimated Cost (Rs. Crore)
i) Hyderabad(HVDC) S/S – Hyderabad (765/400kV PG S/S), 400kV quad 2xD/C lines	50 km	200
ii) Hyderabad(HVDC) S/S - Kurnool (765/400kV PG S/S), 400kV quad D/C line	200 km	400
iii) Pugalur(HVDC) S/S – Udumalpet 400kV, quad D/C line	100 km	200
iv) Pugalur(HVDC) – Pugalur 400kV S/S (PGCIL), quad D/C line	100 km	200
v) Pugalur(HVDC) S/S – Tuticorin Pooling Station(PGCIL), 400kV quad D/C line	150 km	300
Estimated Cost Rs. crore		1300

Note:

- CTU to provide 2 Nos of 400 kV bays at each of their Tuticorin Pooling Station, Udumalpet, Pugalur, Hyderabad (765kV), and
- CTU to provide 4 Nos of 400 kV bays at Kurnool (765kV) S/s.

4.3 Name of the Scheme: 'Mangalore (UPCL) –Kasargode- Kozhikode 400 kV link'

This scheme was approved in the 35th meeting of the Standing Committee on Power System Planning of Southern Region held on 04.01.2013 with the following scope.

Scope:

Transmission Scheme	Estimated Line Length (km)	Estimated Cost (Rs. Crore)
1. Mangalore(Udipi PCL) – Kasargode, 400kV quad D/C line	110 km	220
2. Kasargode - Kozhokode, 400kV quad D/C line	180 km	360
3. Establishment of 2x500 MVA, 400/220 kV GIS substation at	1000 MVA	160

Transmission Scheme	Estimated Line Length (km)	Estimated Cost (Rs. Crore)
Kasargode <u>400kV</u> – 400/220 kV ICTs : 2 no – Bus Reactor (63 MVAR): 2 no. – Line Bays : 6 – ICT bays : 2 – Space for bays : 4 <u>220 kV</u> – Line Bays : 6 – ICT bays : 2 – Space for bays : 6		
Estimated Cost Rs. crore		740

Note:

- CTU to provide 2 no. of 400 kV line bays at Kozhikode S/S
- UPCL to provide 2 no. of 400 kV bays at Mangalore (UPCL) switchyard

4.4 Name of the Scheme: ‘Transmission System associated with Lara STPS –I’

- (a) This scheme was approved in the 35th meeting of the Standing Committee on Power System Planning in Western Region held on 03.01.2013 with the following scope.

Scope:

Transmission Scheme	Estimated Line Length (km)	Estimated Cost (Rs. Crore)
i) Lara TPS I – Champa Pooling Station 400 kV D/c (quad) line	120	240
ii) Lara TPS I – Raigarh Pooling Station (Kotra) 400 kV D/c line	20	25
Estimated Cost Rs. crore		265

Note:

- CTU to provide 2 no. of 400 kV bays each at Champa PS and Raigarh PS
- NTPC to provide the 4 no. of 400 kV line bays at Lara TPS I

- (b) NTPC has placed order for the Lara STPS units on 13-Dec-2012. The scheduled COD of Unit no.1 is June 2016, they would need startup power by about June 2015, for which they have asked to provide through the Lara – Kotra 400kV D/c line. Normally the start up power is required 4-6 months in advance, NTPC has

not given any reason. NTPC has requested that the 20 km line to Kotra P.S. may be constructed by POWERGRID under compressed time schedule.

4.5 Name of the Scheme: ‘Transmission System associated with Darlipalli TPS (2x800 MW)’

- (a) This scheme was approved in the meeting of the Standing Committee on Power System Planning of Eastern Region held on 04.01.2013 with the following scope. NTPC is likely to place order in March 2013.

Scope:

Transmission Scheme	Estimated Line Length (km)	Estimated Cost (Rs. Crore)
i) Darlipalli TPS – Jharsuguda P.S. 765kV D/c line	40	100
Estimated Cost Rs. crore		100

Note:

- CTU to provide 2 no. of 765kV bays at Jharsuguda P.S.
- NTPC to provide the 2 no. of 765kV line bays at Darlipalli TPS
- Further evacuation beyond Jharsuguda to be taken care of by POWERGRID.

4.6 Name of the Scheme: ‘Northern Region System Strengthening Scheme, NRSS - XXIX’

This scheme was approved in the 31th meeting of the Standing Committee on Power System Planning in Northern Region held on 02.01.2013 with the following scope.

Scope:

Transmission Scheme	Estimated Line length (km)/ MVA	Estimated Cost (Rs. Crore)
i) LILO of both circuits of Uri – Wagoora 400 kV D/c line at Amargarh (on multi-circuit towers)	10	50
ii) Establishment of 7x105 MVA (1-ph.), 400/220 kV GIS substation at Amargarh <i>400kV</i> – Line Bays : 6 no. – 400/220 kV ICT : 7x105(1-ph.) – ICT bays : 2 no. – Line Reactor(50 MVAR) : 2 no.	630 MVA	170

<ul style="list-style-type: none"> - Bus Reactor(63 MVAR) : 2 no. - Bus Reactor Bay : 1 no. - Space for line/ICT bays : 4 no. - Space for ICT: 1 no. <p style="text-align: center;"><u>220 kV</u></p> <ul style="list-style-type: none"> - Line Bays : 6 no. - ICT bays : 2 no. - Space for line/ICT bays : 4 no. 		
iii) Jullandhar – Samba 400 kV D/c	170 km	210
iv) Samba –Amargarh 400 kV D/c routed through Akhnoor / Rajouri sector	250 km	520
Estimated Cost Rs. crore		950

Note:

- CTU to provide 2 no. of 400 kV bays at Jullandhar S/S
- CTU to provide 4 no. of 400 kV bays at and Samba S/S
- CTU to provide 2x50 MVAR line reactors at Samba end of the Samba – Amargarh 400 kV D/c line

4.7 Name of the Scheme: ‘Northern Region System Strengthening Scheme, NRSS - XXXI’

This scheme was approved in the 31st meeting of the Standing Committee on Power System Planning of Northern Region held on 02.01.2013 with the following scope.

Scope:

Transmission Scheme	Estimated Line Length (km)/ MVA	Estimated Cost (Rs. Crore)
i) Establishment of a 7X105MVA(1-ph.), 400/220 kV GIS substation at Kala Amb <u>400kV</u> <ul style="list-style-type: none"> - Line Bays : 4 no. - 400/220 kV ICT: 7x105(1-ph.) - ICT bays : 2 no. - Bus Reactor (80 MVAR) :2 no. - Bus Reactor Bay : 2 no. - Space for line/ICT bays : 4 no. - Space for ICT: 1 no. <u>220 kV</u>	630 MVA	170

<ul style="list-style-type: none"> - Line Bays : 6 no. - ICT bays : 2 no. - Space for line/ICT bays : 4 no. 		
ii) LILO of both circuits of Karcham Wangtoo – Abdullapur 400 kV D/c line at Kala Amb (on multi-circuit towers)	5 km	20
iii) 40% Series Compensation on 400kV Karcham Wangtoo – Kala Amb quad D/c line at Kala Amb end		35
iv) Kurukshetra – Malerkotla 400 kV D/c line	125 km	150
v) Malerkotla – Amritsar 400 kV D/c line	180 km	220
Estimated Cost Rs. crore		595

Note:

- CTU to provide 2 no. of 400 kV bays each at Amritsar and Kurukshetra S/Ss
- CTU to provide 4 no. of 400 kV bays at the Malerkotla S/s

4.8 Name of the Scheme: ‘Northern Region System Strengthening Scheme, NRSS - XXXIII’

This scheme was approved in the 31st meeting of the Standing Committee on Power System Planning of Northern Region held on 02.01.2013 with the following scope.

Scope:

Transmission Scheme	Estimated Line Length (km)	Estimated Cost (Rs. Crore)
i) Ballabgarh – Greater Noida (New) 400 kV D/c line (5 km on multi-circuit towers from Ballabgarh S/s)	50+ 5 (M/c) km	100
ii) Establishment of 2x500 MVA, 400/220 kV GIS substation at Greater Noida(New) with a short circuit current rating of 50 kA. <u>400kV</u> <ul style="list-style-type: none"> - Line Bays : 2 no. - 400/220 kV ICT (2x500): 2 no. - ICT bays : 2 no. - Bus Reactor(125 MVAR):1 no. - Bus Reactor Bay: 1 no. 		160

<ul style="list-style-type: none"> - Space for line/ICT bays : 4 no. - Space for ICT: 1 no. <p style="text-align: center;"><u>220 kV</u></p> <ul style="list-style-type: none"> - Line Bays : 6 no. - ICT bays : 2 no. - Space for line/ICT bays : 4 no. 		
Estimated Cost Rs. crore		260

Note:

- CTU to provide 2 no. of 400 kV bays at Ballabgarh S/S

4.9 Name of the Scheme: 'ATS for Tanda TPS'

This scheme was approved in the 31st meeting of the Standing Committee on Power System Planning of Northern Region held on 02.01.2013, with the following scope.

Scope:

Transmission Scheme	Estimated Line Length (km)	Estimated Cost (Rs. Crore)
i) Tanda TPS – Sohawal 400 kV D/c line	80	100
ii) Sohawal – Lucknow (New) (PG) 400 kV D/c line	120	145
Estimated Cost Rs. crore		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 Sw. yard

4.10 Name of the Scheme: 'Establishment of Lucknow (PG) – Kanpur (New) (PG) 400 kV D/c line'

Scope:

Transmission Scheme	Estimated Line Length (km)	Estimated Cost (Rs. Crore)
i) Lucknow (PG) – Kanpur (New) (PG) 400 kV D/c line	90	135
Estimated Cost Rs. crore		135

Note:

- CTU to provide 2 no. of 400 kV bays each at Lucknow (PG) and Kanpur(New) S/Ss

The 400kV Unnao-Panki S/c line forms a vital link in Northern Region for transmitting power from eastern side of NR towards western side of NR. NLDC had intimated that loading on this line remains critical (600-700 MW)causing transmission constraint. A strong inter-connection between Kanpur and Lucknow S/s would improve the reliability of the grid. Accordingly, POWERGRID proposed Lucknow - Kanpur 400kV D/c line. This line was agreed in the in 31st Standing Committee Meeting on Power System Planning of NR held on 02/01/2013. **It was also agreed that the Lucknow (PG)-Kanpur (New)(PG) 400kV D/c line is necessary from grid security point of view and therefore it should be taken up urgently by POWERGRID on compressed time schedule.** The EC may consider.

4.11 Name of the Scheme: ‘Panchkula – Patiala 400 kV D/c line’

Scope:

Transmission Scheme	Estimated Line Length (km)	Estimated Cost (Rs. crore)
i) Panchkula – Patiala 400 kV D/c line (including portion of the line on multi-circuit towers)	120	190
Estimated Cost Rs. crore		190

Note:

- CTU to provide 2 no. of 400kV bays each at Panchkula (PG) and Patiala (PG) S/Ss

In 31st meeting of the Standing Committee on Power System Planning of NR held on 02/01/2013, it was agreed to provide Panchkula – Patiala 400 kV D/c line to mitigate the present constraints observed during the paddy season. It was also agreed that multi-circuit towers for 400kV and 220kV lines emanating from Panchkula S/s would be considered to optimally utilize the R-o-W, especially in forest area. **It was also agreed that the Panchkula (PG) – Patiala (PG) 400kV D/c line is necessary from grid security point of view and therefore it should be taken up urgently by POWERGRID on compressed time schedule.** The EC may consider.

5.0 Briefing by BPCs on the schemes under bidding process

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

6.0 Any other item.

Any other item with the permission of Chair.
