

## **Additional Agenda for 31<sup>st</sup> Meeting of Standing Committee on Power System Planning in Western Region**

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### **1.0 Termination of Aurangabad – Khargar 400 kV line at Boisar**

- 1.1 In the 30<sup>th</sup> Standing Committee meeting held on 8<sup>th</sup> July 2010, it was decided that the issue of termination of Aurangabad – Khargar 400 kV D/C (quad) line at Khargar or at any other location would be further discussed and decided between CEA, PGCIL and MSETCL.
- 1.2 Further deliberations were held on the issue and now Aurangabad (PG) – Boisar 400 kV D/C line is proposed instead of Aurangabad – Khargar 400 kV D/C (quad) line due to space constraints at Khargar 400 kV substation of MSETCL as a part of Transmission system within WR associated with new IPP projects in Chattishgarh.
- 1.3 It is observed that with termination of two nos. 400 kV D/C line (quad) , one from Aurangabad and other from Navsari, adequate outlets needs to be planned by MSETCL from Boisar to their load centers in and around Mumbai. MSETCL may intimate the transmission outlets planned from Boisar to their load centers.
- 1.4 In view of the limited space availability at Boisar for future expansion, PGCIL in the 30<sup>th</sup> Standing Committee meeting was requested to examine and explore the possibility of establishing a 400 kV GIS substation in the available space. PGCIL may intimate their findings.

### **2.0 Interconnection between Aurangabad(PG) – Aurangabad (MSETCL) 400 kV D/C (quad) line under System Strengthening in WR for Mundra UMPP**

- 2.1 Aurangabad(PG) –Aurangabad (MSETCL) 400 kV D/C (quad) was agreed as Regional system strengthening scheme in WR under Mundra UMPP Transmission system. Due to non availability of space at Aurangabad (MSETCL) for the interconnection, POWERGRID in the special meeting of Standing Committee held on 18.04.2010 at Mumbai had suggested termination of Akola – Aurangabad (MSETCL) 400 kV D/C line at Aurangabad (PG) instead of at Aurangabad (MSETCL). This would result in availability of two bays at Aurangabad (MSETCL) for construction of Aurangabad(PG) –Aurangabad (MSETCL) 400 kV D/C (quad) line. The same was agreed by the constituents.
- 2.2 In the 30<sup>th</sup> Standing Committee meeting held on 8<sup>th</sup> July 2010, Powergrid had informed that shifting of Akola – Aurangabad (MSETCL) 400 kV D/C line from Aurangabad (MSETCL) to Aurangabad (PG) involved huge dismantling/ de-stringing works as well as long duration shut downs would be required at MSETCL substation for carrying out the works. In view of this, Powergrid had proposed LILO of 400 kV Akola - Aurangabad (MSETCL) at Aurangabad (PG) instead of termination of Akola-Aurangabad (MSETCL) 400 kV D/C line at Aurangabad (PG). Since the LILO of 400 kV Akola-Aurangabad (MSETCL) at Aurangabad (PG) was resulting into interconnection between Aurangabad (MSETCL) and Aurangabad (PG) through a 400 kV D/C twin moose line instead of quad line as agreed earlier, therefore it was decided that the issue could be further deliberated in the next Standing Committee meeting.
- 2.3 The issue of interconnection between Aurangabad (MSETCL) and Aurangabad (PG) has been deliberated amongst MSETCL, CEA and Powergrid and the following has been agreed.
  - Aurangabad (PG) – Aurangabad I 400 kV Quad D/C line
  - Akola – Aurangabad I 400 kV D/C line would be diverted to Aurangabad (PG).

That is, the system as already agreed in the special meeting of Standing Committee held on 18.04.2010 at Mumbai.

Members may take note of the above.

**3.0 Implementation of 400 kV bays at Bhopal (MPPTCL) 400 kV substation by MPPTCL and Dhule (MSETCL) 400 kV substation by MSETCL for termination of 400 kV D/C quad line from Bhopal 765/400 kV and Dhule (IPTC) 765/400 kV substation respectively.**

- 3.1 2x1500 MVA, 765/400 kV Bhopal Substation and 2x1500 MVA, 765/400 kV Dhule (IPTC) Substation is a part of System strengthening in WR associated with IPPs in Orissa and Chattishgarh respectively and are being implemented under private sector through competitive bidding route. Their interconnection with the existing grid is through 400 kV D/C quad line at Bhopal (MPPTCL) and Dhule (MSETCL) 400 kV substation.
- 3.2 The proposal for construction of 400 kV line bays at Bhopal and Dhule 400 kV substation by the respective STU was given by CEA for termination of the interconnecting lines. MPPTCL and MSETCL have agreed for construction of line bays.
- 3.3 The tariff for the 400 kV lines bays (2 nos.) at Bhopal 400 kV substation for terminating lines from 765/400 kV Bhopal substation and 400 kV line bays (2 nos.) at Dhule 400 kV substation for terminating lines from 765/400 kV Dhule (IPTC) substation would form a part of national pool for interstate transmission charges.

This is for the information of the members.

**4.0 Establishment of 765/400kV GIS substation at Vadodra.**

- 4.1 The establishment of 765/400kV substation at Vadodra agreed as a part of WR System Strengthening for IPP projects in Madhya Pradesh and Chhattisgarh (being pooled at Bilaspur Polling station).
- 4.2 In the 30<sup>th</sup> meeting of Standing Committee PGCIL had given the proposal to establish the 765/400kV substation at Vadodara with GIS technology instead of AIS in view of the difficulty in getting the required land for AIS. In the meeting it was decided that PGCIL and GETCO could jointly sort out the issue.
- 4.2 PGCIL vide their letter dated 22.10.2010 had intimated that in a meeting with GETCO officials the issue has been sorted out and GETCO has agreed for setting up of 765/400kV substation at Vadodara with GIS technology.

Members may concur.

**5.0 Connectivity and Long Term Open Access Applications pertaining to new IPP Generation Projects in Nagapattinam / Cuddalore and Vemagiri area of Southern Region with target beneficiaries in Western/Northern/Southern Region**

- 5.1 POWERGRID has received following applications for Connectivity and Long-term Access in Southern Region:

Area	Connectivity		Long-term Access	
	Nos.	Quantum (MW)	Nos.	Quantum (MW)
Nagapattinam / Cuddalore	4	4491	6	6258
Vemagiri	6	6860	4	5150

**Nagapattinam / Cuddalore Area, Tamil Nadu :**

Following IPP developers have proposed to setup generation projects in the Nagapattinam / Cuddalore area.

### Connectivity Applications

Sl. No.	Applicant	Connectivity applied for (MW)	Connectivity required from
1.	Sindya Power Generation Co. Pvt. Ltd.	970	April, 2013
2.	Chettinad Power Corporation Ltd.	1200	September, 2013
3.	Empee Power & Infrastructure Pvt. Ltd.	1241	April, 2013
4.	PPN Power Generating Co. Pvt. Ltd.	1080	1 <sup>st</sup> quarter, 2013
	<b>Total</b>	<b>4491</b>	

### LTA Applications

S. No.	Applicant	Installed Capacity (MW)	LTOA applied for (MW)	Time Frame	Quantum allocated in the region		
					SR	WR	NR
1.	NSL Power Pvt. Ltd.*	1320	800	2012	267	267	266
2.	PEL Power Ltd.*	1050	987	June, 2013	700	0	287
3.	IL&FS Tamil Nadu Power Co. Ltd.*	1200	1150	June, 2013	575	575	0
4.	Sindya Power Generation Co. Pvt. **	1050	970	Dec., 2013	650	250	70
5.	Chettinad Power Corporation Pvt. Ltd. **	1320	1110	Dec., 2013	500	500	110
6.	Empee Power & Infrastructure Pvt. Ltd. **	1320	1241	April, 2014	496	496	248
	<b>Total</b>	<b>7260</b>	<b>6258</b>		<b>3188</b>	<b>2088</b>	<b>981</b>

\* Applicants at Sl. nos. – 1 to 3 has applied under regulations, 2004 and

\*\* Applicant at Sl. nos. – 4 to 6 have applied under regulations, 2009.

- 5.2 It is envisaged that to facilitate power transfer from Nagapattinam/Cuddalore area, the Narendra-Kolhapur transmission corridor may be used. The Kolhapur 1000 MW HVDC back-to-back link along with Narendra – Kolhapur 400 kV D/c line was agreed in the earlier Standing Committee meeting/WRPC. The target commissioning schedule was 2010-11 anticipating the operational surplus in Southern Region due to large capacity additions expected by the IPPs. This HVDC link was envisaged to transfer the power from South to West/North as an intermediate arrangement till the commissioning of Raichur - Sholapur 765 kV lines which will lead to synchronization of entire country at single frequency.
- 5.3 The 1000 MW HVDC back-to-back blocks at Kolhapur was to be accomplished through a new 500 MW HVDC block and shifting of 500 MW HVDC block from Sasaram. However, during the process of tendering/awarding the 1000 MW HVDC back-to-back at Kolhapur it has been seen that the cost associated with the shifting and re-commissioning of HVDC module does not present a techno-economic solution. Considering the time for implementation of HVDC link at Kolhapur which also involves shifting of Sasaram HVDC block which is normally in the range of 2-3 years and now this link can be established only by 2013-14 which shall closely match with the implementation schedule of Raichur – Sholapur 765 kV lines as a part of Krishnapatman UMPP.

5.4 In view of above, it is considered prudent to review the implementation of asynchronous link between West and South through 1000 MW HVDC back-to-back at Kolhapur. This review has been carried out in association with the transmission system strengthening requirement for IPP projects proposed in the Nagapattinam / Cuddalore area. As Sholapur 765 kV substation shall be receiving power from SR grid through Raichur – Sholapur 765 kV line therefore it was found prudent to consider the Narendra – Kolhapur axis to be planned with 765 kV level in place of earlier agreed 400kV level.

5.5 The following transmission system is proposed:

- New 765/400kV Pooling station at Nagapattinam with 4x1500 MVA transformer with sectionalisation arrangement to control short circuit MVA <sup>§</sup>
- LILO of Neyveli – Trichy 400kV line at Nagapattinam Pooling Station for interim arrangement which later shall be bypassed
- Nagapattinam Pooling Station – Salem 765kV D/c line
- Salem – Madhugiri 765 kV S/c line – 2 \*\*\* (line-1 planned with Tuticorin LTOA projects and has been granted regulatory approval by CERC)
- New 765/400 kV substations at Madhugiri, Narendra (GIS) and Kolhapur with 2x1500 MVA transformers each.
- Madhugiri – Narendra 765kV D/c line
- Narendra – Kolhapur 765kV D/c line
- Kolhapur – Pune/ Padghe 765 kV D/c

Accordingly, it is proposed that in place of 1000 MW HVDC back to back at Kolhapur along with 400kV Narendra-Kolhapur D/c line, following transmission system is to be considered as part of transmission corridor development under IPP projects in Nagapattinam/Cuddalore area:

- Narendra – Kolhapur 765kV D/c line
- Kolhapur – Pune/ Padghe 765 kV D/c

<sup>§</sup> to be constructed in two sections each with 2x1500 MVA, 765/400 kV transformers. The bus shall be sectionalized on 400 kV side with common 765 kV bus

5.6 In the Southern region meeting regarding Long Term Access/Connectivity application held on 16.11.10, the above transmission corridor was discussed and agreed. Transmission charges for the above transmission scheme will be initially borne by the generation developer.

Members may deliberate.

## Vemagiri Area, Andhra Pradesh

5.7 Following IPP developers have proposed to setup generation projects in the Vemagiri Area

### Connectivity Applications

S. No.	Applicant	Connectivity applied for (MW)	Connectivity required from
1.	Spectrum Power Generation Ltd.	1400	September, 2013
2.	Reliance Infrastructure Limited	2400	Sept., 2012 / Sept., 2013
3.	GVK Gautami Power Ltd.	800	September, 2012
4.	GVK Power (Jegurupadu) Pvt. Ltd	800	September, 2012

5.	Rajanagarm Gas Power Pvt. Ltd.	1100	December, 2012
6.	RVK Energy (Rajahmundry) Pvt. Ltd.	360	September, 2011
	Total	6860	

### LTA Applications

S. No.	Applicant	Installed Capacity (MW)	LTOA applied for (MW)	Time Frame	Target Beneficiary Regions		
					SR	WR	NR
1.	Spectrum Power Generation Limited	1400	1350	March, 2013	1120	330	-
2.	Reliance Infrastructure	2400	2200	January, 2012	1500	700	-
3.	GVK Gautami Power Ltd.	800	800	Sept., 2012	433	100	267
4.	GVK Power (Jegurupadu) Pvt. Ltd.	800	800	Sept., 2012	520	100	180
	Total	5400	5150		3573	1230	447

5.8 The transmission system required for evacuation of generation projects in Vemagiri generation complexes is as under.

#### Common Transmission System for Vemagiri IPPs:

- Establishment of 765/400kV GIS Pooling station at Vemagiri with 4x1500 MVA transformer with sectionalisation arrangement to control short circuit MVA<sup>§</sup>
- LILO of Gazuwaka – Vijayawada 400kV line at Vemagiri Pooling Station for initial integration with SR grid and which later shall be bypassed
- Vemagiri Pooling Station – Khammam 2x765kV D/c line
- Khammam – Hyderabad 2x765 kV D/c line
- Hyderabad – Wardha 765 kV D/c line
- Wardha – Jabalpur Pooling station 765 kV D/c
- Beyond Jabalpur Pooling Station the transmission system will be provided integrating with the proposed High Capacity Power Transmission Corridor – IX i.e. Jabalpur Pooling Station – Orai – Bulandshahr 765 kV S/c depending upon the inter-regional power transfer.

<sup>§</sup> to be constructed in sections each with 2x1500 MVA, 765/400 kV transformers. The bus shall be sectionalized on 400 kV side with common 765 kV bus.

5.9 In the Southern region meeting regarding Long Term Access/Connectivity application held on 16.11.10, the above transmission corridor was discussed and agreed. Transmission charges for the above transmission scheme will be initially borne by the generation developer.

Members may deliberate.

### 6.0 Long Term Open Access for Rupin HEP (45 MW) in Northern Region

6.1 M/s Shri Bajrang Power & Ispat Ltd. has applied for LTOA in ISTS transmission system for transfer 45 MW of power from the proposed Rupin HEP (45MW), Himachal Pradesh. The commissioning schedule for generation project is indicated as June 2014. The Long Term

Open Access is desired from June 2014 for 40 years. As per the application, quantum of 45MW would need to be transferred from the generating station to Punjab/ Rajasthan (22.5 MW) in NR and to **Maharashtra (22.5 MW) in WR**. The project was discussed during the Long term Open Access Meeting with Northern Region Constituents held on 23/02/2010 at NRPC, New Delhi, wherein LTOA to M/s Shri Bajrang Power & Ispat Ltd. was agreed to be granted.

- 6.2 The transfer of 22.5 MW power to Maharashtra shall be through displacement for which ISTS network is adequate. Considering above, it is proposed that Long term access to M/s Shri Bajrang Power & Ispat Ltd. for transfer 45 MW of power [Punjab/ Rajasthan (22.5 MW) in NR and **Maharashtra (22.5 MW) in WR**] from the proposed Rupin HEP (45MW) may be provided from June'14 for 40 years subject to fulfillment of terms and conditions as per CERC (Open Access in ISTS) Regulations, 2004.

Members may deliberate.