

भारत सरकार
केन्द्रीय विद्युत प्राधिकरण
प्रणाली योजना एवं परियोजना मूल्यांकन प्रभाग
सेवा भवन, रामकृष्णपुरम्, नई दिल्ली 110066

क. सं. : 26/10/2012-प्र. यो. प. मू./ 1204-21

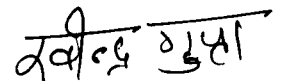
दिनांक: 22.11.2012

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विषय :- पश्चिमी क्षेत्र विद्युत प्रणाली योजना की स्थाई समिति की 35वीं बैठक ।
महोदय,

पश्चिमी क्षेत्र विद्युत प्रणाली योजना की स्थाई समिति की 35वीं बैठक की एक कार्यसूची सूचना केन्द्रीय विद्युत प्राधिकरण की वेबसाइट
www.cea.nic.in पर लिंक Home page - Power Systems-Standing Committee on Power System Planning-Western Region)
पर उपलब्ध है।

संलग्न - उपरोक्त



{रविंद्र गुप्ता}
निदेशक



भारत सरकार / Government of India
विद्युत मंत्रालय / Ministry of Power
केन्द्रीय विद्युत प्राधिकरण / Central Electricity Authority
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No. 26/10/2012-SP&PA/

Date: 22nd November, 2012

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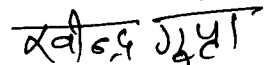
Sub: 35th meeting of the Standing Committee on Power System Planning in Western Region

Sir,

The 35th meeting of the Standing Committee on Power System Planning in Western Region will be held shortly. The agenda notes for the meeting are available on CEA website (www.cea.nic.in) at the following link: Home page-Wing Specific Document-Power Systems-Standing Committee on Power System Planning-Western Region).

The venue and the date of the meeting will be intimated in due course.

Yours faithfully,


(Ravinder Gupta)
Director, SP&PA

Agenda Note for 35th Meeting of Standing Committee on Power System Planning in Western Region

- 1.0 Confirmation of the minutes of 34th meeting of the Standing Committee on Power System Planning in Western Region (SCPSPWR) held on 9th May 2012 at NRPC, Katwaria Sarai, New Delhi.**
- 1.1 The minutes of the 34th SCPSPWR were issued vide CEA letter No.26/10/2011-SP&PA/498 - 551 dated 25th May 2012. No comments have been received from any constituent of WR. The minutes of the 34th SCPSPWR may be confirmed.
- 2.0 Review of Progress on Earlier Agreed Transmission Schemes.**
- 2.1 PGCIL may furnish the status of implementation of earlier agreed schemes under construction / approved.
- 2.2 **Interconnection of Navsari 400 kV (GIS) and Vapi 400 kV substation:** In the 34th SCM, interconnection of Navsari– Boisar and Vapi-Navi Mumbai 400 kV D/C lines at the point of start of multi-circuit section was agreed as an interim arrangement in order to transfer power from Navsari to Vapi. POWERGRID may furnish the status of implementation of the interim arrangement.
- 2.3 **LILO of one circuit of 400 kV D/C Mundra UMPP – Chorania line at Halvad (GETCO) substation, as an interim arrangement:** In the 34th SCM, in order to provide operation flexibility, LILO of one circuit of 400 kV D/C Mundra UMPP – Chorania line at Halvad (GETCO) substation was agreed as an interim arrangement till the planned network from Halvad sub-station is completed. GETCO may indicate the status of implementation of the interim arrangement and the planned network from Halvad 400 kV substation.
- 2.4 **LILO of 400 kV S/c line between Raipur (PG) and Khedamera (Bhilai) at Raipur (Raita) 400kV substation and provision of 2X50 MVAR switchable line reactors at Raita end.** In the previous standing committee meeting, interalia, provision of 2x50 MVAR switchable line reactors at Raipur (Raita) end of Raipur (Raita)-Jagdapur 400 kV D/C line was agreed instead of 1x125 MVAR bus reactor at Raipur (Raita). CSPTCL may indicate the status of implementation of the scheme.
- 2.5 **Provision of reactors at various substation in Western Region:** 10 nos. of bus reactors were agreed in the 33rd SCM of WR and 17 nos. of bus reactors were agreed in the 34th SCM of WR. POWERGRID, GETCO, MPPTCL and MSETCL may furnish the status of implementation of these reactors.

List of the 10 nos. of reactors agreed in the 33rd SCM of WR:

S.NO.	Location of the Bus Reactor	UTILITY	Rating	Status of Implementation
1	Jabalpur	PGCIL	125 MVAR	
2	Khandwa	PGCIL	125 MVAR	
3	Shujalpur	PGCIL	125 MVAR	
4	Bhatapara	PGCIL	125 MVAR	
5	Raigarh	PGCIL	125 MVAR	
6	Aurangabad	PGCIL	125 MVAR	

7	Ranchodpura	GETCO	125 MVAR	
8	Versana	GETCO	125 MVAR	
9	Amreli	GETCO	125 MVAR	
10	Rajkot	GETCO	125 MVAR	

List of the 17 nos. of reactors agreed in the 34th SCM of WR:

S.NO.	Location of the Bus Reactor	UTILITY	Rating	Status of Implementation
1	Nanded	MSETCL	125 MVAR	
2	Sholapur	MSETCL	125 MVAR	
3	Kolhapur	MSETCL	125 MVAR	
4	Akola	MSETCL	125 MVAR	
5	Jetpur	GETCO	63 MVAR	
6	Zerda	GETCO	125 MVAR	
7	Limbdi (Chorania)	GETCO	125 MVAR	
8	Nagda	MPPTCL	125 MVAR	
9	Bhopal	MPPTCL	80 MVAR	
10	Damoh	PGCIL	125 MVAR	
11	Bachau	PGCIL	125 MVAR	
12	Pirana	PGCIL	125 MVAR	
13	Itarsi *	PGCIL	2X125 MVAR	
14	Seoni	PGCIL	125 MVAR	
15	Parli	PGCIL	125 MVAR	
16	Raipur	PGCIL	125 MVAR	
17	Gwalior	PGCIL	125 MVAR	

3.0 Shifting of 1x315MVA ICT-III at Wardha S/s to Solapur (PG) substation.

3.1 In the 34th meeting of the Standing Committee on Power System Planning of Western Region, it was agreed to shift 400/220kV ICT-III at Wardha S/s to some other location. Accordingly, POWERGRID has proposed to shift 400/220kV ICT-III along with 2 nos. 220kV bays equipments at Wardha S/s to 400kV Solapur (PG) S/s. The provision of 1x315MVA 3rd transformer at 400kV Solapur (PG) S/s has been agreed in the 30th Standing Committee meeting under the Solapur STPP (2x660MW) transmission scheme.

3.2 This is for information.

4.0 Provision of 2 nos. of 400 kV bays at Boisar for termination of Ghodbunder – Boisar 400 kV D/C line.

4.1 In the 34th SCM, POWERGRID was requested to implement the two no. of AIS bays at Boisar for terminating Aurangabad – Boisar 400 kV D/c line as GIS bays, to accommodate the termination of Ghodbunder – Boisar 400 kV D/C line at Boisar. Subsequently, POWERGRID has conveyed that they would be implementing the bays at Boisar as AIS bays instead of GIS bays and space for two no. of 400 kV bays would be provided for termination of Ghodbunder – Boisar 400 kV D/C line at Boisar with some rearrangement works.

4.2 POWERGRID may confirm the same.

5.0 Interim arrangement for reconfiguration of one circuit of Mundra - Limbdi 400 kV D/C line for LILO at Jetpur – in principle approval.

5.1 The transmission system associated with 4000 MW Mundra UMPP is under implementation by POWERGRID. The Mundra-Bhachau-Ranchodpura (Vadavi) 400 kV D/C line (Triple Snowbird) along with 400/220 kV Bhachau sub-station and the Mundra-Limbdi (Chorania) 400 kV D/C line (Triple Snowbird) has already been commissioned. The Mundra-Jetpur 400 kV D/C line (Triple Snowbird) is still under construction.

5.2 GETCO and POWERGRID has intimated that completion of Mundra-Jetpur 400 kV D/C line will be delayed due to severe RoW problem especially towards Mundra end and a portion of the above line from Jetpur to Suraj Bari is complete. The Mundra-Limbdi 400 kV D/C line (already commissioned) is passing in close vicinity in Suraj Bari area. GETCO has proposed that one circuit of Mundra-Limbdi 400 kV D/C line may be LILO at Suraj Bari by connecting with the completed portion of Mundra-Jetpur line as an interim arrangement till Mundra-Suraj Bari section of Mundra-Jetpur line is completed. The above reconfiguration will result in following:

- i) Mundra-Limbdi 400 kV S/C line
- ii) Mundra-Jetpur 400 kV S/C line
- iii) Jetpur-Limbdi 400 kV S/C line

GETCO has stated that the above reconfiguration would help in reducing the line loading of Hadala-Jetpur 400 kV S/C line and meeting increased agriculture demand of Saurashtra area from Jetpur and Amreli sub-station from August 2012 onwards.

5.3 POWERGRID supporting the proposal of GETCO had requested for in principle approval of the above reconfiguration till the completion of the entire Mundra-Jetpur 400 kV D/C line.

5.4 The proposal of reconfiguration of one circuit of Mundra-Limbdi 400 kV D/C line for LILO at Jetpur as an interim arrangement was agreed in principle by CEA as with the reconfiguration Jetpur would be directly connected to Mundra which would reduce the loading on Jetpur-Hadala 400 kV S/C line and would also help in meeting increased agricultural load from Jetpur sub-station. The above reconfiguration would be restored to original when the entire stretch of Mundra-Jetpur 400 kV D/C line is completed.

5.5 Members may concur. POWERGRID may intimate the status of implementation of the interim arrangement.

6.0 LILO of Padge – Kharghar 400 kV line at Navi Mumbai substation and use of 400 kV cable for termination at Navi Mumbai.

6.1 The scheme of LILO of 400 kV Lonikhand/Pune – Kalwa S/C line at Navi-Mumbai 400 kV substation was agreed, as a part of Western Region System Strengthening Scheme (WRSSS-V), in the 25th Standing Committee meeting on Power System Planning in Western Region. POWERGRID has intimated that LILO line portion is about 10 kms in length out of which about 8 kms of line falls inside forest area, where implementation work is already under progress. However, LILO line section of 1.5 kms near gantry at Navi Mumbai substation is held due to severe ROW issues.

To overcome the ROW issue, POWERGRID has proposed the following and requested for in principle approval of CEA:

- (i) LILO of Kharghar – Padge portion of the Lonikhand – Kalwa 400 kV S/C line (already LILOed at Chakan, Padge and Kharghar) at Navi Mumbai instead of the Lonikhand – Kalwa (already LILOed at Pune) 400 kV S/C line.
- (ii) Use of 1.5 km 400 kV underground cable near gantry of Navi Mumbai substation to facilitate timely completion of LILO of 400 kV Kharghar – Padge portion of Lonikhand – Kalwa 400 kV S/C line at Navi Mumbai.

6.2 Originally there were two nos. of 400 kV circuits between Lonikhand and Kalwa. One circuit (say ckt.1) has been LILOed at Chakan, Padge and Kharghar substation of MSETCL resulting in Lonikhand-Chakan-Padge-Kharghar-Kalwa 400 kV S/C line. The other circuit (say ckt.2) has been LILOed at Pune substation of PGCIL resulting in Lonikhand-Pune-Kalwa 400 kV S/C line. POWERGRID has intimated that, location-wise the Lonikhand – Kalwa 400 kV S/C line (ckt.1) is nearer to Navi Mumbai substation as compared to the other Lonikhand – Kalwa (ckt.2) 400 kV S/C line whose LILO at Navi Mumbai has been agreed as a part of WRSSS-V. Implementing the LILO of Lonikhand/Pune- Kalwa 400 kV S/C line at Navi Mumbai, as per agreed scheme, would involve crossing the 400 kV line (ckt.1) and additional tower locations. In view of the severe ROW issues and to reduce no. of tower locations, POWERGRID has proposed LILO of Kharghar – Padge section of the Lonikhand – Kalwa 400 kV S/C line (ckt.1) at Navi Mumbai. MSETCL has already agreed for the LILO 400 kV Kharghar – Padge at Navi Mumbai.

6.3 POWERGRID has also intimated in the LILO line section of 1.5 kms near gantry at Navi Mumbai substation, for laying of the overhead transmission line local people are demanding very high compensation, which if paid, would result in high additional financial implication. The compensation demanded works out to be Rs 300 crores. To overcome this problem, laying of 400 kV underground cable has been proposed by POWERGRID whose tentative cost has been estimated as Rs. 55 crores.

6.4 To expedite the implementation, in principle approval to the proposal of POWERGRID of laying 400 kV underground cable of about 1.5 km instead of overhead transmission line near the gantry of 400 kV Navi Mumbai substation where RoW constraints are being faced by POWERGRID and change in LILO arrangement has already been given by CEA.

6.5 Members may concur. POWERGRID may intimate the status of implementation of the proposal and the completion date.

7.0 220 kV interconnections from Kala 400/220 kV substation in DNH – modifications in the earlier agreed schemes.

7.1 To meet the growing demand in UT of Dadra & Nagar Haveli (DNH) establishment of 400/220 kV, 2X315 MVA at Kala was by LILO of both circuits of Navsari – Mumbai New location 400 kV D/C line in the 29th SCM of WR. In the 30th SCM of WR Electricity Department, DNH had proposed two no. of 220 kV D/C lines from 400/220 kV Kala substation, one to existing 220 kV Kharadpada and other to existing 220 kV Khadoli substation for drawing/utilizing power from Kala 400 kV substation.

- 7.2 Electricity Department, DNH has now proposed to establish a new Kharadpada 220 kV switching station and terminate the 220 kV D/C line from Kala 400/220 substation at new Kharadpada 220 kV switching station instead of at Kharadpada (existing) 220/66 kV substation proposed earlier. The new Kharadpada 220 kV switching station and the Kharadpada (existing) 220/66 kV substation would also be interconnected through a 1.25 km 220 kV D/C line.
- 7.3 In the 30th SCM Electricity Department, DNH was advised to implement 220 kV interconnections from Kala 400/220 kV substation with Moose conductors keeping in view future requirement of power transfer and RoW constraints. Subsequently, DNH has intimated that the two nos. of 220 kV D/C lines were planned to be strung on multi circuit towers in the initial stretch from Kala substation due to RoW constraints. Further DNH has given go ahead for implementation of the 220 kV links from Kala with Zebra conductors as POWERGRID did not have the design of 220 KV multi circuit tower with Moose conductor.
- 7.4 In view of the change proposed, the 220 kV interconnection from Kala 400/220 kV GIS substation with Zebra conductor is as given below:
- (i). Kala 400/220 kV – Khadoli 220 kV D/C line.
 - (ii). Kala 400/220 kV – New Kharadpada switching station 220 kV D/C line.
 - (iii). New Kharadpada switching station – Kharadpada 220 kV D/C line.
- 7.5 This is for kind information of the members.

8.0 Laying of Multi circuit towers near approach end of 765/400 kV Vadodara GIS substation.

- 8.1 The 765/400 kV Vadodara GIS substation is under implementation by POWERGRID as a part of WR System Strengthening for IPP projects in Madhya Pradesh and Chhattisgarh (being pooled at Bilaspur Pooling station). There are four number of 400 kV lines planned from the Vadodara 765/400 kV substation
- (i) TEL (DGEN) TPS – Vadodara 400 kV D/C line (Transmission System strengthening in WR for the 1200 MW LTA granted to DGEN TPS of Torrent Energy Limited). This line will be implemented through tariff based competitive bidding route.
 - (ii) Vadodara – Asoj 400 kV (Quad) D/C line.(As a part Transmission System Strengthening in WR associated with New IPP projects in Chattishgarh). Implementation by POWERGRID.
 - (iii) Vadodara – Pirana 400 kV D/C (Quad) line. (As a part of Transmission System Strengthening in WR associated with IPP projects in Madhya Pradesh and Chhattishgarh being pooled at Bilaspur Polling station). Implementation by POWERGRID.
 - (iv) Vadodara – Vataman 400 kV D/C (Quad) line. (As a part of transmission system associated with 3960(6X660) MW Chhattishgarh UMPP). Implementation by POWERGRID.
- 8.2 POWERGRID vide their letter dated 29.10.2012 have intimated that they are facing severe RoW problems in laying of the above transmission lines near Vadodara substation and have proposed to lay these lines on two nos. of multi-circuit towers

for about 3 kms length from the Vadodara substation. Based on the route alignment, following is proposed:

- (i) Vadodara – Pirana 400 kV (Quad) line & Vadodara – Vataman 400 kV (Quad) D/C line on one multi- circuit towers.
- (ii) Vadodara – Asoj 400 kV (Quad) D/C line & Vadodara – DGEN 400 kV D/C (Twin) line on the other multi-circuit towers.

8.3 The Vadodara – DGEN 400 kV D/C line is to be implemented through tariff based competitive bidding route and to avoid any ambiguity in cost sharing with Vadodara – Asoj 400 kV D/C line, POWERGRID has proposed that the 3 km corridor of the Vadodara – DGEN 400 kV D/C line from Vadodara which is proposed on multi circuit towers may be implemented by POWERGRID and the line beyond the multi circuit portion may be implemented under tariff based competitive bidding route.

8.4 POWERGRID may present the details of the corridor constraints and multi circuit towers proposed to be implemented. The additional cost implication may also be indicated.

8.5 Members may agree.

9.0 Direct interconnection of Vadodara – Pirana and Vadodara – Asoj 400 kV D/C (quad) lines by –passing Vadodara substation as a contingency arrangement.

9.1 The transmission scheme associated with WR System Strengthening for IPP projects in Madhya Pradesh and Chhattisgarh (being pooled at Bilaspur Pooling station) as given under, is under implementation by POWERGRID.

- (i) Indore – Vadodara 765kV S/c line
- (ii) Vadodara – Pirana 400kV D/c quad line
- (iii) Establishment of 765/400kV, 2x1500MVA GIS S/s at Vadodara.

9.2 POWERGRID has intimated that all the packages for the above transmission system have been awarded. However, there has been a delay in land acquisition of 765kV Vadodara S/s as most of the land is privately owned. Presently, land acquisition is under process and the Vadodara 765/400 kV substation is likely to be commissioned by April 2014 as compared to scheduled commissioning by December 2013. The implementation of transmission lines is as per original schedule and it is expected that Vadodara - Pirana 400kV D/c (Quad) line shall be completed by September 2013.

9.3 The Vadodara – Asoj 400 kV (Quad) D/C line is under implementation by POWERGRID as a part Transmission System Strengthening in WR associated with New IPP projects in Chattishgarh. POWERGRID has intimated that Vadodara – Asoj 400 kV (Quad) D/C line is also expected to be completed by Sep/Oct'13.

9.4 In view of the delay in completion of Vadodara 765/400 kV substation and expected completion of the Vadodara – Asoj 400 kV D/C line and Vadodara - Pirana 400kV D/c line by September / October 2013, POWERGRID has proposed direct interconnection of 400 kV lines at suitable location, by passing Vadodara substation, as contingency arrangement. The direct interconnection would result in Pirana – Asoj 400 kV D/C (Quad) line of approx. 130 km length and would help in supplying power

to Asoj (a load centre) in Gujarat. The interim arrangement shall be in place till the availability of 765/400kV Vadodara S/s.

9.5 Members may discuss the contingency arrangement and approve.

10.0 Commissioning of line reactors as bus reactors at Satna and Bilaspur 765 kV substations

10.1 POWERGRID vide their letter dated 30.10.2012 has intimated that the 2X240 MVAR, 765 switchable line reactors at Satna substation are available pending the completion of the associated Sasan – Satna 765 2XS/C lines. Similarly, 240 MVAR, 765 line reactor at Bilaspur substation is also available pending completion of the associated Bilaspur – Ranchi 765 kV S/C line. In view of the high voltages prevailing in Western Region during off peak conditions, POWERGRID had given a proposal to utilise these available line reactors as bus reactors till the completion of the associated transmission lines and has requested in-principle approval of CEA.

10.2 The proposal of POWERGRID was examined and in principle approval was given by CEA as it would help in mitigating the high voltage conditions in Western Region during off peak conditions. The POWERGRID proposal is as given below:

Commissioning of line reactors as bus reactors

- (i) 2X240 MVAR, 765 kV switchable line reactors at Satna substation associated with Sasan – Satna 765 2XS/C lines.
- (ii) 240 MVAR, 765 kV line reactor at Bilaspur substation associated with Bilaspur – Ranchi 765 kV S/C line.

The above associated lines are yet to be completed. Upon completion of associated lines these reactors would be utilized as line reactors.

10.3 Members may concur. POWERGRID may intimate the status of implementation of the proposal and the likely date of completion of above lines.

11.0 Procurement of Spare 333 MVA, 765/400 kV and 500 MVA, 765/400 kV ICTs for Western Region

11.1 POWERGRID has informed that at present twenty seven (27) units of 500 MVA 765/400 kV single phase ICTs are under operation at 4500 MVA 765/400 kV Bilaspur (10X500), 4500 MVA 765/400 kV Wardha (10X500) and 3000 MVA 765/400 kV Seoni (7X500) substations. At each substation one 500 MVA, 765/400 kV ICT is kept as a spare. Similarly, nine (9) units 333 MVA of 765/400 kV single phase ICTs are under operation at 2000 MVA 765/400 kV Satna (6X333) and 1000 MVA Bina (3X333) substations. Twelve (12) more units of 500 MVA and three (3) more units of 333 MVA, 765/400 kV ICTs are planned for commissioning by 31.03.2013.

11.2 POWERGRID has intimated that the above transformers were manufactured at off-shore works of ABB and Hyundai and failure of any of these ICTs shall necessitate their repair in the off-shore works of the manufacturer, which is a time consuming process because of long time required for transportation of the unit from site to works & back. During the repair time, failure of second unit may lead to overloading of the other units operating in parallel and may cause transmission constraint at 765 kV level specially in view of ensuing commissioning of various power projects in the Region.

11.3 In view of the above, POWERGRID has proposed to procure two (2) nos. single phase 500 MVA capacity and one (1) no. single phase 333 MVA capacity 765/400 kV ICT as spare for Western Regional Grid.

11.4 Members may deliberate. POWERGRID to indicate the cost of implications and locations where spare ICTs would be kept.

12.0 Requirement of Reactive Compensation at 400kV Bina Substation

12.1 POWERGRID has intimated that while reviewing the voltage profile of Bina 400 kV Sub-station it has been observed that for a considerable period of time in year 2012, voltage at 400kV Bina Bus remained high & was more than 415kV for around 80% of the time in August, 2012. This requires opening of multiple 400kV circuits emanating from Bina Sub-station on instruction from RLDC to contain over voltage.

12.2 In view of the above, POWERGRID has proposed that replacement of the existing 63MVAR bus reactor at 400kV Bina Sub-station by 125MVAR Bus reactor. The existing 63 MVAR bus reactor shall be maintained as regional spare.

12.3 Members may deliberate and approve.

13.0 Interim arrangement for evacuation of power from proposed Vindhyachal – IV (2x500MW) generation project

13.1 In the 32nd SCM of WR the following interim arrangement was discussed and agreed due to non availability of associated transmission system in the matching time frame of Vindhyachal-IV generation project (March 2012) to avoid evacuation constraints:

- i) Completion of Vindhyachal IV- Sasan 400kV D/c (bypassing at Vindhyachal Pooling Station) and bunching of both ckts. to make single ckt only
- ii) Completion of Sasan - Satna 765kV S/c (to be operated at 400kV level) with termination at 765kV yard as planned by interconnecting 400kV and 765kV yards as well as interconnect Vindhyachal IV- Sasan 400kV bunched line
- iii) Completion of Satna – Bina 765kV S/c (to be operated at 400kV level) with termination at 765kV yard as planned by interconnecting 400kV and 765kV yards
- iv) Installation of 765/400kV transformers each at Bina and Gwalior S/s
- v) Completion of 765kV Bina - Gwalior S/c

13.2 In 33rd SCM of WR the interconnection of Vindhyachal-IV STPP 400 kV bus with the existing Vindhyachal-III STPP 400 kV along with 1x125 MVAR reactor at Bina end was also agreed as an interim arrangement till the commissioning of Vindhyachal-IV transmission system. The 1x125 MVAR line reactor at Bina end was required for charging of Satna-Bina 765 kV S/C line at 400 kV voltage level and the same was to be arranged from some other location by POWERGRID.

13.3 POWERGRID vide their letter dated 12.11.2012 has intimated that interim arrangement for Vindhyachal stage IV was envisaged to be commissioned by March

2012. However due to delay in forest clearances, Sasan – Satna 765 kV 2XS/C lines are now expected to be available by end of Nov/Dec 2012. Also as per the latest review of Sasan UMPP generation project, first unit is expected by January 2013 and the 765 kV switchyard including 765/400 kV ICT no.1 is likely to be available by December 2012.

13.4 As per the latest progress available, 765/400 kV Bina substation with 1000 MVA capacity has already been commissioned in August 2012 and the balance 1000 MVA ICTs would also be commissioned by March 2013. Satna – Bina 765 kV line-1 (charged at 400 kV level) and Satna – Bina 765 kV line-2 has been commissioned in June 2012 and August 2012 respectively. 2X1500 MVA, 765/400 kV Gwalior substation is under implementation. POWERGRID may indicate completion schedule of Gwalior 765/400 kV substation along with the charging of the Bina – Gwalior line at 765 kV level. The Vindhyachal pooling station and Vindhyachal pool – Satna 765 2XS/C lines are delayed due to land acquisition and forest clearance issues respectively.

13.5 In view of the delay in associated transmission system of Vindhyachal-IV and facilitate the evacuation of power from Vindhyachal –IV and Sasan UMPP generation projects , POWERGRID has proposed the following arrangement and has requested for in-principal approval of CEA :

- (i) Charging of Sasan – Satna 765 2XS/C lines at 765 kV level (as per original scheme of Sasan UMPP)
- (ii) Interconnection of Vindhyachal IV – Vindhyachal pooling station 400 kV D/C (Quad) line with Vindhyachal pooling station – Sasan 400 kV D/C (Twin) line bypassing Vindhyachal pooling station, thus making it direct Vindhyachal IV – Sasan 400 kV D/C line.

13.6 Members may concur. POWERGRID may intimate the status of implementation of the proposal and the likely date of completion of above lines

14.0 Intra-state Transmission System proposed by MSETCL for evacuation of power from various IPPs located in eastern part of Maharastra.

14.1 MSETCL has proposed a new transmission corridor for evacuation of about 5000 MW power from various IPPs / generating stations to load centers for vetting of CEA. The generating stations considered for evolving the new transmission corridor are:

A. Generating projects considered			
S.No.	Generation Project	Units	Capacity
(i).	Lanco Vidarbha Thermal Power Limited.	2X660 MW	1320 MW
(ii).	Ideal Energy Limited	2X270 MW	540 MW
(iii).	Koradi – II	3X660 MW	1980 MW
(iv).	Jinbhuvish Power Generation Pvt. Ltd.	2X660 MW	1320 MW
		Total	5160 MW

14.2 The proposed transmission corridor was discussed among MSETCL, CEA and CTU at CEA, New Delhi in July 2012. Based on discussions and system studies, MSETCL was, interalia, advised to include a 400 kV link between Warora and Nanded,

additional 400 kV D/C line between Lonar and Lonikhand, provision of reactive compensation and augmentation / new stations planned for delivery and absorption of power. MSETCL vide their letter dated 20th October 2012 has conveyed their agreement to the changes / modifications suggested by CEA.

- 14.3 The revised transmission corridor, inter alia, proposes establishment of 765/400 kV, 3000 MVA Wardha (M) Pooling Station, 765/400 kV, 3000 MVA Lonar (Buldhana) substation and installation of 400/220 kV ICT at 400 kV Ner (Yavatmal) substation of M/s Jimbuvish along with transmission lines and interconnection with the existing grid. The details of the new transmission corridor are as given below:

A. Immediate Evacuation system from the proposed generating stations		
S.No.	Transmission Line/ Substation	Distance/ Capacity
(i)	M/s Lanco switchyard - Wardha (M) Pooling Station 765 kV D/C line.	10 km
(ii)	Termination of the Koradi II – Wardha 400 kV D/C line at Wardha (M) Pooling Station (part system)	15 km
(iii)	LILO of one ckt. of Koradi II-Wardha(M) 400 kV D/C at Ideal Energy Ltd.	
(iv)	Injection at 400 kV Ner (Yavatmal) substation of M/s Jimbuvish.	-
B. Common transmission system strengthening		
B1. Establishment of 765/400 kV, 3000 MVA Wardha (M) Pooling Station		
S.No.	Transmission Line/ Substation	Distance/ Capacity
(i).	765/400 kV, 2X1500 MVA ICT at Wardha (M) Pooling Station.	3000 MVA
(ii).	Wardha (M) Pooling Station – Lonar (Buldhana) 765 kV D/C line.	250 km
(iii).	Bus reactor at 765/400 kV Wardha(M) pooling station	1X240 MVAR
(iv).	Switchable Line reactors at both ends of Wardha (M) Pooling Station – Lonar (Buldhana) 765 kV D/C line	2X240 MVAR 2X240 MVAR
B2. Establishment of 765/400/220 kV, 3000 MVA Lonar (Buldhana) substation		
(v).	765/400 kV , 2X1500 MVA ICT at Lonar (Buldhana) substation.	3000 MVA
(vi).	400/220 kV , 2X500 MVA ICT at Lonar (Buldhana) substation.	1000 MVA
(vii).	Lonar (Buldhana) – Lonikhand II 400 kV D/C quad line (1st ckt.)	320 km
(viii).	Lonar (Buldhana) – Retwadi 400 kV D/C quad line	350 km
(ix).	Retwadi – Ambernath 400 kV D/C quad line.	110 km
(x).	Warora – Nanded 400 kV D/C quad line.	230 km
(xi).	Lonar (Buldhana) – Bhokardan 220 kV D/C line.	80 km
(xii).	Lonar (Buldhana) – Partur 220 kV D/C line.	60 km

(xiii).	LILO of Jalna – Chikhali 220 kV D/C line at Lonar (Buldhana).	20 km
(xiv)	Bus reactor at 765/400 kV at Lonar substation.	1X240 MVAR
(xv)	Switchable Line reactors at both ends of Lonar (Buldhana) – Lonikhand-II 400 kV D/C quad line.	2X125 MVAR 2X125 MVAR
(xvi)	Switchable Line reactors at both ends of Lonar (Buldhana) – Retwadi 400 kV 2XD/C quad line.	2X125 MVAR 2X125 MVAR
B3. Installation of 400/220 kV ICT at 400 kV Ner (Yavatmal) substation of M/s Jimbuvish		
(xvii)	400/220 kV, 2X500 MVA ICT at 400 kV Ner (Yavatmal) substation of M/s Jimbuvish.	1000 MVA
(xviii).	Ner (Yavatmal) – Lonar (Buldhana) 400 kV D/C line	120 km
(xix)	Ner (Yavatmal) – Ghatodi 220 kV D/C line.	40 km
(xx).	LILO of Wardha-I – Yavatmal 220 kV S/C line at Ner (Yavatmal).	25 km
(xxi).	LILO of Wardha-II (Bhugaon) – Pusad 220 kV S/C line at Ner (Yavatmal).	20 km
(xxii)	Bus reactor at Ner (Yavatmal) 400 kV substation.	1X125 MVAR
C. System Strengthening connected with above corridor already proposed in the STU 5 year plan (2012-13 to 2016-17) of MSETCL.		
S.No.	Transmission Line/ Substation	Distance/ Capacity
C1. Establishment of 400/220 kV substation at Retwadi		
(i)	400/220 kV, 2X500 MVA ICT at Retwadi	1000 MVA
(ii).	Lonikhand II – Retwadi 400 kV D/C quad line.	30 km
(iii)	220 kV interconnection from 400/220 kV Retwadi to Rajgurunagar	5 km
C2. Establishment of 400/220 kV substation at Ambernath		
(i)	400/220 kV, 2X500 MVA ICT at Ambernath	1000 MVA
(ii)	LILO of both circuits Padge – Nagothane 400 kV D/C line at Ambernath. Lonikhand II – Retwadi 400 kV D/C quad line.	10 km
(iii)	220 kV interconnection from 400/220 kV Ambernath to Anandnagar (existing 220 kV Ambernath substation)	2.5 km
(iv)	400/220 kV Ambernath to Kalyan 220 kV D/C line	15 km
(v)	400/220 kV Ambernath to Ulhasnagar 220 kV D/C line	5 km
C3. Establishment of 400/220 kV substation at Lonikhand – II		
(i)	400/220 kV, 2X500 MVA ICT at Lonikhand – II. (one ICT commissioned)	1000 MVA
(ii).	LILO of both circuits Parli (MSETCL) – Lonikhand I 400 kV D/C line at Lonikhand II. (one ckt LILO commissioned).	5 km

(iii)	LILO of both circuits Parli (PG) – Pune (PG) 400 kV D/C line at Lonikhand II.	30 km				
(iv)	400/220 kV Lonikhand II to Theur 220 kV D/C line	18 km				
(v)	400/220 kV Lonikhand II to Chakan 220 kV D/C line	28 km				
(vi)	400/220 kV Lonikhand II to Rajgurunagar 220 kV D/C line	40 km				
(vii)	400/220 kV Lonikhand II to VSNL Dighi 220 kV D/C line	25 km				
C4.	220/66-33-22 kV new substation/ augmentation planned					
S.No.	Substations	Voltage	New/Aug. /Rep.	Existing cap.	Cap. Proposed	Additional Capacity
(i).	Kalyan	220 kV	New	0	2X50	100
(ii).	Ulhasnagar	220 kV	New	0	2X50	100
(iii).	Bhivandi-IV	220 kV	New	0	4X50	200
(iv).	Anandnagar	220 kV	Aug		1X50	50
(v).	Jambhul	220 kV	Aug		2X50	100
(vi).	Kambha	220 kV	Rep	2X50	2X100	100
(vii).	Rajgurunagar	220 kV	New	0	2X50	100
(viii).	Mukhai	220 kV	New	0	2X50	100
(ix).	Chakan-II	220 kV	New	0	2X50	100
(x).	Partur	220 kV	New	0	2X50	100
(xi).	Jalna (MIDC)	220 kV	New	0	2X50	100
				Total	1150	1050

14.4 Members may take a note of the above intra state transmission system strengthening proposed by MSETCL. MSETCL may intimate the element wise implementation schedule of the proposed transmission corridor.

15.0 Unified Real Time Dynamic State Measurement (URTDSM) Project

15.1 The URTDSM project was approved in the Joint Standing Committee Meeting held on 5th March 2012. Based on that, POWERGRID has prepared the detailed project report (DPR) and filed a petition with CERC for Regulatory Approval. POWERGRID has informed that on the advice of CERC, the project was discussed in the RPC forum of WR, NR, ER and SR. The project would also be discussed in upcoming meeting of NERPC.

15.2 The scope of the project broadly covers installation of 1739 Phasor Measurement Units (PMU), computer hardware and software at SLDCs/RLDCs/NLDC, installation of OPGW based communication system (10,667 km approx.), development of analytics and consultancy services. The estimated cost of the project is Rs. 655.98 crores. Installation of PMUs and associated communication system at IPPs has also been included in the DPR. The NIT for this shall be issued shortly.

15.3 In order to encourage indigenization of synchrophasor technology, in the Joint Standing Committee Meeting, it was agreed that 10 to 15% of the PMUs shall be manufactured and supplied from India. POWERGRID has informed that during discussion with prospective bidders, it emerged that 15% of PMU quantity to be manufactured in India may not attract vendors to establish manufacturing facility in India. Therefore, this percentage needs to be enhanced to 30%. This enhanced provision would help in establishing indigenous manufacturing facility and utilities

would have benefit of O&M support available in India. Therefore, it is proposed that 30% of PMUs under this project shall be manufactured and supplied from India.

15.4 Members may agree.

16.0 17th Open Access meeting on Connectivity and Long Term Open Access (LTOA) applications in Western Region.

16.1 The Open Access meeting would be held after the Standing Committee meeting. The agenda regarding Connectivity and Long Term Open Access (LTOA) applications in Western Region has already been circulated by POWERGRID.

17.0 Any other item with the permission of the chair.