



भारत सरकार / Government of India
विद्युत मंत्रालय / Ministry of Power
केन्द्रीय विद्युत प्राधिकरण / Central Electricity Authority
प्रणाली योजना एवं परियोजना मूल्यांकन प्रभाग
System Planning & Project Appraisal Division
सेवा भवन, आर. के. पुरम, नई दिल्ली-110066
Sewa Bhawan, R. K. Puram, New Delhi-110066
वेबसाइट / Website: www.cea.nic.in



[ISO: 9001:2008]

No. 26/10/2011-SP&PA/ 209-222

Date: 9th June, 2011

To

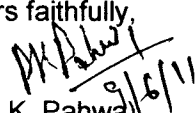
- | | | | |
|----|--|----|---|
| 1 | The Member (PS),
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Fax 022-25993570 |
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Administration of Daman & Diu (U.T.)
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| 6 | The Managing Director,
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| 7. | Director (Operation),
MAHATRANSCO, 'Prakashgad', Plot No.G-9,
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Sub: Minutes of the 32nd meeting of the Standing Committee on Power System Planning in Western Region held on 13th May 2011 at NRPC, Katwaria Sarai, New Delhi.

Sir,

The minutes of the 32nd meeting of the Standing Committee on Power System Planning in Western Region held on 13th May 2011 at NRPC, Katwaria Sarai, New Delhi are available on CEA website (www.cea.nic.in) at the following link: Home page-Wing specific documents-Power Systems-Standing Committee on Power System Planning-Western Region).

Yours faithfully,


(P. K. Pahwa)
Director, SP&PA



भारत सरकार / Government of India
विद्युत मंत्रालय / Ministry of Power
केन्द्रीय विद्युत प्राधिकरण / Central Electricity Authority
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[ISO: 9001:2008]

क. सं. : 26/10/2011-प्र. यो. प. मू./ 209-222

दिनांक: 09.06.2011

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|---|---|----|---|
| 1 | सदस्य (विद्युत प्रणाली),
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सेवा भवन, आर के पुरम,
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मुम्बई-400094 फैक्स सं. 022-25993570 |
| 2 | सदस्य सचिव,
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| 3 | निदेशक (परियोजना),
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| 4 | अध्यक्ष एवं प्रबन्ध निदेशक,
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फोन नं. 0260-2642787 |
| 5 | सदस्य (पारेषण एवं वितरण)
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फैक्स सं. 0771-4066566 | 12 | कार्यपालक इंजीनियर,
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फैक्स सं. 0265-2338152 | 13 | कार्यपालक निदेशक, (आमंत्रित),
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| 7 | निदेशक (प्रचालन),
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फैक्स 011-28052046 |

विषय :- पश्चिमी क्षेत्र की विद्युत प्रणाली योजना पर 13 मई 2011 को एन आर पी सी, कटवरियासराय, नई दिल्ली में आयोजित की गयी की स्थाई समिति की 32वीं बैठक का कार्यवृत्त।

महोदय,

पश्चिमी क्षेत्र की विद्युत प्रणाली योजना पर 13 मई 2011 को एन आर पी सी, कटवरियासराय, नई दिल्ली में आयोजित की गयी की स्थाई समिति की 32वीं बैठक का कार्यवृत्त केन्द्रीय विद्युत प्राधिकरण की वेबसाइट www.cea.nic.in पर लिंक Home page - Wing specific documents-Power Systems-Standing Committee on Power System Planning-Western Region) पर उपलब्ध है।

भवदीय
पी. के. पाहवा
निदेशक
9/6/11

Minutes of the 32nd Meeting of Standing Committee on Power System Planning of Western Region held on 13th May 2011

- 1.0 The 32nd meeting of the Standing Committee on Power System Planning of Western Region was held on Friday the 13th May, 2011 at NRPC, Katwaria Sarai, New Delhi. The list of participants is at Annex – 1.
- 1.1 In absence of Member (PS), CEA who could not attend the meeting due to some other preoccupation, the meeting was chaired by CE (SP&PA), CEA.
- 1.2 CE (SP&PA), CEA welcomed the participants and stated that CERC Regulations on sharing of Inter-State Transmission Charges and Losses notified on 15th June 2010 were likely to become effective from July 2011. As per these regulations Point of Connection (PoC) charges would be applicable which would be a more rational approach in sharing of transmission charges. Initially there would be three slab rates for either injection or drawal by the designated ISTS customers. With this new methodology, the Standing Committee on Power System Planning could concentrate more on the transmission planning aspects. He stated that to avoid creation of stranded transmission assets the Connectivity and LTA were to be granted considering the ground progress of the generation project with respect to the land availability, fuel linkage, Environmental Clearance etc. He further stated that as per the EA 2003, the responsibility of development of intrastate transmission network vested with the respective State Transmission utilities. The STU, being the nodal agency in planning of intra-state network, any interconnection of the DISCOM network with the ISTS network should have concurrence of the STU and be brought as an agenda item in the Standing Committee through the respective STU. The agenda items were thereafter taken up.
- 2.0 Confirmation of the minutes of 31st meeting of the Standing Committee on Power System Planning in Western Region held on 27th Dec 2010 at Gurgaon**
- 2.1 The minutes of the 31st SCM issued vide CEA letter No. 26/10/2011-SP&PA/46-59 dated 20th January 2011 were confirmed with the following amendments:
- 2.1.1 Para 11.2.3 on page 17 under “Proposals of GETCO for interconnection of STU and CTU network in Gujarat” modified as under:
- “11.2.3 After discussion, the termination of Kosamba(GETCO) - Vapi(PG) 400 kV D/c line at Vapi(PG) was agreed to be developed by GETCO. With the commissioning of Kawas-II, one circuit of Kosamba(GETCO) - Vapi(PG) 400 kV D/c line would be LILoed at Kawas-II. Based on long term access application of Kawas-II appropriate transmission system strengthening would be identified.”
- 2.1.2 Para 11.5.1 and para 11.5.4 on page 18 Under “Proposals of GETCO for interconnection of STU and CTU network in Gujarat modified as under:
- “11.5.1 SE, GETCO stated that Solar Park1 & 2 (590+500 MW) at Sankhari in Gujarat was proposed. The injection from Solar Park-1 would be in range of 300 MW to 600 MW. For facilitating evacuation of power they proposed to LILo both circuits of 400 KV D/C Vadavi (Ranchhodpura) - Zerda (Kansari) line at 400/220 KV Sankhari (GETCO) substation. In addition, LILo of one D/C ckt of Mundra (Adani)- Zerda 2x400 kV D/C lines at Sankhari was also proposed. “
- “11.5.4 After discussions, LILo of one circuit of 400 KV D/C Vadavi (Ranchhodpura) - Zerda (Kansari) line at proposed 400/220 KV Sankhari (GETCO) substation to be undertaken by GETCO at their cost was agreed with the Phase-I of the Solar Park.

With the Phase-II of the Solar Park project, further interconnection with the ISTS will be reviewed. GETCO confirmed they would drop the proposal of LILO of Mundra-Zerda 400 kV lines at Sankhari. “

2.1.3 Under Annexure - Summary-OA of the Minutes for connectivity application of Gujarat Fluorochemicals Limited (GFL) on page no 26 modified as under:

7. Gujarat Fluorochemicals Ltd.(GFL)

- | | | |
|-------|----------------------------|--|
| (i) | Generation Project Details | 300 MW (3X100MW)
Village/Town- Maliya, Distt- Rajkot, Gujarat |
| (ii) | Commissioning schedule | U-1: Mar'12 , U-2: Sep'12, U-3: Mar'13 |
| (iii) | Connectivity sought for | 300MW from Mar'12 |
| (iv) | Step up Voltage | 220kV |
| (v) | Connectivity granted | ➤ GFL WPP – Bhimasar/Bachau(PG) 220kV D/c (Twin Zebra).

➤ Applicant advised to apply for LTA so that Transmission System Strengthening can be identified. |

3.0 Review of Progress on Earlier Agreed Transmission Schemes

3.1 Executive Director, WRTS-I, PGCIL intimated that the Bilaspur Pooling station was scheduled for commissioning by March 2012. Regarding the pooling stations associated with IPPs, he informed that land had been identified for Raigarh(near Kotra), Raigarh(near Tamnar), Raipur and Dharamjaygarh pooling stations and within a period of two months the land would be acquired. For Champa pooling station land has been reidentified and would take another four months to acquire the land. The details of the status of implementation of the earlier agreed schemes under construction / approved furnished by Powergrid is enclosed as Annexure-II.

4.0 Transmission proposal made by MPPTCL

4.1 Establishment of 400kV substation at Jabalpur

4.1.1 Director (SP&PA), CEA stated that MPPTCL had proposed to establish a 400kV substation at Jabalpur to evacuate power from 765/400 kV Jabalpur pooling station and had requested PGCIL to take into account availability of space for 2x400kV bays at Jabalpur 765/400 kV pooling station for interconnection of the proposed new 400kV substation at Jabalpur by them. He further stated that the interconnection of the 765/400 kV pooling station with the existing Jabalpur (Shukha) 400 kV substation was already planned through a 400 kV D/C line (high capacity).

4.1.2 MPPTCL representative stated that the projected load of Jabalpur area by the end of 12th plan would be around 730 MW and the new substation was proposed to meet the growing load requirements in that area.

4.1.3 DGM, PGCIL stated that the installed capacity of the Jabalpur (PG) 400 kV substation was (2X315) 630 MVA and for meeting the additional load requirements of Jabalpur area a 3rd 500 MVA could be provided and additional outlets could be planned from the existing substation instead of creating a new 400 kV substation in Jabalpur.

- 4.1.4 After further deliberation MPPTCL agreed to review their proposal.
- 4.2 **LILO of one ckt. of Khandwa – Rajgarh 400 kV D/C line at their proposed 400 kV Chhegaon substation**
- 4.2.1 MPPTCL representative stated that they had requested for LILO of one ckt. of Khandwa – Rajgarh 400 kV D/C line at their proposed 400 kV Chhegaon substation which would be established by converting the existing 220 kV Chhegaon substation into 400 kV substation. He further stated that with Malwa TPS they had planned Malwa-Pithampur 400 kV D/C line, Malwa-Chhegaon 400 kV D/C line and Chhegaon- Julwania 400 kV D/C line. The LILO of one ckt. of Khandwa – Rajgarh 400 kV D/C line at Chhegaon was proposed for reliability purpose. Also the Khandwa – Rajgarh line was about one km from their proposed Chhegaon 400 kV substation.
- 4.2.2 The proposal of MPPTCL was deliberated and was in principle agreed by the WR constituents. The proposal would be confirmed after joint study by CEA, PGCIL and MPPTCL.
- 4.3 **Provision of 1X315 MVA transformer at Indore (PG) 765/400 pooling station**
- 4.3.1 Director (SP&PA), CEA stated that MPPTCL had requested for installation of 1X315 MVA, 400/220 kV transformer at Indore 765/400 kV (PG) substation to draw their share of power from inter-state generating stations.
- 4.3.2 DGM, PGCIL stated that 3X315 MVA transformer were installed at the existing Indore 400 kV substation and also in the 31st SCM of WR interconnection between Pithampur (2X315 MVA) and Indore (PG) 765/400 kV substation was agreed. Therefore around 1575 MVA transformation capacity existed / planned in Indore area.
- 4.3.3 Members felt the proposal of provision of 1X315 MVA transformer at Indore (PG) 765/400 pooling station was not required at present.
- 4.4 **System Strengthening beyond Damoh 400 kV substation**
- 4.4.1 MPPTCL representative stated that they had suggested system strengthening beyond Damoh viz Damoh – Bina / Bhopal 400 kV link as 3 nos. of 400 kV D/C (high capacity) lines were proposed to be terminated at Damoh 400 kV substation, viz
- (i) Jabalpur pooling station – Damoh 400 kV D/C line covered under transmission system Moser Baer TPS,
 - (ii) Jabalpur pooling station – Damoh 400 kV D/C line covered under transmission system Chattishgarh UMPP and
 - (iii) Banas TPS – Damoh 400 kV D/C line covered under transmission system Banas TPS.
- The termination of the above lines at Damoh could cause congestion due to limited no. of existing outlets from Damoh and therefore they had suggested one more outlet viz Damoh – Bina / Bhopal 400 kV link beyond Damoh.
- 4.4.2 Director (SP&PA), CEA stated that during the 31st SCM, the connectivity application of Banas TPS was discussed and was kept pending as the progress of the project was not adequate. Similarly System Strengthening under Moser Baer agreed during 28th SCM was reviewed and during the 30th SCM and Jabalpur-Damoh D/C line was deleted. As such Jabalpur pooling station – Damoh 400 kV D/C line covered under transmission system Chattishgarh UMPP was the only link planned to be terminated at Damoh.
- 4.4.3 After discussion it was decided that 400kV outlets beyond Damoh may not be required at present.

4.5 Drawal of MPPTCL share of power in the IPPs located in Madhya Pradesh at the interconnection point of MPPTCL with CTU

- 4.2.3 MPPTCL representative stated that Government of Madhya Pradesh have 35% share in all the IPPs coming up in Madhya Pradesh. MPPTCL would be drawing this share of power from the IPPs at the interconnection point with the CTU. He requested that 35 % share from upcoming IPPs in Madhya Pradesh should be considered while planning the transmission system associated with the IPPs in Madhya Pradesh.
- 4.2.4 To a query from PGCIL whether 35 % share roughly working to about 5000 MW at this stage would be absorbed by MP, MPPTCL representative stated that most of the power would be absorbed with in the state.
- 4.2.5 Chief Engineer (SP&PA) stated that for drawing there share of power from the IPPs located in Madhya Pradesh from the ISTS network, MPPTCL needs to enter into BPTA with PGCIL so that transmission requirements could be planned accordingly.
- 4.2.6 After deliberations it was decided that MP Trading Company should seek long term access in ISTS network for drawls of their share. MPPTCL agreed for the same.

5.0 Transmission proposals of CSPTCL

5.1 LILO of 220 kV Raigarh (CSPTCL) - Budhipadar line at 400/220 kV Raigarh PGCIL substation

- 5.1.1 Director (SP&PA), CEA stated that CSPTCL had proposed the LILO of 220 kV Raigarh (CSPTCL) - Budhipadar line at 400/220 Raigarh PGCIL substation. For this two number of 220 kV bays were required at Raigarh (PG) substation and since the line was inter-regional line therefore it also needs endorsement of the Eastern Region constituents.
- 5.1.2 CSPTCL representative stated that there are 3 nos. of 220 kV lines between Korba (E) power station of erstwhile CSEB and Budhipadar (Orissa) 220 kV substation. Out of the three lines two lines were owned by CSEB (now CSPTCL) and one line was owned by PGCIL. Out of the two lines owned by CSPTCL, one 220 kV S/C line was already looped in looped out at Raigarh (CSPTCL) 220 kV substation resulting in Korba (E) – Raigarh(CSPTCL) – Budhipadar 220 kV S/C line. The proposal of the LILO of Raigarh(CSPTCL) – Budhipadar 220 kV S/C line at 400/220 kV Raigarh (PG) substation would provide 3rd interconnection between Raigarh (CSPTCL) and Raigarh(PG) at 220 kV level. This would ease the overloading problem on existing 2 nos. of 220 kV interconnections between Raigarh(PG)-Raigarh(CSPTCL) occurring in certain instances. Also Raigarh (PG) - Budhipadar 220 kV line would stabilize the power flow on Korba (E) - Budhipadar 220 kV lines.
- 5.1.3 After deliberations, the proposal of CSPTCL was agreed by the members. PGCIL confirmed availability of space for two nos. of 220 kV bays at Raigarh 400/220 kV substation of PGCIL and stated that the implementation of 2 no. 220 kV bays at Raigarh (PG) could be done by PGCIL on deposit work basis. It was also agreed that this proposal would need to be discussed with Eastern Region constituents and would be taken up in the Standing Committee meeting of Eastern Region.

5.2 LILO of Korba- Budhipadar 220 kV line (owned by CSPTCL) at Naharpali 220 kV substation

- 5.2.1 Director (SP&PA), CEA stated that, CSPTCL had proposed the LILO of Korba- Budhipadar 220 kV line (owned by CSPTCL) at Naharpali 220 kV substation. He requested CSPTCL to give the details of their proposal.

- 5.2.2 CSPTCL representative informed that the M/s Monnet Ispat and Energy Ltd (MIEL), a CPP of Chattishgarh has applied for connectivity for their 140 MW (2X45 MW + 1X80 MW) power plant in Naharpali, Raigarh district. The existing Korba – Budhipadar 220 kV line was passing nearby, therefore for providing connectivity to MIEPL establishment of Naharpali 220 kV substation by LILO of Korba- Budhipadar 220 kV line has been proposed. The cost and implementation of Naharpali 220 kV substation along with LILO work would be carried out by M/s MIEL and after commissioning of line and substation, the operation and maintenance would be carried out by CSTPCL.
- 5.2.3 Executive Director, PGCIL stated that CSPTCL has proposed the connectivity to M/s MIEL for intra state sale power on an interstate line. The connectivity on inter state transmission system for a captive power plant was possible only if the exportable capacity was 250 MW and above. Therefore CSPTCL needs to make some alternative arrangement.
- 5.2.4 POSOCO representative stated that the Korba – Budhipadar line was a critically loaded line and allowing further injection in this line would aggravate the situation.
- 5.2.5 CSPTCL representative stated that as an alternative arrangement they had earlier envisaged the Raigarh (CSPTCL) – Naharpalli 220 kV D/C line for giving connectivity to M/s MIEL but it could not be completed in the required time frame of the generation units of MIEL, therefore the LILO proposal has been made.
- 5.2.6 The LILO of Korba – Budhipadar 220 kV line at Naharpalli was deliberated in detail and finally it was decided to agree LILO as an interim arrangement only. CSPTCL has to implement the Raigarh (CSPTCL) - Naharpalli 220 kV D/C line for giving connectivity to MIEL. After completion of Raigarh (CSPTCL) - Naharpalli 220 kV D/C line, the LILO shall be restored to its original configuration. Also CSPTCL should make all out efforts to complete the Raigarh (CSPTCL) - Naharpalli 220 kV D/C line at the earliest. Further since LILO was of an inter-regional line the issue would also need to be discussed in the Standing Committee meeting of Eastern Region.
- 5.3 LILO of 400kV S/C line between Raipur(PG) and Khedamera(Bhilai) S/c at their proposed Raipur(Raita)400kV substation**
- 5.3.1 Director (SP&PA), CEA stated that CSPTCL has proposed LILO of Raipur (PG) – Khedamara (Bhilai) 400 kV link at their proposed Raita 400 kV substation. At present Raipur (PG) and Khedamara(Bhilai) 400 kV substation were interconnected through two nos. of 400 kV links. After implementation of the bus splitting scheme at Raipur (PG) 400 kV substation the, Bhatpara- Raipur 400 kV line and Raipur – Bhilai 400 kV lines would be reconfigured to make it Bhatpara- Bhilai 400kV line. With this Khedamara (Bhilai) would be connected with only bus section at Raipur(PG) through a 400 kV S/C line and LILO of this line at Raita would result in injection of power in the interstate network. Therefore, CSPTCL needs to strengthen the transmission system beyond Raita 400 kV substation.
- 5.3.2 CSPTCL representative stated that the fault level was of the order of 32 kA at Khedamara (Bhilai) 400kV substation and this was due to high current contribution from Raipur (PG) 400 kV substation. With LILO at Raita, Raipur (PG) and Khedamara(Bhilai) 400 kV substation would be connected through Raita (CSPTCL) 400 kV substations (about 55 km away). This would help in containing the contribution of fault current from Raipur (PG) for a fault on feeders emanating from Khedemara substation and vice versa. He further stated that the Raita 400 kV substation proposed by CSPTCL was a part of the evacuation system of 2X500 MW Marwa TPP in Chattishgarh. The interconnections planned with Raita 400 kV substation were Raita – Marwa 400 kV D/C line, Raita – Jagdalpur 400 kV D/C line, Raita – Khedemara 400 kV D/C line and 400/220 kV, 2X315 MVA transformers at Raita.
- 5.3.3 DGM, PGCIL stated that to address the high short circuit level at Raipur (PG) 400 kV substation, splitting of 400 kV Raipur bus into two sections along with reconfiguration of few lines /line bays was agreed as regional system strengthening scheme in the 28th Standing

Committee meeting of WR and was under implementation. He further stated that based on their studies it had emerged that suitable transmission system strengthening beyond Raita was required to evacuate the power from Marwa TPS to their load centers with reliability. However, in the studies only Raita - Marwa 400 kV D/C line and LILO of Raipur (PG) – Khedamara (Bhilai) 400 kV S/C line at Raita 400 kV substation was considered. Based on CSPTCL information regarding transmission system planned for Marwa TPS, afresh study was required.

- 5.3.4 After deliberations it was decided that the proposal needs to be studied afresh considering the additional transmission elements planned from Raita. This item would again be taken up in the next Standing Committee meeting.

6.0 Transmission System associated with DGEN (4x300 MW) of Torrent Energy Limited

- 6.1.1 Director (SP&PA), CEA stated that the following transmission system was agreed for DGEN TPS during the 31st SCM of WR/13th meeting of WR constituents regarding connectivity/LTA applications:

- (i) TEL (DGEN) TPS – Vadodara 400kV D/c.
- (ii) Augmentation of transformation capacity of 400/220kV S/s at Navsari with 1x500MVA ICT.
- (iii) 220kV Navsari (PG) - Valthan/any other location to be informed by GETCO D/c line.

- 6.1.2 Director (SP&PA) further stated that subsequent to the last meeting GETCO had proposed Bhestan as the new location instead of Valthan for termination of the 220 kV line from Navsari. He further stated that as per the latest Government guidelines the transmission system was to be implemented through tariff based competitive bidding. He further added that augmentation of transformation capacity of 400/220 kV S/s at Navsari with 1x500 MVA was meant for increased drawal from the grid and as such should not form part of DGEN transmission system.

- 6.1.3 The proposal of GETCO for terminating the line at Bhestan instead of Valthan was agreed. It was also agreed that augmentation of 400/220 kV transformer at Navsari with 1x 500 MVA ICT would be a Regional System Strengthening scheme to be implemented by PGCIL . With this the revised transmission system agreed for DGEN and to be implemented through tariff based competitive bidding would be the following:

- (i) TEL (DGEN) TPS – Vadodara 400kV D/c.
- (ii) 220kV Navsari(PG) – Bhestan D/C line.

Bhestan substation has to be developed by GETCO in time frame of Navsari-Bhestan 220kV D/C line.

7.0 Transmission System of Mauda Stage-II (1320 MW)

- 7.1 Director (SP&PA), CEA stated that in the 31st meeting of the Standing Committee of WR held on 27th December 2010, transmission system for Mauda Stage-II (1320 MW) of NTPC was agreed. The agreed transmission system included a 400 kV D/C quad line from Mauda-II to Khandwa via Chindwara or suitable location. MPPTCL has subsequently intimated a suitable location at Betul/Amla instead of Chindwara.

- 7.2 Executive Director (WRTS-1), PGCIL stated that 400kV Mauda-II -Chindwara line would pass through the vicinity of Pench Tiger Reserve and would involve considerable amount of forest area, therefore Chindwara was not an appropriate location for establishing the 400 kV

substation. He supported the MPPTCL proposal of establishing 400 kV substation at Baitul/Amla instead of Chindwara. He also suggested establishment of GIS instead of AIS at Baitul to reduce the land requirements as the land in and around Baitul was agricultural land.

- 7.3 MPPTCL representative informed that a number of 220 kV lines were passing in close vicinity of Betul/Amla which could be LILoed for drawal of power.
- 7.4 DGM, POSOCO stated that the 400 kV GIS comprised double bus scheme and a struck breaker condition could cause disruption of large number of feeders connected to a single bus which was not desirable. Hence reliable switching scheme may be adopted.
- 7.5 MSETCL representative enquired about the commissioning schedule of the Mauda generation project. NTPC representative informed that stage-I was scheduled for commissioning by March 2012 and stage-II was scheduled for commissioning by March 2015.
- 7.6 NTPC representative stated that in the 31st SCM a requirement of 125 MVAR bus reactors with Mauda stage-II at switchyard bus was informed by PGCIL but they had already gone ahead with the procurement of 80 MVAR reactor for which NIT evaluation has been done. He informed that under Stage-I also a 80 MVAR bus reactor would be installed.
- 7.7 The members agreed for installation of 80 MVAR bus reactor against the earlier 125 MVAR reactor as NTPC had already gone ahead with the procurement process.
- 7.8 After discussion, establishment of 400 kV substation at Betul was agreed instead of the earlier proposal of Chindwara substation. With this modification the modified transmission system for Mauda Stage-II (1320 MW) of NTPC would be as following:

- (i) Mauda II – Betul 400KV D/c (Quad)- abt 210 km (approx.)
- (ii) Betul– Khandwa 400KV D/c (Quad)- abt 180 km (approx.)
- (iii) Khandwa – Rajgarh 400kV D/c (2nd)-abt 215 km
- (iv) Establishment of 400/220kV, 2x315MVA substation in Betul.

In case of difficulty in getting land for substation at Betul, PGCIL may go ahead with implementation of GIS at Betul.

8.0 Transmission System for RAPP-7&8 (2x700 MW)

- 8.1 Director (SP&PA), CEA stated that in the 30th SCM of WR, the issue of overloading on lines and interconnecting transformers in Indore, Nagda and Ujjain area due to power flow on Ujjain/ Badod – Kota 220 kV (interconnection between WR and NR) was deliberated. It was suggested by MPPTCL that 400 kV link between WR and NR through Shujalpur - RAPP along with strengthening in the RAPP to Jaipur corridor should be considered to address overloading of 220kV Ujjain/Badod- Kota link and interconnecting transformer in Indore, Nagda & Ujjain area. He further informed that subsequently, in the 29th meeting of the Standing Committee on Power System Planning of Northern Region held on 29.12.10, the associated transmission system for RAPP-7&8 (2x700 MW) Nuclear power plant in Rajasthan (with a commissioning schedule of Jun'16 and Dec'16) was discussed and the following transmission system was agreed by NR constituents:

- RAPP–Jaipur (South) 400kV D/c line of which one ckt. to be LILo ed at Kota
- RAPP–Shujalpur (WR) 400 kV D/c line.

- 8.2 NPCIL representative enquired about the implementation schedule of the transmission system associated with the RAPP Unit 7& 8 and KAPP Unit 3&4.

8.3 Executive Director (SEF), PGCIL stated that for taking up works relating to transmission systems for RAPP Unit 7& 8 and KAPP Unit 3&4, NPCIL has to sign Indemnification Agreement with PGCIL. He requested NPCIL to sign the Indemnification Agreement at the earliest. NPCIL representative stated that NPCIL is ready to sign Indemnification Agreement with PGCIL

8.4 The associated transmission System for RAPP-7&8 (2x700 MW) was agreed by the constituents of WR.

9.0 Transmission system associated with North Karanpura (3x660MW)

9.1 Director (SP&PA), CEA stated that the following transmission system has been agreed as a part of evacuation system for North Karanpura generation project and was being implemented under private sector through competitive bidding route:

- i. Sipat (Bilaspur Pooling Station)-Seoni 765kV S/c line.
- ii. Lucknow –Bareilly 765 kV S/c line.
- iii. Bareilly-Meerut 765 kV S/c line.
- iv. Agra-Gurgaon (ITP)-Gurgaon(PG) 400kV D/c (Quad) line.
- v. 2x500MVA 400/220kV substation at Gurgaon (ITP).

9.2 Director (SP&PA), CEA further stated that NR constituents in their 29th SCM of NR held on 29.12.2010, had agreed to delink the implementation of the elements (ii) to (v) from the commissioning of North Karanpura generation project and had agreed to implement it as Regional Strengthening scheme. Similarly, PGCIL had proposed that the transmission element (i) i.e., Sipat/WR Pooling Station- Seoni 765kV S/c line meant for facilitating transfer of power from Eastern to Western Region to be delinked from North Karanpura and implement it as Regional Strengthening Scheme. He further stated that Bilaspur (WR) Pooling station would be interconnected with 765kV Ranchi through 765kV Ranchi- Bilaspur (WR) Pooling transmission line which was under implementation by PGCIL.

9.3 It was agreed to delink Sipat / Bilaspur (WR) Pooling Station - Seoni 765kV S/c line from North Karanpura generation project and consider it as a part of Regional System Strengthening scheme in WR.

10.0 Interconnection of 400/220kV Pirana(PG) and 400/220kV Pirana(Torrent)

10.1 Director (SP&PA), CEA stated that Sugan -Pirana 400kV D/C line was agreed as part of Torrent Evacuation System in the 25th SCM of WR along with 400/220kV substation at Pirana (PG) as a WR System Strengthening Scheme. The interconnection between Pirana (PG) and Pirana (Torrent) was through a 220 kV D/C line. In the 27th meeting of SCM interconnection of Pirana (PG) 400/220kV and Pirana (Torrent) 400/220kV through a 400kV D/C line in place of the earlier 220kV interconnection was agreed. Subsequently, Torrent Power Ltd had proposed interconnection of Pirana(TPL) through LILO of Sugan–Pirana(PG) 400kV D/C line at Pirana(TPL) as the Sugan –Pirana (PG) was passing near to their Pirana (TPL) 400 kV substation. Since the proposal was technically in order, CEA had conveyed its no objection to the proposal. With this the modified evacuation system for Sugan CCPP was as following:

- (i) LILO Of Gandhar-Vapi 400kV S/C line at Sugan CCPP switchyard.
- (ii) LILO of Sugan CCPP Akhakhol-Pirana(PG) 400kV D/C line at Pirana (TPL)400kV substation.
- (iii) 2 Nos of 400kV line bays at Pirana(PG) 400/220kV substation
- (iv) 2 Nos. of 50MVAR line reactor at Pirana (TPL) 400/220kV substation.

10.2 DGM, PGCIL stated that provision of two no. 220 kV bays at Pirana (PG) along with the 3rd 1X315 MVA ICT under Transmission system strengthening in WR associated with Pipavav

Energy Pvt. Ltd was agreed in the 31st SCM of WR. In case the 220 kV bays were required by GETCO prior to that, then GETCO would need to bear the cost. He further stated that at Pirana (PG) 400 kV substation only two nos. of 220 kV bays had been developed and the 3rd and 4th 220 kV bay (which was initially to be developed by Torrent for interconnection) could be developed for GETCO.

10.3 After discussions, the above modification in interconnection of Pirana(TPL) through LILO of Sugan–Pirana(PG) 400kV D/C line at Pirana(TPL) and development of 3rd and 4th 220 kV bays for GETCO at Pirana(PG) was endorsed by the WR constituents. The above 2 nos. 220kV line bays at Pirana (PG) 400/220 kV substation are to be developed by PGCIL as system strengthening scheme.

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

11.1 Director (SP&PA), CEA stated that in the 29th SCM of WR, following transmission system associated with Vindhyachal- IV and Rihand-III was agreed and the same was under implementation by PGCIL:

Part-I: Generation specific transmission system (to be implemented by POWERGRID)

A : Rihand-III: For NR only

- Rihand-III – Vindhyachal Pooling Station 765kV 2xS/c (initially to be operated at 400kV)

B : Vindhyachal-IV: For WR only

- Vindhyachal-IV – Vindhyachal Pooling Station 400kV D/c (Quad)

Part-II: Common System: For both WR and NR

- Vindhyachal Pooling Station – Satna 765kV 2xS/c(initially to be operated at 400kV)
- Satna – Gwalior 765kV 2xS/c
- Sasan – Vindhyachal Pooling Station 765kV S/c
- Sasan – Vindhyachal Pooling Station 400kV D/c
- Establishment of 765/400kV 2x1500MVA S/s at Vindhyachal Pooling Station

Note: In order to reduce the short circuit levels, under Sasan transmission it has been decided to delete the LILO of Vindhayachal STPP – Jabalpur 400 kV D/C at Sasan subsequent to development of 765 kV system from Sasan. One of the LILO line would be retained at Sasan with suitable switching arrangements at Sasan 400 kV switchyard to meet its starting power requirements in future. The LILO of the other ckt would be bypassed and the 400 kV bays at Sasan would be utilized for Vindhyachal Pool-Sasan 400 kV D/C line to be terminated at Sasan.

Part-III: NR Strengthening in Regional pool

- Gwalior – Jaipur 765/400 kV S/c.

11.2 DGM PGCIL stated that the commissioning schedule of the transmission system associated with Vindhyachal-IV was expected to be Dec'12 whereas commissioning schedule of generating units at Vindhyachal-IV was Mar'12 & Jun'12. Non availability of associated transmission system in the matching time frame of Vindhyachal-IV generation project may result into critical loading on the existing lines emanating from Vindhyachal complex. Therefore, to ease out the loading on 400kV lines from Vindhyachal complex, following interim arrangement had been worked out:

- 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

- 11.3 DCM PGCIL further stated that the above interim arrangement utilizes the Sasan – Satna - Bina line and upgradation at Bina, Gwalior and Agra S/s to 765kV level which was a part of the transmission system for Sasan UMPP (which was expected for commissioning in Jan'13) and was likely to be ready by Dec'11. For implementing the above interim arrangement, few 400kV equipment like CVT, LA, etc. were to be procured and 3-4 km 400kV line was to be built. The transmission charges of above interim arrangement till commissioning of Vindhyachal-IV transmission system along with cost of additional equipment is to be shared by the beneficiaries.
- 11.4 After deliberations, the WR constituents agreed for the above contingency arrangement and sharing of the transmission charges for the additional equipments and transmission system used till the commissioning of Vindhyachal-IV transmission system by the beneficiaries.
- 11.5 AGM, NTPC stated that with the interim arrangement there would be only one evacuation outlet from Vindhyachal-IV 1000 MW generation project. He requested interconnection of the Vindhyachal-IV STPP 400 kV bus with the existing Vindhyachal-III STPP 400 kV bus to enable power evacuation during outage of the interim arrangement.
- 11.6 Director (SP&PA), CEA stated that the interim arrangement has been evolved to avoid critical loading on the existing lines emanating from Vindhyachal complex. The interconnection with the existing Vindhyachal-III needs to be further studied.
- 11.7 DGM, PGCIL stated that ROW constraints were being felt in implementation of Rihand-III – Vindhyachal Pooling Station 765kV 2xS/c (initially to be operated at 400kV). Therefore, to overcome to RoW constraints, it was now proposed to develop the Rihand-III – Vindhyachal Pooling Station 765kV 2xS/C line as 1XD/C line (initially to be operated at 400kV).
- 11.8 Members agreed to the proposal of PGCIL for development of Rihand-III – Vindhyachal Pooling Station 765kV 2xS/C line as 1XD/C line.

12.0 Transmission System associated Krishnapatnam UMPP

12.1 Interconnection of 765 kV Pune substation with the existing Pune substation

- 12.1.1 Director (SP&PA), CEA stated that, Solapur - Pune 765kV S/c line along with establishment of 765 kV was agreed as a part evacuation system for Krishnapatnam UMPP in the 27th SCM of WR. Subsequently, establishment of 765/400 kV GIS at Pune was agreed in the 30th SCM. The interconnection of 765 kV Pune substation with the existing Pune substation was planned through a 400 kV D/C (quad) line.
- 12.1.2 DGM, PGCIL stated that the proposed location of 765/400kV Pune (GIS) substation had been identified near Shikarpur on Pune-Ahmednagar Highway, which was around 50 Kms (aerial distance) from existing 400kV Pune S/s. For establishment of interconnection between Pune and Pune(GIS) right of way problem were being experienced . The 400kV Aurangabad - Pune D/c and 400kV Parli - Pune D/c lines which were being implemented through IPTC route under WRSS-II were passing near the proposed location of 765/400kV

Pune (GIS). To overcome the RoW problem being faced in establishment of interconnection between Pune and Pune(GIS), LILO of both the circuits of 400kV Aurangabad - Pune D/c and 400kV Parli - Pune D/c at 765kV Pune S/s were being proposed in place of Pune-Pune(GIS) 400kV D/c(Quad) line. The LILO lengths of these lines shall be approx. 20 Kms. and 10 Kms. respectively. This arrangement would result in Pune (765 / 400 kV) GIS - Pune (400kV) existing 400 kV 2XD/C (Twin Moose) line.

12.1.3 Members agreed for interconnection between Pune (765 / 400 kV) GIS - Pune (existing) 400 kV substations through LILO of both the circuits of 400kV Aurangabad - Pune D/c and 400kV Parli - Pune D/c at 765kV Pune (GIS).

12.2 Laying of 765 kV D/C line in stretches of the Solapur - Pune 765kV S/c

12.2.1 Executive Director, WRTS-I, PGCIL stated at present implementation of Solapur - Pune 765kV S/c 1st line which was associated with Krishnapattinam UMPP was only taken up. The Solapur - Pune 765kV S/c 2nd line which was planned with the IPPs coming up in the Southern Region would be taken up later depending upon the progress of IPPs. He requested the WR constituents for allowing PGCIL for laying 765 kV D/C line in stretches of the Solapur - Pune 765kV S/c 1st circuit line route which were falling in the forest area and the stretch near to Pune city to conserve RoW and avoid RoW that may arise in future during implementation of Solapur - Pune 765kV S/c 2nd line.

12.2.2 Members deliberated on the proposal of PGCIL and agreed for laying of 765 kV D/C line in stretches of the Solapur - Pune 765kV S/c 1st circuit line route which were falling in the forest area and the stretch near to Pune city.

12.3 Review of Pune – Navi Mumbai 400kV D/c as part of WR system strengthening scheme

12.3.1 Director (SP&PA), CEA stated that during the 27th meeting of Standing Committee of WR held on 30.07.2007, Pune – Navi Mumbai 400kV D/c line was agreed as WR System strengthening scheme to be implemented in the time frame of Krishnpatnam UMPP. Now PGCIL has requested for reconsideration of this line in view of the RoW constraints envisaged during implementation.

12.3.2 Executive Director, WRTS-I, PGCIL stated that while carrying out detailed survey for the above line, it was found that major part of the route was passing through forest areas, Hilly terrains, Ghat sections of Khandala / Lonawala, close vicinity to Matheran eco-zone, Navi Mumbai International Airport (proposed), urban/industrialized areas between Mumbai and Pune etc. Considering these factors, severe ROW constraints are envisaged during the implementation of this line, as are being presently experienced in the construction of 400kV Vapi - Navi Mumbai D/c line.

12.3.3 Director (SP&PA), CEA stated that instead of dropping this line, MSETCL could suggest alternative suitable location for termination of line from Pune for onward dispersal of power.

12.3.4 MSETCL representative stated that they would review and give a proposal in this regard shortly.

13.0 Establishment of 400/220 kV substation by LILO of 400kV Vapi – Navi Mumbai and Navsari – Boisar D/c lines in UT of DD and UT of DNH respectively

13.1 Director (SP&PA), CEA stated that establishment of Kala 400/220kV substation in UT DNH by LILO of both ckts. of 400kV Navsari – Boisar D/c line and establishment of Magarwada 400/220kV substation in UT DD by LILO of both ckts of Vapi – Navi Mumbai D/c had been

earlier agreed in SCM of WR. Due to ROW constraints, PGCIL had intimated that both the above lines are being strung on multi circuit tower in certain stretches and the LILO points for both the substations fall in the multi circuit stretches. PGCIL had informed that at the time of alignment of Vapi – Navi Mumbai 400kV D/c line on multi-circuit tower, to address ROW issue the position of this ckt. on the multi-ckt tower has been kept on the opposite side against earlier envisaged side. Similarly position of Navsari-Boisar 400 kV line on the multi circuit has been on the opposite side against earlier envisaged side.

13.2 Due to the re-alignment of 400kV lines on multi circuit towers and to avoid unnecessary line crossings, PGCIL had now proposed the following modification:

- (i) Establish Magarwada 400/220kV substation (GIS) in UT DD by LILO of both ckts. of 400kV Navsari – Boisar D/c line.
- (ii) Establish Kala 400/220kV substation (GIS) in UT DNH by LILO of both ckts of Vapi – Navi Mumbai D/c line.

13.3 Members agreed with the above.

14.0 Transmission system associated with Chhattisgarh UMPP (5x800 MW)

14.1 Director (SP&PA), CEA stated that the transmission system associated with Chattishgarh UMPP (5x800 MW) was agreed in the 31st SCM of WR. The agreed transmission system included a Vadodra- Karamsad/ alternative location 400kV D/c (Quad) line. The alternative location was to be intimated by GETCO. Subsequently, GETCO had proposed a new location near Vataman (instead of Karamsad) for establishment of the new 400 kV substation for terminating the 400 kV D/c line from Vadodara.

14.2 The above modification was agreed. With this modification the revised transmission system associated with 4000 MW (6X660) Chhattisgarh UMPP was as following:

- (i) Chhattisgarh UMPP- Jabalpur Poling Station 765kV D/c – 350 km
- (ii) Chhattisgarh UMPP- Champa Poling Station 765kV D/c – 150 km
- (iii) Jabalpur Poling Station – Bhopal 765kV D/c – 330 km
- (iv) Bhopal – Indore 765kV 2nd S/c – 180 km
- (v) Indore - Vadodra 765kV 2nd S/c – 300 km
- (vi) Jabalpur Pool – Damoh 400kV D/c -180 km
- (vii) Vadodra- Vataman 400kV D/c (Quad)
- (viii) Establishment of 400/220 kV,2x500 MVA substation at Vataman
- (ix) LILO of Ranchi – Sipat 400kV D/c line at Chhattisgarh UMPP 400kV-60 km
- (x) Establishment of 2x1000 MVA, 765/400kV substation at Chhattisgarh UMPP(*under the scope of generation developer*)
- (xi) Augmentation of transformation capacity at 765/400kV Indore and Vadodra Substation each by 1x1500 MVA.

15.0 Open Access Applications pertaining to New Generation Projects in Southern Region with target beneficiaries in Western/Northern/Southern Region

15.1 Director (SP&PA), CEA stated that the Long Term Open Access / Long Term Access applications in Southern Region discussed and agreed in various Southern Region Standing Committee meetings & SRPC have undergone minor modifications at the BPTA signing stages like changes in target beneficiaries, allocation quantum, commissioning schedule etc. The revised details of the LTOA/LTA applications in Southern Region having beneficiaries in WR/NR as intimated by PGCIL was as given below :

Sl. No.	Applicant	Commence ment date	Installed Capacity (MW)	Quantum (MW)	Allocation of Power (MW)		
					SR	WR	NR
1.	Lanco Kondapalli Power Private Ltd.	Commission ed	366	350	0	200	150
2.	Simhapuri Energy Pvt. Ltd.	December, 2010	600	491	356	135	0
3.	Meenakshi Energy Pvt. Ltd.	April, 2011	600	546	186	177	183
4.	Thermal Powertech Corporation India Ltd.	January, 2014	1320	1320	1125	115	0
5.	East-Coast Energy Pvt. Ltd.	March, 2013	1320	1320	1000	320	0
6.	NCC Power Projects Ltd.	January, 2014	1320	1320	900	420	0
7.	Coastal Energen Private Limited	March, 2012	1200	1100	820	280	0
8.	Ind-Barath Power (Madras) Limited	March, 2012	1320	900	225	270	405
	Total		8046	7347	4612	1917	738

The following transmission system had been discussed and agreed by SR constituents for transfer of power from Southern region IPPs to WR & NR beneficiaries in Long Term Open Access/29th Standing Committee Meeting of SR and 11th SRPC meeting and 30th meeting of Standing committee of WR:

Transmission System Associated with IPP projects in Southern Region, for transfer of power to other regions

- (i) Sholapur – Pune 765 kV 2nd S/c line (*1st circuit already covered under transmission associated with Krishnapatnam UMPP*)
- (ii) Jabalpur Pooling station – Orai 765 kV S/c line.
- (iii) Orai – Bulandshahar 765 kV S/c line.
- (iv) Bulandshahar – Sonipat 765 kV S/c line
- (v) Establishment of 765/400 kV 2X1000 MVA substation at Orai by LILO of one circuit of Satna – Gwalior 765 kV line
- (vi) Establishment of 765/400 kV 2X1500 MVA substation at Bulandshahar by LILO of Agra – Meerut 765 kV line.
- (vii) Establishment of 765/400 kV 2X1500 MVA substation station at Sonapat by LILO of Bhiwani – Meerut 765 kV line.
- (viii) Orai-Orai (UPPCL) 400kV D/c (Quad)
- (ix) Sonipat-Kurushetra 400 kV D/c (Quad)
- (x) Sonipat (new) – Sonipat (Under Construction) 400 kV D/c (Quad)
- (xi) Bulandshahr – Hapur (UPPCL) 400kV D/c (Quad)

15.2 Complex wise details of IPPs in SR along with their transmission schemes:

15.2.1 Krishnapatnam Area, Andhra Pradesh

S. No.	Applicant	Commencement date	Installed Capacity (MW)	LTOA Quantum (MW)	Allocation of Power (MW)		
					SR	WR	NR
1.	Simhapuri Energy Pvt. Ltd.	December, 2010	600	491	356	135	0
2.	Meenakshi Energy Pvt. Ltd.	April, 2011	600	546	186	177	183
3.	Meenakshi Energy Pvt. Ltd.	June, 2012	300	273	0	0	0
4.	Thermal Powertech Corporation India Ltd.	January, 2014	1320	1320	1125	115	0
Total			2820	2630	1667	427	183

Following transmission system was discussed and agreed by SR constituents in 26th Standing Committee Meeting of SR held on 13th June, 2008 & 11th Long Term Access/31st Standing Committee Meeting of SR held on 16th November, 2010 and 8th & 15th SRPC meeting held on 19th December, 2008 & 27th November, 2010 respectively:

Dedicated Transmission system:

- (i) SEPL/MEPL Generation Switchyard - Nellore (existing POWERGRID substation) 400 kV D/c quad line with associated line
- (ii) TPCIL Generation switchyard – Nellore Pooling Station 400 kV D/c (quad) line with associated line bays

Common Transmission System Associated With ISGS Projects in Krishnapatnam Area of Andhra Pradesh

- (i) Establishment of 765/400kV, 2x1500 MVA pooling station at Nellore by LILO of Simhapuri-Nellore 400kV D/c quad line
- (ii) Nellore Pooling station – Kurnool 765kV D/c line
- (iii) Kurnool – Raichur 2nd 765kV S/c line (1st line covered under Krishnapatnam UMPP)
- (iv) Associated 765kV & 400kV bays at Nellore Pooling station, Kurnool and Raichur stations.

15.2.2 Srikakulam Area, Andhra Pradesh

Sl. No.	Applicant	Commencement date	Installed Capacity (MW)	LTOA Quantum (MW)	Allocation of Power (MW)		
					SR	WR	NR
1.	East-Coast Energy Pvt. Ltd.	March, 2013	1320	1320	1000	320	0
2.	NCC Power	January, 2014	1320	1320	900	420	0

Sl. No.	Applicant	Commencement date	Installed Capacity (MW)	LTOA Quantum (MW)	Allocation of Power (MW)		
					SR	WR	NR
	Projects Ltd.						
	Total		2640	2640	1900	740	0

Following transmission system discussed and agreed by SR constituents in 30th meeting of Standing Committee held on 13-04-2010 and Minutes of the Special Meeting of SRPC held on 25.11.2010:

Dedicated Transmission system:

- (i) East Coast Energy generation switchyard - Srikakulam pooling station 400kV D/c quad line (*under the scope of East Coast Energy Pvt. Ltd.*)
- (ii) NCC Power Projects generation switchyard - Srikakulam pooling station 400kV D/c quad line (*under the scope of NCC Power Projects Ltd.*)

Common Transmission System Associated With ISGS Projects in Srikakulam Area of Andhra Pradesh

- (i) Establishment of 765/400kV Pooling Station in Srikakulam area with 2x1500 MVA 765/400kV transformer capacity
- (ii) Srikakulam Pooling station – Angul 765kV D/c line
- (iii) 765/400kV 1x1500 MVA transformer at Angul
- (iv) Angul – Jharsuguda 765kV D/c line
- (v) Jharsuguda - Dharamjaigarh 765kV D/c line
- (vi) Associated 400kV and 765kV bays at Srikakulam Pooling station, Angul, Jharsuguda and Dharamjaygarh 765/400kV S/Ss.

15.2.3 Tuticorin Area, Tamil Nadu

Sl. No.	Applicant	Commencement date	Installed Capacity (MW)	LTOA Quantum (MW)	Allocation of Power (MW)		
					SR	WR	NR
1.	Coastal Energen Private Limited	March, 2012	1200	1100	820	280	0
2.	Ind-Barath Power (Madras) Limited	March, 2012	1320	900	225	270	405
	Total		2520	2000	1045	550	405

Following transmission system discussed and agreed by SR constituents in 29th & 30th Standing Committee/Long Term Open Access Meeting of SR held on August 27, 2009 & April 13, 2010, 11th meeting of SRPC September 17, 2009:

Dedicated Transmission system:

- (i) Coastal Energen generation switchyard- Tuticorin pooling station 400 kV D/c quad line (*under the scope of Coastal Energen Pvt. Ltd.*)

- (ii) Ind-Barath generation switchyard - Tuticorin pooling station 400 kV D/c quad line
(under the scope of Ind-Barath Power (Madras) Ltd.)

Common Transmission System Associated With ISGS Projects in Tuticorin Area of Tamil Nadu

- (i) Establishment of 765kV pooling station in Tuticorin and Salem (initially charged at 400kV)
- (ii) LILO of both circuits of Tuticorin JV - Madurai 400 kV D/c (quad) line at Tuticorin Pooling Station
- (iii) Tuticorin Pooling station – Salem Pooling station 765kV D/c line initially charged at 400kV.
- (iv) Salem pooling station – Madhugiri pooling station 765kV S/c initially charged at 400kV.
- (v) Salem Pooling Station – Salem 400 kV D/c quad line.

15.3 Members took a note of the above.

16.0 Intra State Transmission system of Maharashtra at 400 kV and 765 kV level.

16.1 Connectivity of 400 kV lines by MSETCL, TPC and R- Infra to PGCIL substations.

16.1.1 Director(CEA) stated that MSETCL had intimated that as per their STU plan for the year 2010-11 to 2014-15, the following 400 kV lines of MSETCL, TPC and R-Infra were proposed:

S.No.	Transmission Line	Year
1.	765/400 kV Phadge (PG) – Kudus (MSETCL) 400 kV D/C (quad) line.	2012-13
2.	765/400 kV Phadge (PG) – Nalasopara (MSETCL) 400 kV D/C (quad) line.	2013-14
3.	LILO of Tarapur – Phadge 400 kV D/C line at Kudus (MSETCL) 400 kV substation.	2013-14
4.	Pune(PG) – Chakan(MSETCL) 400 kV S/C line	2011-12
5.	LILO of Parli (PG) – Pune (PG) 400 kV D/C line at Lonikhand-II (MSETCL) 400 kV substation with quad conductor.	2011-12
6.	LILO of Aurangabad (MSETCL) – Pune (PG) 400 kV D/C line at Retwadi (MSETCL) 400 kV substation with quad conductor.	2014-15
7.	LILO of one circuit of South Solapur (PG) – Kolhapur 400 kV D/C line at Alkud (Sangli) (MSETCL) 400 kV substation.	2011-12
8.	LILO of one circuit of Parli (PG) – South Solapur (PG) 400 kV D/C line at Osmanabad (MSETCL) 400 kV substation.	2013-14
9.	Boisar (PG) – Ghodbunder (R-Infra) 400 kV D/C line	2014-15
10.	Navi Mumbai (PG) – Vikroli (TPC) 400 kV S/C line	2014-15
11.	Boisar (PG) – Vikroli (TPC) 400 kV D/C line	2014-15

MSETCL has requested the approval of the Standing Committee as connectivity with the inter- state transmission system was involved in the above proposals.

16.1.2 The above proposals of MSETCL was deliberated and the following was decided:

S.No.	Transmission Line	Decision
1.	765/400 kV Phadge (PG) – Kudus (MSETCL) 400 kV D/C (quad) line.	The connectivity agreed by the members. MSETCL was requested to plan outlets beyond Kudus towards load center.
2.	765/400 kV Phadge (PG) – Nalasopara (MSETCL) 400 kV D/C (quad) line.	
3.	LILO of Tarapur – Phadge 400 kV D/C line at Kudus (MSETCL) 400 kV substation.	
4.	Pune(PG) – Chakan(MSETCL) 400 kV S/C line	MSETCL to review the proposal of laying 400 kV S/C line and plan for D/C line.
5.	LILO of Parli (PG) – Pune (PG) 400 kV D/C line at Lonikhand-II (MSETCL) 400 kV substation with quad conductor.	MSETCL to review the proposal as LILO of these lines at Pune (GIS) 765/400 kV substation has been agreed.
6.	LILO of Aurangabad (MSETCL) – Pune (PG) 400 kV D/C line at Retwadi (MSETCL) 400 kV substation with quad conductor.	
7.	LILO of one circuit of South Solapur (PG) – Kolhapur 400 kV D/C line at Alkud (Sangli) (MSETCL) 400 kV substation.	Connectivity agreed.
8.	LILO of one circuit of Parli (PG) – South Solapur (PG) 400 kV D/C line at Osmanabad (MSETCL) 400 kV substation.	
9.	Boisar (PG) – Ghodbunder (R-Infra) 400 kV D/C line	PGCIL intimated that space for 400kV bays at Boisar (PG) substation was not available. MSETCL to review this in consultation with PGCIL Suitable outlet from 220kV side of Boisar may be planned by MSETCL
10.	Navi Mumbai (PG) – Vikroli (TPC) 400 kV S/C line	Connectivity agreed.
11.	Boisar (PG) – Vikroli (TPC) 400 kV D/C line	PGCIL intimated that space for 400kV bays at Boisar (PG) substation was not available. MSETCL to review this in consultation with PGCIL substation. Suitable outlet from 220kV side of Boisar may be planned by MSETCL

16.1.3 On the issue of non availability of bays at Boisar for interconnection to Vikroli and Ghodbunder 400 kV substations, DGM, POSOCO stated that presently Mumbai was meeting a peak load of 3200 MW without any 400 kV interconnections and its demand was likely to reach 5000 MW by 2013-14. Network expansion at 220 kV level for meeting demand of this order would result in severe RoW constraints. Therefore, 400 kV interconnections would be required for meeting Mumbai load in future.

16.1.4 Executive Director (SEF), PGCIL stated that already 400kV S/s at Navi Mumbai, Boisar, Padghe have been planned on the periphery of Mumbai. In addition, MSETCL have also planned establishment of 400kV S/s at Kudus. STU/Discoms need to plan suitable network from these substations for catering to increased load demand of Mumbai. He further stated that Discoms (namely, R-Infra and TPC) should apply for LTA for getting access to ISTS system in case any generation addition was planned by the Discoms, in future at their

drawal points. He stated that the interconnection of Discoms to ISTS would be normally for drawal.

16.2 Augmentation of Intra state system in Maharashtra at 400 kV and 765 kV level.

16.2.1 Director (SP&PA), CEA stated that for evacuating power from IPPs in eastern part of Maharashtra to their load centers, Tiroda – Koradi- Akola-Aurangabad (PG) 765 kV 2XS/C link had been planned by MSETCL. The IPPs in Maharashtra are scheduled for commissioning from 2012 onwards whereas the 765/400 kV Aurangabad (PG) substation linked with IPPs of Chhattisgarh was scheduled for commissioning in the year 2014. He stated that to avoid bottling up of power due to above mismatch and as a part of intrastate augmentation of transmission system the following had been discussed and agreed between MSETCL, PGCIL and CEA:

- (i) Establishment of Aurangabad II 400 kV substation by MSETCL and initially charge Tiroda-Koradi-Akola- Aurangabad II 765 kV 2XS/C lines at 400 kV level.
- (ii) Aurangabad – II - Bableshwar – Kudus 400 kV Quad D/C line
- (iii) LILO of both circuits of Bhusawal II – Aurangabad I 400 kV D/C line at Aurangabad II.
- (iv) Establishment of 765/400kV substation at Aurangabad II.
- (v) Interconnection of 765/400kV Aurangabad II - 765/400kV Aurangabad (PG) through 765 kV S/C line on D/C towers.
- (vi) Termination of Koradi – Wardha 400 kV Quad D/C line into one circuit of Wardha – Akola 400 kV D/C line through LILO as an interim arrangement.

16.2.2 MD, GETCO stated that Interconnection of 765/400kV Aurangabad II(MSETCL) and 765/400kV Aurangabad (PG) should be through 765 kV D/C line. MSETCL agreed with the modification suggested by MD, GETCO.

16.2.3 DGM, PGCIL stated that termination of Koradi – Wardha 400 kV Quad D/C line into Wardha – Akola 400 kV D/C line through LILO was as an interim arrangement. He enquired from MSETCL regarding provision of reactive compensation at Ideal Energy generation switchyard. MSETCL representative confirmed that 80 MVAR bus reactor would be provided by Ideal Energy

16.2.4 Director (CEA) stated that as soon as Tiroda – Koradi III – Akola – Aurangabad 765 kV system of Maharashtra is completed, the Koradi – Wardha 400 kV line would be connected to Koradi III and disconnected from Wardha – Akola line.

17.0 Dedicated / Interim Transmission system for 600 MW Korba West Power Company Limited TPS and 1200 MW Athena Chhattisgarh Power Limited.

17.1 Director (SP&PA), CEA stated that in the 29th Standing Committee meeting on Power System Planning of WR and 11th LTOA meeting of WR constituents the dedicated transmission system agreed for 600 MW Korba West Power Company Limited TPS and 1200 MW Athena Chhattisgarh Power Ltd. was Athena Chhattisgarh – Raigarh Pooling Station (near Kotra) 400kV D/c (Quad) and LILO of Athena Chhattisgarh – Raigarh Pooling Station 400kV D/c at Korba West respectively. In the quarterly review meeting of the IPPs held on 24-09-2010 and 17-02-2011, M/s Korba West had informed their revised commissioning schedule as Nov 2012 and Athena Chhattisgarh had informed their commissioning schedule as Jun 2013. In view of this mismatch M/s Korba West had requested PGCIL for direct interconnection at Raigarh (Kotra) pooling station. Accordingly, direct interconnection with Raigarh Pooling station was now proposed for both the IPPs. With this the dedicated transmission system for 600 MW Korba West Power Company Limited TPS and 1200 MW Athena Chhattisgarh Power Ltd was as given under:

- | | | | |
|----|---|-----|---|
| 1. | Athena Chhattisgarh Power Ltd.
(2x600MW) | (i) | Athena Chhattisgarh – Raigarh Pooling Station (near Kotra) 400kV D/c (Quad) line. |
| 2. | Korba (West) Power Ltd.(1x600MW) | (i) | Korba (West) – Raigarh Pooling Station (near kotra) 400kV D/c line. |

17.2 In view of different time frame of generation projects and to avoid issues related to sharing of charges for dedicated transmission system between IPPs, members agreed with above proposal of direct interconnection of the IPPs with the pooling station.

18.0 Installation of 400/132kV transformers at Champa Pooling Station as part of High Capacity transmission corridors for upcoming IPP projects in Chhattisgarh.

18.1 Director (SP&PA), CEA stated that the establishment of ± 800 kV 6000MW HVDC bipole system between Champa Pooling station and Kurukshetra has been deliberated in the 29th, 30th and 31st Standing Committee meetings on Power System planning in WR and the following system has been agreed as a part of upcoming IPP generation projects in Chhattisgarh:

WR-NR HVDC interconnector for IPP Projects in Chhattisgarh

- (i) A ± 800 kV, 6000 MW HVDC bipole between Champa Pooling Station (WR) – near Kurushetra (NR) in Haryana with metallic return (initially to be operated at 3000 MW).
- (ii) Establishment of 3000 MW, ± 800 kV HVDC bipole terminal each at Champa pooling station and near Kurushetra in Haryana with provision to upgrade the terminals to 6000 MW.
- (iii) Kurukshetra(NR) - Jalandhar 400kV D/c(Quad) line (one ckt. via 400/220kV Nakodar S/s).
- (iv) LILO of Abdullapur – Sonapat 400kV D/c(triple) at Kurukshetra
- (v) Establishment of 400/220kV, 2x500 MVA S/s at Kurukshetra

18.2 As part of the above scheme, PGCIL has proposed to install 400/132kV, 2x200MVA transformers along with 2 nos. 132kV line bays at Champa Pooling station to facilitate auxiliary power supply at Champa HVDC terminal station. The auxiliary supply shall be availed through 33kV tertiary of the 400/132kV transformers. The auxiliary power supply at Kurushetra HVDC terminal shall be availed through 33kV tertiary of the already agreed 400/220kV, 2x500 MVA transformers at Kurukshetra.

18.3 Members agreed to the proposal of PGCIL of installation of 400/132kV, 2x200MVA transformers along with 2 nos. 132kV line bays at Champa Pooling station to facilitate auxiliary power supply at Champa HVDC terminal station. PGCIL further intimated that the 132 kV bays could be utilized by CSPTCL in future, if required. With this the scheme of establishment of ± 800 kV 6000MW HVDC bipole system between Champa Pooling station and Kurukshetra as a part of upcoming IPP generation projects in Chhattisgarh is as given below:

WR-NR HVDC interconnector for IPP Projects in Chhattisgarh

- (i) A ± 800 kV, 6000 MW HVDC bipole between Champa Pooling Station (WR) – near Kurushetra (NR) in Haryana with metallic return (initially to be operated at 3000 MW).

- (ii) Establishment of 3000 MW, ± 800 kV HVDC bipole terminal each at Champa pooling station and near Kurukshetra in Haryana with provision to upgrade the terminals to 6000 MW.
- (iii) Establishment of 400/132kV, 2x200MVA transformers along with 2 nos. 132kV line bays at Champa Pooling station.
- (iv) Kurukshetra(NR) - Jalandhar 400kV D/c(Quad) line (one ckt. via 400/220kV Nakodar S/s).
- (v) LILO of Abdullapur – Sonapat 400kV D/c(triple) at Kurukshetra
- (vi) Establishment of 400/220kV, 2x500 MVA S/s at Kurukshetra

19.0 High voltage studies for Western Region

- 19.1 Managing Director, GETCO raised the issue of high voltages in Western Region and requested for carrying out the high voltage studies.
- 19.2 It was agreed that Powergrid would carry out the High Voltage studies for Western Region.

20.0 Open Access Meeting

The summary of the Connectivity, Open Access (Medium term and Long term) cases discussed in the 14th meeting of WR constituents regarding Connectivity/Long Term Access (LTA) applications in Western Region is enclosed as **Summary - OA**. The detailed minutes of the meeting would be issued by PGCIL.

Summary of the discussions on applications of Connectivity/Long term Access/Medium Term Open Access in WR held on 13.05.2011

A. Applications for Grant of Connectivity

1. NTPC Ltd- Lara STPP- I

- | | | |
|-------|----------------------------|--|
| (i) | Generation Project Details | 1600 MW(2x800MW)
Dist - Raigarh, State - Chhattisgarh |
| (ii) | Commissioning schedule | Oct' 15 onwards |
| (iii) | Connectivity sought for | 1600 MW from Oct'14 |
| (iv) | Step up Voltage | 765kV |
| (vi) | Connectivity | <ul style="list-style-type: none"> ➤ Connectivity agreed in principle through Lara-I TPS – Raigarh Pooling Station (Kotra) 765kV D/c line. ➤ Connectivity to the generation project shall be granted on achieving minimum progress in terms of at least 70% land possession, LOA for fuel linkage, forest and environment clearance. |

2. Jain Energy (Chhattisgarh) Pvt Ltd

- | | | |
|-------|----------------------------|--|
| (i) | Generation Project Details | 1320 MW(2x660MW)
Dist - Korba, State - Chhattisgarh |
| (ii) | Commissioning schedule | March' 14 onwards |
| (iii) | Connectivity sought for | 1320 MW from March'14 |
| (iv) | Step up Voltage | 400kV |
| (v) | Connectivity | <ul style="list-style-type: none"> ➤ Connectivity agreed in principle through Jain Energy TPS – Dharamjaygarh/ Korba Pooling Station 400kV D/c (high capacity) line. ➤ Connectivity to the generation project shall be granted on achieving minimum progress in terms of at least 70% land possession, LOA for fuel linkage, forest and environment clearance. |

3. NTPC Ltd- Barethi STPP

- | | | |
|-------|----------------------------|--|
| (i) | Generation Project Details | 3960MW (6x660MW)
Distt- Katni, Madhya Pradesh |
| (ii) | Commissioning schedule | Oct'15 onwards |
| (iii) | Connectivity sought for | 3960MW from Oct'14 |

- (iv) Step up Voltage 765kV
- (v) Connectivity
 - Connectivity agreed in principle through LILO of Satna – Gwalior 765kV S/c line at Barethi STPP generation switchyard
 - Connectivity to the generation project shall be granted on achieving minimum progress in terms of at least 70% land possession, LOA for fuel linkage, forest and environment clearance.

4. Welspun Energy Madhya Pradesh Ltd.

- (i) Generation Project Details 1980 MW(3x660MW)
Distt- Katni, Madhya Pradesh
- (ii) Commissioning schedule Jan'15 onwards
- (iii) Connectivity sought for 1980MW from Oct'14
- (iv) Step up Voltage 765kV
- (v) Connectivity
 - Connectivity agreed in principle through Welspun TPS – Jabalpur Pool 765kV D/c line.
 - Connectivity to the generation project shall be granted on achieving minimum progress in terms of at least 70% land possession, LOA for fuel linkage, forest and environment clearance.

5. Jhabua Power Ltd

- (i) Generation Project Details 1200 MW (2x600)
Distt- Seoni, Madhya Pradesh
- (ii) Commissioning schedule Dec'13 onwards
- (iii) Connectivity sought for 1200 MW but connectivity considered for 600MW from Jan'13 as fuel linkage is available for 1 unit only.
- (iv) Step up Voltage 400kV
- (v) Connectivity granted
 - Jhabua Power TPS– Jabalpur Pooling Station 400kV D/c (High capacity) line.
 - Termination of the above line at 400 kV Jabalpur (PG) substation as an interim arrangement.

6. Regal Energy Ltd

- (i) Generation Project Details 2640 MW(4x660MW)
Distt- Gadchiroli, Maharashtra
- (ii) Commissioning schedule Nov'14 onwards

- | | | |
|-------|-------------------------|---|
| (iii) | Connectivity sought for | 2640MW from Jul'14 |
| (iv) | Step up Voltage | 765kV |
| (v) | Connectivity | <ul style="list-style-type: none"> ➤ Connectivity agreed in principle through Regal TPS – Wardha 765kV D/c line. ➤ Project developer to withdraw their connectivity application from MSETCL. ➤ Connectivity to the generation project shall be granted on achieving minimum progress in terms of at least 70% land possession, LOA for fuel linkage, forest and environment clearance. |

7. Nuclear Power Corporation Limited- Jaitapur

- | | | |
|-------|----------------------------|---|
| (i) | Generation Project Details | 3480 MW (2X1740MW)
Distt- Ratnagiri, Maharashtra |
| (ii) | Commissioning schedule | 2018 onwards |
| (iii) | Connectivity sought for | 3480MW from 2018 |
| (iv) | Step up Voltage | 765kV |
| (v) | Connectivity | <ul style="list-style-type: none"> ➤ Connectivity agreed in principle through Jaitapur NPP – Kolhapur(PG) 765kV D/c line. ➤ Scope of the generation switchyard – provision of 4 nos. 765kV bays along with 4 nos. 240MVAR line reactors, 1x240MVAR, 765kV bus reactor. Short circuit level - 50kA. ➤ Applicant advised to apply for LTA so that transmission system strengthening can be identified. |

8. Jinbhuvish Power Generation Pvt Ltd.

- | | | |
|-------|----------------------------|---|
| (i) | Generation Project Details | 600 MW(2x300MW)
Distt-Yavatmal, Maharashtra |
| (ii) | Commissioning schedule | Dec'13 onwards |
| (iii) | Connectivity sought for | 600MW from Nov'13 |
| (iv) | Step up Voltage | 400kV |
| (v) | Connectivity | <ul style="list-style-type: none"> ➤ Connectivity agreed in principle through LILO of one ckt of 400kV Wardha – Parli D/c line. ➤ Project developer to withdraw their connectivity application from MSETCL. |

- Connectivity to the generation project shall be granted on achieving minimum progress in terms of at least 70% land possession, LOA for fuel linkage, forest and environment clearance.

9. Sintex Power Ltd.

- | | | |
|-------|----------------------------|--|
| (i) | Generation Project Details | 1708 MW (2x660MW – super critical + 1x251MW – natural gas + 1x 137MW- natural gas)
Distt- Amreli, Gujarat |
| (ii) | Commissioning schedule | U1 – Aug'15 onwards |
| (iii) | Connectivity for | 1708MW from Dec'13 |
| (iv) | Step up Voltage | 400kV |
| (v) | Connectivity | <ul style="list-style-type: none"> ➤ Connectivity agreed in principle through Sintex Power TPS – Pirana 400kV D/c (Quad) line. ➤ Connectivity to the generation project shall be granted on achieving minimum progress in terms of at least 70% land possession, LOA for fuel linkage, forest and environment clearance. |

Note: 1. Progress of the generation project should be submitted within 6 months i.e, by Nov-Dec'11 so that connectivity can be granted after assessing the same by the CTU.

2. The applicants were advised to apply for Long Term Access so that transmission system strengthening could be identified.

B. Applications for Grant of Connectivity & LTA

1. Shri Lakshmi Power Ltd

- | | | |
|-------|----------------------------|---|
| (i) | Generation Project Details | 360MW (1x360MW)
District- Raipur, State-Chhattisgarh |
| (ii) | Commissioning schedule | U-1: Jun'13 |
| (iii) | Connectivity sought for | 360MW from Jun'13 |
| (iv) | LTA sought for | 213 MW from Jun'14 (25 Years) |
| (v) | Step up Voltage | 400kV |
| (vi) | Target beneficiary region | 128MW (NR) & 85MW (WR) |
| (vii) | Connectivity | <ul style="list-style-type: none"> ➤ Connectivity agreed in principle through SLPL TPS – Champa Pooling Station 400kV D/c line. ➤ Connectivity to the generation project shall be granted on achieving minimum progress in terms of at least 70% land possession, LOA for fuel linkage, forest and environment clearance. |

- (viii) LTA
- Long term access agreed in principle to be provided through the Transmission system strengthening in WR–NR transmission corridor (to be shared along with other IPPs)
 - Upgradation of $\pm 800\text{kV}$, 3000MW HVDC bipole between Champa Pooling Station – Kurukshetra (NR) to 6000MW
 - Kurukshetra (NR) – Jind 400kV D/c (Quad)
 - Kurukshetra (NR) – suitable location near Ambala 400kV D/c (Quad).

2. Ozone Steel & Power Ltd (OSPL)

- | | | |
|--------|----------------------------|---|
| (i) | Generation Project Details | 350 MW(1x350MW)
Distt.- Bilaspur, Chhattisgarh |
| (ii) | Commissioning schedule | U-1: Jun'14 |
| (iii) | Connectivity sought for | 350 MW from Jun'14 |
| (iv) | LTA sought for | 320 MW from Jun'14 (25 Years) |
| (v) | Step up Voltage | 400kV |
| (vi) | Target beneficiary region | 192MW (WR), 128MW (NR) |
| (vii) | Connectivity | <ul style="list-style-type: none"> ➤ Connectivity agreed in principle through OSPL TPS – Champa Pooling Station 400kV D/c line. ➤ Connectivity to the generation project shall be granted on achieving minimum progress in terms of at least 70% land possession, LOA for fuel linkage, forest and environment clearance. |
| (viii) | LTA | <ul style="list-style-type: none"> ➤ Long term access agreed in principle to be provided through the Transmission system strengthening in WR–NR transmission corridor (to be shared along with other IPPs) <ul style="list-style-type: none"> • Upgradation of $\pm 800\text{kV}$, 3000MW HVDC bipole between Champa Pooling Station – Kurukshetra (NR) to 6000MW • Kurukshetra (NR) – Jind 400kV D/c (Quad) • Kurukshetra (NR) – suitable location near Ambala 400kV D/c (Quad). |

3. DB Power (MP) Ltd

- | | | |
|-------|----------------------------|---|
| (i) | Generation Project Details | 1320 MW(2x660MW)
Distt.- Singrauli, State-MP |
| (ii) | Commissioning schedule | U-1: Jul'14, U-2: Dec'14 |
| (iii) | Connectivity sought for | 1320 MW from Mar'14 |
| (iv) | LTA sought for | 810 MW from Mar '14 (25 years) |

(v)	Step up Voltage	400kV
(vi)	Target Beneficiaries	50% WR and 50% NR
(vii)	Connectivity granted	➤ DB TPS – Vindhyachal Pooling Station 400kV D/c (Quad) line.
(viii)	LTA Granted	➤ Transmission system strengthening in WR (to be shared with other IPPs) <ul style="list-style-type: none"> • Vindhyachal Pooling Station – Jabalpur Pooling station 765kV D/c • Jabalpur Pooling Station – Bina 765kV S/c (3rd) (<i>Implementation through pvt. Sector</i>) ➤ Transmission system strengthening in WR-NR transmission corridor (to be shared with other IPPs) <ul style="list-style-type: none"> • Jabalpur Pooling station – Orai 765 kV D/c (one ckt) line. • Orai – Bulandshahar – Sonipat 765 kV D/c (one ckt) line. • Sonipat-Kaithal 400kV D/c (Quad) line.

4. Hindustan Electricity Generation Company Pvt Ltd. (HEGL)

M/s HEGL requested to hold their applications for the time being and reconsider the same in the next meeting of Standing Committee/ applications of Connectivity/Long term Access/Medium Term Open Access in WR.

C. Applications for Grant of Long Term Open Access (LTOA)

1.Sarda Energy and Minerals (SEML) (350MW)

(i)	Generation Project Details	350MW (2x135MW + 30MW + 50 MW) Dist- Raigarh, Chattishgarh
(ii)	Commissioning schedule	Jan 14 onwards
(iii)	LTOA sought for	156 MW from Feb 14 for 25 years
(iv)	Step up Voltage	400kV
(v)	Target Beneficiaries	WR: 51 MW, NR: 50MW, CSPTCL: 55 MW
(vi)	LTOA Granted (In the 31 st SCM the application was closed but subsequently the applicant has furnished the progress and their LTOA application has been considered)	➤ Dedicated transmission system <ul style="list-style-type: none"> • SEML TPS – Raigarh Pooling Station (near Tamnar) 400kV D/c line ➤ Transmission system strengthening in WR-NR transmission corridor (to be shared along with other IPPs) <ul style="list-style-type: none"> • Upgradation of ±800kV, 3000MW HVDC bipole between Champa Pooling Station – Kurukshetra(NR) to 6000MW

- Kurukshetra(NR)–Jind 400kV D/c(Quad) line.
- Kurukshetra(NR)–suitable location near Ambala 400kV D/c(Quad) line.
- 1x1500 MVA (4th), 765/400kV transformer at Raigarh Pooling Stati on (near Tamnar) (to be shared with M/s Jayswal Neco Urja Ltd.)

D. Applications for Grant of Long Term Access (LTA)

1. Essar Power Gujarat Ltd (3240MW)

(i)	Generation Project Details	3240MW (4x150MW + 4x660MW) Dist- Jamnagar, Gujarat
(ii)	Commissioning schedule	U-1: Jun'12 onwards
(iii)	LTA granted	250 MW from Mar'14 (for 25 years)
(iv)	Step up Voltage	400kV
(v)	Target Beneficiaries	SR: 250MW
(vi)	Connectivity granted (in the 30 th SCM/ 12 th LTA meeting)	<ul style="list-style-type: none"> ➤ EPGL TPS – Bachau 400kV D/c (Triple) ➤ LILO of Mundra UMPP – Jetpur 400kV one ckt. at EPGL TPS (<i>interim arrangement</i>)
(vii)	LTA Granted	<ul style="list-style-type: none"> ➤ Transmission system strengthening in SR-WR Tr. corridor (to be shared with IPPs in SR & WR) <ul style="list-style-type: none"> • Narendra (GIS) – Kolhapur (GIS) 765kV D/c line (initially to be operated at 400 kV) • LILO of both circuits of existing Kolhapur – Mapusa 400 kV D/c line at Kolhapur (new) • Kolhapur – Padghe 765kV D/c one circuit via Pune(initially to be operated at 400 kV) • Narendra (GIS) – Narendra (existing) 400 kV D/c Quad • Establishment of new 400 kV substation each at Narendra (GIS) and Kolhapur (GIS) (to be upgraded to 765 kV)

2. Jayaswal Neco Urja Ltd (2x300MW) (erstwhile Raigarh Energy Ltd.)

(i)	Generation Project Details	600MW (2 x 300MW) Dist-Raigarh, Chhatisgarh.
(ii)	Commissioning schedule	U-1: Dec'13, U-2 : Jul'15
(iii)	LTA sought for	600 MW from Jul'14 (20 years)
(iv)	Step up Voltage	400kV

- | | | |
|-------|--|---|
| (v) | Target Beneficiaries | WR – 390MW, NR – 210MW |
| (vi) | Connectivity granted
(in the 30 th SCM/ 12 th LTA meeting) | ➤ JNUL TPS – Raigarh Pooling Station (near Tamnar) 400kV D/c |
| (vii) | LTA Granted | ➤ Transmission system strengthening in WR-NR transmission corridor (to be shared along with other IPPs) <ul style="list-style-type: none"> • Upgradation of ±800kV, 3000MW HVDC bipole between Champa Pooling Station – Kurukshetra(NR) to 6000MW • Kurukshetra(NR)–Jind 400kV D/c(Quad) line. • Kurukshetra(NR)–suitable location near Ambala 400kV D/c(Quad) line. • 1x1500 MVA (4th), 765/400kV transformer at Raigarh Pooling Station (near Tamnar) (to be shared with M/s Sarda Energy Ltd.) |

3. Torrent Energy Ltd (1200MW)

- | | | |
|-------|---|---|
| (i) | Generation Project Details | 1200MW (3 x 400MW)
Dist-Bharuch, Gujarat |
| (ii) | Commissioning schedule | U-1: Jan'13, U-2 : Mar'13, U-3 : May'13 |
| (iii) | LTA granted for | 1200 from Dec '13 MW for 12 years and one month |
| (iv) | Target beneficiaries | 1200 MW (400MW – TPL Ahmedabad & others),
400MW (NR), 400MW(WR)) |
| (v) | Step up Voltage | 400kV |
| (vi) | Connectivity granted
(in the 31 st SCM/ 13 th LTA meeting) | ➤ TEL (DGEN) TPS – Navsari 400kV D/c (Triple snowbird) line. |
| (vii) | LTA Granted
(LTA already granted in the 31 st SCM/ 13 th LTA meeting revised) | ➤ Transmission system strengthening in WR <ul style="list-style-type: none"> • TEL (DGEN) TPS – Vadodara 400kV D/c line. • 220kV Navsari(PG) - Bhestan D/c line. ➤ Dedicated transmission system for drawl at TPL Ahmedabad (under the scope of developer) <ul style="list-style-type: none"> • LILO of one ckt of 400kV Dehgam-Pirana D/c line at 400kV Nicol (<i>subject to PPA approval by GERC for 400 MW</i>) |

4. Chitrangi Power Private Ltd. (3960MW)

M/s Chitrangi Power Ltd. was not present in the meeting. The LTA application would be taken up in the next meeting.

E. Applications for Grant of MTOA

The MTOA applications of Electricity Department UT DNH and Electricity Department, Daman UT DD for transfer of 32MW and 22MW respectively from NSPCL (2x250MW) generating station in Bhilai were discussed. It was agreed that MTOA may be granted to Electricity Department UT DNH for 32 MW and Electricity Department, Daman UT DD for 22MW from 500MW NSPCL (Bhilai) generating station in Chhattisgarh for the period Jun'11 to Mar'12.

F. LTOA Applications withdrawn/Closed

S.No.	LTA Applicant	Application withdrawn/ closed
1.	<p>M/s Air Liquide India Holding Pvt. Ltd</p> <ul style="list-style-type: none"> LTOA granted for 6 MW from Warora generating station in Maharashtra to its manufacturing facility in Gujarat CERC Regulation 2004. BPTA signed from Aug 2010 The applicant had requested for cancellation of LTOA due to delay in commissioning of Warora generation and change in drawal point. 	<ul style="list-style-type: none"> Cancellation of the LTOA agreed. CERC direction to be taken up for "exit" option in the CERC Regulations 2004
2.	<p>M/s Indiabulls Power co. Ltd</p> <ul style="list-style-type: none"> LTOA granted for transfer of 390 MW (WR-260 MW, NR-130 MW) from generating station (1320 MW) at Nandangaonpet in Maharashtra on 01.10.2009 as per CERC Regulation 2004. BPTA not signed. The applicant had requested for cancellation of LTOA as they have signed PPA for 1200 MW with Maharashtra State Electricity Distribution Co. Ltd. 	<ul style="list-style-type: none"> Cancellation of the LTOA agreed
3.	<p>M/s Chhattisgarh Steel & Power Ltd (CSPL)</p> <ul style="list-style-type: none"> LTOA granted for transfer of 167 MW (WR-120 MW, NR-47 MW) from their generating station (285 MW) in Chattishgarh as per CERC Regulation 2004. BPTA signed but bank guarantee not furnished. The applicant has informed that they are not able to sign MoU with Chattishgarh state govt., so they are not able to initiate the development of the project. 	<ul style="list-style-type: none"> Cancellation of the LTOA agreed POWERGRID shall examine whether CERC direction is required for exit option in this case and take suitable action.
4	<p>M/s JSW Energy Ltd</p> <ul style="list-style-type: none"> LTOA granted for transfer of 300 MW (NR- 300 MW) from their generating station (1200 MW) in Maharashtra on 16.03.2009 as per CERC Regulation 2004. The applicant has not signed BPTA despite several reminders. 	<ul style="list-style-type: none"> Cancellation of the LTOA agreed

S.No.	LTA Applicant	Application withdrawn/ closed
5	<p>Sona Power Pvt. Ltd.(2x660MW)</p> <ul style="list-style-type: none"> • Application for transfer of 1234 MW was discussed in the 31st SCM of WR wherein it was decided that application shall be discussed further. • Subsequently the applicant has furnished their progress and requested for considering their LTOA application 	<ul style="list-style-type: none"> • Progress not satisfactory. • Application to be reviewed in six months time (<i>by Nov'11-Dec'11</i>) and shall be considered closed if minimum progress in terms of at least 70% land possession, LOA for fuel linkage, forest and environment clearance is not achieved. • After that the applicant may apply afresh as per CERC Regulation 2009.
6.	<p>Godawari Energy Ltd.(2x600MW)</p> <ul style="list-style-type: none"> • Application already closed in the 31st SCM of WR. • Subsequently the applicant has furnished their progress and requested for considering their LTOA application 	<ul style="list-style-type: none"> • Application to be reviewed in six months time (<i>by Nov'11-Dec'11</i>) and shall be considered closed if minimum progress in terms of at least 70% land possession, LOA for fuel linkage, forest and environment clearance is not achieved. • After that the applicant may apply afresh as per CERC Regulation 2009.
7.	<p>Sarda Energy & Minerals (2x660MW)</p> <ul style="list-style-type: none"> • Application already closed in the 31st SCM of WR. • Subsequently the applicant has furnished their progress and requested for considering their LTOA application. 	<ul style="list-style-type: none"> • Application to be reviewed in six months time (<i>by Nov'11-Dec'11</i>) and shall be considered closed if minimum progress in terms of at least 70% land possession, LOA for fuel linkage, forest and environment clearance is not achieved. • After that the applicant may apply afresh as per CERC Regulation 2009.

G. Interim / Dedicated transmission arrangement for IPPs in WR

Following interim transmission arrangements for the IPPs who have already granted Long-term open access were agreed:

S.No.	IPP	Earlier Agreed Dedicated / Interim Transmission System	Modified Dedicated/ Interim Transmission arrangement
1.	M/s ACB (I) (erstwhile Aryan Coal Benefication Ltd.), 2X135 MW Unit 1: May/June 2011	<p>Dedicated system:</p> <ul style="list-style-type: none"> ACB TPS- WR Pooling Station 400kV D/c line <p>WR Pooling Station is scheduled for commissioning by February 2012</p>	<p>Interim arrangement:</p> <ul style="list-style-type: none"> LILO of 400kV Korba-Bhatapara S/c line at Aryan TPS Restoration of 400kV Korba-Bhatapara S/c line by removing LILO after commissioning of Aryan-WR Pooling Station (Bilaspur) 400kV D/c line
2.	M/s BALCO, 4X300 MW Unit1 : June 2011	<p>Dedicated system:</p> <ul style="list-style-type: none"> BALCO-Champa Pooling station 400kV D/c (Triple) <p>Interim arrangement:</p> <ul style="list-style-type: none"> LILO of both ckts of 400kV Korba-Birsinghpur D/c line at BALCO Restoration of 400kV Korba-Birsinghpur D/c by removing LILO after commissioning of 400kV BALCO - Champa Pooling Station D/c <p>Note:</p> <p>(i) In 2nd meeting of Coordination Committee of IPPs in Chattishgarh held on 17.02.2011, it was deliberated that LILO of only ckt. was adequate for interim arrangement.</p> <p>(ii) Presently Korba – Birsinghpur 400 kV D/C line delayed due to forest clearance issues. Some portion of the line is ready from Korba end.</p>	<p>Dedicated system:</p> <ul style="list-style-type: none"> BALCO-Dharamjaygarh / Korba Pooling station 400kV D/c (high capacity) <p>Interim arrangement:</p> <p>After commissioning of Korba – Raipur 400 kV D/C line and before availability of 400kV Korba-Birsinghpur line</p> <ul style="list-style-type: none"> BALCO TPS – Korba 400 kV S/C line utilizing ckt. 1 of the completed portion of Korba – Birsinghpur 400 kV D/C. <p>After availability of 400kV Korba- Birsinghpur line</p> <ul style="list-style-type: none"> Opening of BALCO TPS – Korba 400 kV S/C line LILO of one ckt 1. of 400kV Korba-Birsinghpur D/c line at BALCO <p>After availability of Dharamjaygarh 765/400 kV S/s</p> <ul style="list-style-type: none"> Restoration of 400kV Korba-Birsinghpur line by removing LILO. BALCO – Dharamjaygarh / Korba Pooling Station 400kV D/c (High capacity) line.

S.No.	IPP	Earlier Agreed Dedicated / Interim Transmission System	Modified Dedicated/ Interim Transmission arrangement
3.	<p>M/s Vandana Vidyut limited (VVL) (2X135 MW + 1X270 MW)</p> <p>Unit 1 : Jan 2012</p>	<p>Dedicated system:</p> <ul style="list-style-type: none"> • VVL TPS – Champa Pooling station 400kV D/c <p>Interim arrangement :</p> <ul style="list-style-type: none"> • LILO of Korba - Birsinghpur 400kV one ckt. at Vandana Vidhyut • Restoration of 400kV Korba-Birsinghpur line by removing LILO after commissioning of 400kV VVL – Champa Pooling Station D/c line • Presently Korba – Birsinghpur 400 kV D/C line delayed due to forest clearance issues. Some portion of the line is ready from Korba end. 	<p>Dedicated system:</p> <ul style="list-style-type: none"> • VVL TPS – Dharamjaygarh/ Korba Pooling station 400kV D/c <p>Interim arrangement :</p> <p>After commissioning of Korba – Raipur 400 kV D/C line and before availability of 400kV Korba-Birsinghpur line</p> <ul style="list-style-type: none"> • VVL TPS – Korba 400 kV S/C line utilizing ckt. 2 of the completed portion of Korba – Birsinghpur 400 kV D/C. <p>After availability of 400kV Korba- Birsinghpur line</p> <ul style="list-style-type: none"> • Opening of VVL TPS – Korba 400 kV S/C line • LILO of one ckt 2. of 400kV Korba-Birsinghpur D/c line at VVL <p>After availability of Dharamjaygarh 765/400 kV S/s</p> <ul style="list-style-type: none"> • Restoration of 400kV Korba-Birsinghpur line by removing LILO. • VVL TPS – Dharamjaygarh/ Korba Pooling Station 400kV D/c line.
4	<p>M/s Korba(West) Power Ltd. (1x600MW)</p> <p>Unit 1 : Nov 2012</p>	<p>Dedicated system :</p> <ul style="list-style-type: none"> • LILO of Athena Chhattisgarh – Raigarh Pooling Station 400kV D/c at Korba(W). 	<p>Dedicated system :</p> <ul style="list-style-type: none"> • Korba (W) - Raigarh Pooling Station 400kV D/c line. <p>Interim arrangement:</p> <ul style="list-style-type: none"> • LILO of one ckt of Raigarh– Raipur 400kV D/c at Korba West TPS. • Restoration of 400kV Raigarh– Raipur 400kV D/c line by removing LILO after commissioning of Korba West - Raigarh Pooling Station 400kV D/c line.

S.No.	IPP	Earlier Agreed Dedicated / Interim Transmission System	Modified Dedicated/ Interim Transmission arrangement
5	DB Power Ltd. (2x600MW) Unit 1: March 2013 50 MW start up power requirement from April 2012 onwards	<p>Dedicated system:</p> <ul style="list-style-type: none"> DB Power – Raigarh Pooling Station (near Kotra) 400kV D/c (Quad) <p>The Raigarh (Kotra) PS is scheduled for commissioning in the 2013-14 time frame.</p>	<p>Interim arrangement:</p> <ul style="list-style-type: none"> LILO of one ckt of Raigarh– Raipur 400kV D/c at DB TPS. Restoration of 400kV Raigarh– Raipur 400kV D/c line by removing LILO after commissioning of DB Power – Raigarh Pooling Station (near Kotra) 400kV D/c (Quad) line
6	RKM Powergen Ltd. (4x360MW)	<p>Dedicated system:</p> <ul style="list-style-type: none"> RKM Powergen – Raigarh Pooling Station(near Kotra) 400kV D/c(Quad) <p>Interim arrangement:</p> <ul style="list-style-type: none"> LILO of Rourkela- Raigarh 400kV D/c at RKM Powergen <p>Route Survey by RKM indicates that they are in proximity of the route of Raigarh – Raipur D/c 400 kV line.</p>	<p>Interim arrangement:</p> <ul style="list-style-type: none"> LILO of both circuits of 400kV Raigarh – Raipur D/c line at RKM TPS. Restoration of 400kV Raigarh– Raipur 400kV D/c line by removing LILO after commissioning of RKM Powergen – Raigarh Pooling Station (near Kotra) 400kV D/c (Quad) line

Note: It may be noted that above are purely interim arrangement. LILO and restoration to original configuration would have to be carried out by the respective project developer. Till the availability of planned network, in case of any transmission constraints the above generators would have to be backed down and priority shall be given for evacuation of power from those generation stations who are having their identified transmission system along with their long term beneficiaries. Special Protection Schemes to bring down the generation level in case of transmission constraints has to be put into place by the IPP along with the implementation of LILO arrangement.

H. Modification in LTA quantum/commencement of LTA

Some of the applicant who has already been granted LTA/LTOA has requested for modification in the LTA quantum/commencement of LTA. The modifications requested were agreed and the summary of the same is as given below:

S.No.	LTA Applicant	LTOA / LTA granted for	Modifications agreed in the LTOA / LTA
1.	M/s Visa Power Ltd	<ul style="list-style-type: none"> Transfer of 678 MW (WR-478 MW, NR-200 MW) from their generating station (1200 MW) in Chattishgarh. 	<ul style="list-style-type: none"> The applicant had signed PPA of 200 MW with WBSEDCL (ER). <p>Modified LTA:</p> <ul style="list-style-type: none"> Transfer of 678 MW (WR-278 MW, NR-200 MW and ER-200 MW) from generating station (1200 MW) in Chattishgarh.

S.No.	LTA Applicant	LTOA / LTA granted for	Modifications agreed in the LTOA / LTA
2.	M/s Karnataka Power Corporation Ltd. (KPCL)	<ul style="list-style-type: none"> Transfer of 1040 MW (SR-1040 MW) from their generating station (1600 MW) in Chattishgarh from September 2014. 	<ul style="list-style-type: none"> At the time signing of BPTA the applicant has requested for change in LTA quantum and commencement date. <p>Modified LTA:</p> <ul style="list-style-type: none"> Transfer of 763 MW (SR-763 MW) from their generating station (1600 MW) in Chattishgarh from September 2015.
3.	M/s Prakash Industries Ltd.(PIL)	<ul style="list-style-type: none"> Transfer of 500 MW (NR-500 MW) from their generating station (625 MW) in Chattishgarh from February 2013. 	<ul style="list-style-type: none"> At the time signing of BPTA the applicant has requested for change in LTA quantum and commencement date. <p>Modified LTA:</p> <ul style="list-style-type: none"> Transfer of 500 MW (WR-200 MW, NR-300 MW) from their generating station (625 MW) in Chattishgarh from September 2014.
4	M/s CSPTCL (Chattishgarh State Power Trading Co. Ltd) for their share from M/s Karnataka Power Corporation Ltd.	<ul style="list-style-type: none"> Transfer of 560 MW (WR-336 MW, NR-224 MW) from M/s Karnataka Power Corporation generation plant (1600 MW) in Chattishgarh from September 2014. 	<p>Modified LTA:</p> <ul style="list-style-type: none"> Transfer of 515 MW (WR-309 MW, NR-206 MW) from M/s Karnataka Power Corporation generation plant (1600 MW) in Chattishgarh from September 2015.
5	M/s Shri Bajrang Power & Ispat Ltd	<ul style="list-style-type: none"> Transfer of 45 MW (NR- 22.5, WR-22.5 MW to Maharastra) from Rupin HEP in Himachal Pradesh from June 2014 for 40 years. 	<ul style="list-style-type: none"> The applicant has revised the quantum and commencement date in the LTA meeting of NR held on 29.12.2010. <p>Modified LTA:</p> <ul style="list-style-type: none"> Transfer of 39.6 MW (NR- 20 MW , WR- 19.6 MW to Maharastra) from Rupin HEP in Himachal Pradesh from June 2016 for 40 years

I. Sharing of dedicated transmission line by Aryan Coal Beneficiations and Maruti Clean Coal Ltd.

M/s ACB (270 MW) and M/s MCCL (300 MW) had been granted long term open access with the following dedicated transmission system:

- (i) ACB TPS – WR (Bilaspur) pooling station 400 kV D/C line.
- (ii) MCCL TPS – WR (Bilaspur) pooling station 400 kV D/C line.

M/s MCCL informed that that they have made arrangement with ACB for sharing of the dedicated transmission system. As such the revised transmission system for M/s ACB and M/s MCCL proposed was as under:

- (i) ACB TPS – WR pooling station 400 kV D/C line.
- (ii) LILO of ACB TPS – WR pooling station 400 kV D/C line at MCCL TPS generation switchyard.

It was noted that M/s ACB and M/s MCCL were two different companies therefore before agreeing for the above proposed revised transmission system the sharing agreement between the two companies needs to be in place. M/s MCCL agreed to the same. M/s ACB agreed to the same. It was decided that agreement of ACB & MCCL in this regard shall be discussed with CEA& POWERGRID.

J. Shifting of interconnection point of Balco TPS and Vandana Vidyuth TPS from Champa Pooling Station to Dharamjaygarh

Earlier interconnection of Balco TPS and Vandana Vidyuth TPS was provided at 400kV Champa Pooling Station. In view of the proximity of their generation project to Dharamjaygarh and considering the RoW problem they had requested for change in connectivity from Champa to Dharamjaygarh. This change in connectivity was agreed. To facilitate above interconnection, strengthening at Dharamjaygarh/ Korba pooling station through installation of 765/400kV, 2x1500MVA transformers at Dharamjaygarh/ Korba was agreed which would to be implemented by POWERGRID. The project developers have to sign the BPTA for sharing of its transmission charges. The dedicated transmission system under the scope of the project developer was as under:

BALCO TPS

- (i) Balco TPS – Dharamjaygarh/ Korba 400kV D/c (High capacity) line.

Vandan Vidhyut TPS

- (i) Vandana Vidyuth TPS – Dharamjaygarh/ Korba 400kV D/c line.

List of Participants during the 32nd Meeting of Standing Committee of Power System Planning in WR held on 13.5.2011 at NRPC, Katwaria Sarai, New Delhi.

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STATUS OF WESTERN REGION TRANSMISSION SCHEMES

1	2	3	4	5	6	7	8
S. No.	Description of Scheme	Est. Cost (Crore)	Firmed in SCM of WR	Date of FR	Date of IA	Target date	Remarks
1.	<p>East-West Tr. Corridor Strengthening scheme</p> <p>a) Ranchi-Rourkela 400kV D/c .. commissioned</p> <p>b) Rourkela-Raigarh 400 kV D/c</p> <p>c) Raigarh-Raipur 400 kV D/c..commissioned</p> <p>d) 40% FSC on Raigarh-Raipur 400 kV 2nd D/c</p>	803	20 th (23.01.04)	Jul'04	June'06	Jun'11	Under implementation
2.	<p>Western Region System Strengthening Scheme-II</p> <p>Set-A: For absorbing import in eastern and central part of WR Grid (POWERGRID)</p> <p>a) Raipur – Wardha 400kV D/c</p> <p>b) Seoni – Wardha 765kV 2nd S/c (initially to be operated at 400kV)</p> <p>c) Wardha – Parli(PG) 400kV D/c (Quad)</p> <p>d) Bhadravati – Parli(PG) 400kV D/c</p> <p>e) Parli(MSEB) – Parli(PG) 400kV D/c</p> <p>Set-B: For regional strengthening in Southern Maharashtra (100 % private)</p> <p>a) Parli(PG) - Pune 400kV D/c</p> <p>b) Pune – Aurangabad 400kV D/c</p> <p>c) Parli(PG) – South Solapur 400kV D/c</p> <p>d) South Solapur - Kolhapur 400kV D/c</p> <p>e) LILO of Lonikhand – Kalwa 400kV D/c line at Pune</p> <p>f) LILO of Sholapur – Karad 400kV S/c line at South Solapur</p>	<p>5222</p> <p>1700</p> <p>1050</p>	20 th (23.01.04)	Sep'05 (Rev)	July'06	<p>Dec'11</p> <p>Dec'11</p>	<p>POWERGRID scope of works under implementation</p> <p>Implementation by Reliance scope</p>

1	2	3	4	5	6	7	8
S. No.	Description of Scheme	Est. Cost (Crore)	Firmed in SCM of WR	Date of FR	Date of IA	Target date	Remarks
	<p>Set-C: For regional strengthening in Gujarat (100 % private)</p> <p>a) Rajgarh – Karamsad 400kV D/c</p> <p>b) Limdi(Chorania) – Ranchodpura 400kV D/c</p> <p>c) Ranchodpura – Zerda(Kansari) 400kV D/c</p> <p>Set-D: For regional Strengthening in Northern Madhya Pradesh (POWERGRID)</p> <p>a) Korba STPP – Birsinghpur 400kV D/c</p> <p>b) Birsinghpur - Damoh 400kV D/c commissioned</p> <p>c) Damoh - Bhopal 400kV D/c commissioned</p> <p>d) Bina – Gwalior 765kV 2nd S/c (initially to be operated at 400kV)..commissioned</p> <p>Sub-Stations (POWERGRID)</p> <p>a) Establishment of 400/220kV 2x315MVA substation at Pune and South Solapur</p> <p>b) Establishment of 400kV switching station at Parli(PG)</p> <p>c) 25% Fixed Series Compensation at Rajgarh & Wardha</p> <p>d) Bay extension of existing substations to terminate lines under : Set-A,Set-B,Set-C,Set-D</p>	600				Sep'11	Implementation by Reliance scope
		1050					
		830					
3.	<p>Western Region System Strengthening -V</p> <p>a) 400 kV Vapi- Navi Mumbai D/c</p>	471	25 th (30.09.06)	Jan'07	Dec'07	Mar'11	Under implementation

1	2	3	4	5	6	7	8
S. No.	Description of Scheme	Est. Cost (Crore)	Firmed in SCM of WR	Date of FR	Date of IA	Target date	Remarks
	b) LILO of 400 kV Lonikhand/Pune - Kalwa line at Navi Mumbai c) Establishment of 400/220 kV, 2 x 315 MVA new S/s (GIS) at Navi Mumbai d) 220 kV Vapi- Khadoli D/c						
4.	Western Region System Strengthening -VI a) Pirana – Dehgam 400 kV D/c..commissioned b) Establishment of 400/220 kV, 2 x 315 MVA S/s at Pirana c) Installation of additional 400/220 kV, 1x315 MVA transformers along with associated 220 kV line bays at Wardha, Pune, Gwalior, Raipur and Bina(PG)..part commissioned	311	25 th (30.09.06)	Jan'07	Feb'08	Dec'11	Under implementation
5.	Western Region System Strengthening -IX a) LILO of 400kV Bina-Nagda D/c line at Shujalpur b) Establishment of 400/220kV 2x315MVA substation at Shujalpur	231	26 th (23.02.07)	Jun'07	Apr'08	Oct'11	Under implementation
6.	Tr. System of Sasan Ultra Mega Power Project (4000 MW) Transmission Lines a) Sasan – Satna 765 kV 2xS/c b) Satna - Bina(PG) 765 kV 2xS/c c) Bina(PG)-Indore(PG) 765 kV S/c d) LILO of Vindhyachal-Jabalpur 400 kV D/c at Sasan e) Indore (MP)–Indore(PG) 400kV D/c (Quad) f) Bina(PG)-Bina(MP) 400 kV D/c	5323	26 th (23.02.07)	Jun'07	Dec'08	Dec'12	Under implementation

1	2	3	4	5	6	7	8
S. No.	Description of Scheme	Est. Cost (Crore)	Firmed in SCM of WR	Date of FR	Date of IA	Target date	Remarks
	<p>Substations</p> <p>a) Establishment of new 765/400 kV, 2x1500MVA substation at Gwalior and 765/400 kV, 2x1000 MVA at Bina(PG) for charging of Bina-Gwalior and Agra-Gwalior 2xS/c lines at 765 kV level</p> <p>b) Provision of 765 kV Bays for charging of Seoni- Bina S/c line at 765 kV level</p> <p>c) Establishment of new 765/400 kV, 2x1000 MVA substation at Satna</p> <p>d) Establishment of new 765/400 kV, 2x1500 MVA substation at Indore(PG)</p>						
7.	<p>Tr. System of Mundra Ultra Mega Power Project (4000 MW)</p> <p>Transmission Lines</p> <p>a) Mundra – Bachchau-Ranchodpura 400 kV (Triple) D/c</p> <p>b) Mundra – Jetpur 400 kV (Triple) D/c</p> <p>c) Mundra – Limbdi 400 kV (Triple) D/c</p> <p>d) Gandhar-Navsari 400 kV D/c</p> <p>e) Navsari- Boisar 400 kV D/c</p> <p>f) LILO of both circuits of Kawas-Navsari 220 kV D/c at Navsari (PG)</p> <p>g) Wardha-Aurangabad 400 kV(Quad) D/c (with provision to upgrade at 1200 kV at later date)</p> <p>Substations</p> <p>a) 40% Fixed Series Compensation each on Wardha - Aurangabad 400 kV D/c at Wardha end</p> <p>b) Establishment of new 400/220 kV, 2x315 MVA</p>	4546	26th (23.02.07)	Jun'07	Oct'08	Oct'12	Under implementation

1	2	3	4	5	6	7	8
S. No.	Description of Scheme	Est. Cost (Crore)	Firmed in SCM of WR	Date of FR	Date of IA	Target date	Remarks
	substation at Navsari, Bachchau & a 400 kV switching station at New Location near Mumbai (GIS) c) Establishment of new 765/400 kV, 3x1500 MVA, substation at Wardha for charging of Seoni - Wardha 2xS/c lines at 765 kV level						
8.	Transmission system of Korba-III (500 MW) Gen. Project ▪ Korba STPS switchyard – Raipur 400kV D/c	347	27 th (30.07.07)	Dec'07	Feb'09	Jun'11	Under implementation
9.	Western Region strengthening scheme-X ▪ Establishment of 400/765kV 2x1500MVA WR Pooling Station near Sipat ▪ LILO of Sipat-Seoni 765kV S/c at WR Pooling Station	446	27 th (30.07.07)	Sep'07	Feb'09	Feb'12	Under implementation
10.	Western Region strengthening scheme-XI ▪ LILO of Sipat-Seoni 765kV 2 nd S/c at WR Pooling Station ▪ Installation of 765/400kV, 1x1500MVA 3rd transformer at WR Pooling Station	425.28	27 th (30.07.07)	Nov'08	Feb'09	Feb'12	Under implementation
11.	Western Region strengthening scheme-XII ▪ Pune–Navi Mumbai 400kV D/c	193	27 th (30.07.07)	May'08		28 months from Inv. approval	In matching time frame of Krishnapatnam UMPP project.
12.	Tr. System associated with DVC, Maithon in ER (Part system) ▪ Ranchi-WR Pooling Station 765kV S/c	1100	27 th (30.07.07)	Sept'07	Aug'08	Aug'12	Under implementation
13.	Transmission system associated with Krishnapatnam (5x800 MW)	2100	27 th (30.07.07)	Jan'08		48 months from	Investment approval awaited

1	2	3	4	5	6	7	8
S. No.	Description of Scheme	Est. Cost (Crore)	Firmed in SCM of WR	Date of FR	Date of IA	Target date	Remarks
	(WR Portion) <ul style="list-style-type: none"> ▪ Raichur – Sholapur 765 kV S/c ▪ Sholapur – Pune 765 kV S/c ▪ Pune (New) – Pune 400 kV Quad D/c ▪ Establishment of new 765/400 kV substations at Sholapur & Pune with 2x1500 MVA transformation capacity 					Inv. approval	
14.	Split Bus arrangement and reconfiguration/shifting of terminating lines at Raipur 400kV S/s <ul style="list-style-type: none"> ▪ Splitting 400kV Raipur bus into two sections between existing line bays of Chandrapur-1 & Chandrapur-2 through bus sectionaliser. ▪ Bypass 400kV Bhatapara-Raipur-Bhilai line at Raipur and restore the line as 400kV Bhatapara-Bhilai S/c ▪ Shifting of Chandrapur-2 and Chandrapur-3 line bays from Section Raipur-B* to Raipur-A*. 	16	28 th (06.12.08)	Apr'09	Aug'10	Nov'11	Under implementation
15.	Installation of 125 MVar Bus reactor at 400kV Rajgarh S/s	10	Special SCM (18.04.09)	Jun'09	July'10	May'12	Under implementation
16.	Associated transmission system of VSTPP-IV and Rihand-III <ul style="list-style-type: none"> ▪ Rihand-III- Vindhyachal Pool 765 kV 2xS/c (initially to be op. at 400kV) ▪ Vindhyachal-IV Vindhyachal Pool 400kV D/c(Quad) ▪ Vindhyachal Pool-Satna 765 kV 2xS/c ▪ Satna -Gwalior 765 kV 2xS/c ▪ Gwalior – Jaipur(South) 	4334	29 th (10.09.09)	Sep'09	Mar'10	Nov'12	Under implementation

1	2	3	4	5	6	7	8
S. No.	Description of Scheme	Est. Cost (Crore)	Firmed in SCM of WR	Date of FR	Date of IA	Target date	Remarks
	765 kV S/c <ul style="list-style-type: none"> ▪ Vindhyachal Pool-Sasan 765 kV S/c ▪ Vindhyachal Pool-Sasan 400 kV D/c ▪ Establishment of 765/400kV, 2x1500 MVA substation at Vindhyachal Pool 						
17.	Associated transmission system of Mauda Transmission System <ul style="list-style-type: none"> ▪ Mauda – Wardha 400kV D/c (Quad) -125 km 	290	29 th (10.09.09)	Oct'09	Feb'10	Oct'12	Under implementation
18.	Establishment of 400/220kV substation in UT DNH <ul style="list-style-type: none"> ▪ LILO of Navsari- Boisar 400kV D/c at Kala S/s in UT DNH-9 km ▪ Establishment of 400/220kV, 2x315 MVA substation at proposed Kala S/s in UT DNH 	179	28 th (06.12.08)	Jan'10		28 months from Inv. approval	Investment approval awaited
19.	Establishment of 400/220kV substation in UT Daman <ul style="list-style-type: none"> ▪ LILO of Vapi- Navi Mumbai 400kV D/c at suitable location in UT Daman-30 km ▪ Establishment of 400/220kV, 2x315 MVA substation at suitable location in UT Daman 	234	30 th (08.07.10)	Mar'10		28 months from Inv. approval	Investment approval awaited
20.	Installation of transformers at Vapi & Mapusa substations <ul style="list-style-type: none"> - Installation of 400/220kV, 1x315MVA transformer (3rd) each at Vapi(PG) and Mapusa(PG) S/s - 2 Nos 220kV line bays at Mapusa(PG) S/s 	48	30 th (08.07.10)	Nov'10		24 months from Inv. approval	DPR prepared
21.	Western Region System Strengthening Scheme-XIII <ul style="list-style-type: none"> • Bachau(PG)– Versana(GETCO) 400kV D/c-10 km 	49	30 th (08.07.10)	Jan'11		21 months from Inv. approval	DPR prepared

1	2	3	4	5	6	7	8
S. No.	Description of Scheme	Est. Cost (Crore)	Firmed in SCM of WR	Date of FR	Date of IA	Target date	Remarks
22.	Solapur STPP(2x660MW) transmission system <ul style="list-style-type: none"> ▪ Solapur STPP – Solapur (PG) 400kV D/c ▪ Solapur STPP – Pune(PG) [Pune S/s under Krishnapatnam UMPP] 400kV D/c (Quad) ▪ Augmentation of 400/220kV ICT by 1x315MVA transformer (3rd) at Solapur (PG) 	700	30 th (08.07.10)				DPR under preparation
23.	Spare transformers/reactors in WR <ul style="list-style-type: none"> ▪ 4 nos. 315 MVA ICTs ▪ 1x125 +1x80 MVAR shunt reactors 	64	15 th WRPC (12.11.10)	Sep'10		20 months from Inv. approval	DPR prepared
24.	Western Region System Strengthening Scheme-XIV <ul style="list-style-type: none"> ▪ Two no. 400 kV line bays at Indore (PG) 765/400 kV substation 	10	31 st (27.12.10)				DPR under preparation
26.	Transmission system for evacuation of Kakrapar Atomic Power Project unit 3 &4 (2X700 MW) <ul style="list-style-type: none"> • Kakrapar NPP – Navsari 400kV D/c – 65 km • Kakrapar NPP – Vapi 400kV D/c - 120 km 	250	31 st (27.12.10)				DPR under preparation
27.	Transmission System associated with Mauda Stage-II (2x660 MW) <ul style="list-style-type: none"> • Mauda II – Suitable location near Chindwara 400KV D/c (Quad)-110 km • Suitable location near Chindwara– Khandwa 400KV D/c (Quad)-300 km • Khandwa – Rajgarh 400kV D/c (2nd)-220 km • Establishment of 400/220kV 2x500MVA substation at a suitable location near Chindwara 	1100	31 st (27.12.10)				System Under review.