Additional Agenda Items for 28th meeting of the Standing Committee on Power System Planning of Northern Region

1. **Item 2.2 of the Agenda: Provision of spare ICT in NR:**

In reference to **Agenda item 2.2** for provision of spare ICT in NR , it is intimated that the issue was discussed in the 41st OCC meeting held on 7th August 2009 wherein Power grid proposed to procure two spare 400/220 kV, 315 MVA ICTs, one for Delhi UP, Uttarakhand and Rajasthan and other for rest of the states of Northern Region. This proposal has been agreed by Members in 13th TCC & 14th NRPC meetings held on 18th &19th September 2009. Powergrid may inform the locations where these ICTs will be kept in NR.

Members may take note.

2. **Item No. 6 of Agenda: Provision of Bus Reactors in Northern Region to Control over voltages:**

TCC Deliberation- 14th TCC meeting held on 23.12.2009

POWERGRID had proposed to provide bus reactors at following locations in Northern Grid to control high voltages in the system particularly during low hydro and light load conditions:

S.No.	Name of Substation	Proposed Bus Reactor (MVAR)
1	Gorakhpur	1X125
2	Allahabad	1X125
3	Mainpuri	1x125
4	Hissar	1x125
5	Jullandhar	1x125
6	Amritsar	1x80
7	Kankroli	1x125
8	Nalagarh	1x125
9	Vindhyachal (NR bus)	2x125
10	N' Jhakri	1x125
11	Dehar	1x125 (subject to availability of space)
12	Chamera-I	1x125 (subject to availability of space)
13	Parbati-II	1x125 (subject to availability of space)
14	Parbati-III	1x80 (subject to availability of space)
15	Rihand	1x125 (subject to availability of space)

POWERGRID also stated that in case of non-availability of space for reactors at generating stations,and generating company might examine the alternative to control the over voltages. Further, POWERGRID informed that for future hydro generation projects including the generation projects under execution, the generating company should provide adequate bus reactors. However, for firming up the reactor capacity, they could approach POWERGRID.

TCC members agreed on the proposal of bus reactor proposed by POWERGRID and desired that the proposal might be placed before the Standing Committee on Transmission Planning of NR. The proposal was also concurred in 15th NRPC meeting held on 24.12.2009.

Members may take note of the above.

3. Evacuation of Bagliar- II (3x150 MW) and Ratle (690 MW) HEPs in J&K:

PDD, J&K has requested to evolve power evacuation system for Bagliar-II HEP (3x150 MW) and Ratle HEP (690 MW) of J&K. The Bagliar HEP and Ratle HEP are expected to be commissioned by 2014 & 2015-16 respectively.

J&K has proposed following power evacuation system from these HEPs:

Bagliar-II HEP (3x150 MW)

- Step up of generation at 400 kV
- LILO of one circuit of existing 400 kV Kishenpur-Wagoora D/c line at Bagliar-II HEP.
- Interconnection of Bagliar-I &II HEPs through 400 kV cables.

Ratle HEP (690 MW)

- Step up of generation at 400 kV
- LILO of both circuits of additional 400 kV Dulhasti-Kishenpur/Samba D/c line at Ratle HEP. The above 400 kV D/c line from Dulhasti to Kishenpur/Samba was decided in 14th NRPC meeting held on 19.9.2009

Members may deliberate and finalise.

4. MEJA TPS (1320 MW) – A JV OF NTPC AND UPRVNL:

NTPC is developing 1320 MW (2x 660MW) power plant in Meja in Uttar Pradesh as a JV project with Uttar Pradesh Rajya Vidyut Utpadan Nigam Ltd. The expected commissioning schedule of the power plant is 2014-15. The allocation of power from the generation to NR beneficiaries as indicated by NTPC is as follows:

The allocation to Uttar Pradesh, the JV partner to NTPC, is 990MW.

- From Meja 231MW (17.5%) is allocated to NR beneficiaries. (Uttarakhand-17MW, Delhi-58MW, Haryana-24MW, Punjab-36 MW, Rajasthan-50MW, Himachal-15MW, J&K-29MW, Chandigarh-2MW)
- Unallocated power is 99 MW (7.5%)

NTPC has requested to evolve associated transmission system for transfer of power to the beneficiaries. For evacuation & transfer of power from Meja & other generation projects Uttar Pradesh Power Corporation Ltd. (UPPCL) has proposed a composite transmission scheme which was discussed during the 26th meeting of the Standing Committee on Power System Planning of Northern Region held on 13th October 2008. The composite transmission system for transfer of power from Meja (1320MW), Bara(3x660MW) and Karchana (2x660MW) to various load centers in UP comprised of following transmission elements.

(i) Step-up of Bara generation to 765kV
(ii) Step-up of Karchana and Meja generation to 400kV
(iii) Bara switchyards to have 765kV and 400kV levels with 2x1500MVA (7x500 MVA, 1 phase units) 765/400 ICTs.
(iv) Establishment of 400kV substation at Reewa Road (Allahabad) with 400/220kV 2x315 MVA ICTs
(v) LILO of 400kV Obra-Panki line at Reewa Road (Allahabad)
(vi) Meja – Bara 400kV quad D/C line
(vii) Meja – Reewa Road (Allahabad) 400kV quad D/C line

(viii) Karchana – Bara 400kV quad D/C line
(ix) Karchana – Reewa Road (Allahabad)400kV quad D/C line
(x) Bara-Mainpuri 765kV 2xS/C lines
(xi) Mainpuri – Agra (PGCIL) 765kV S/C
(xii) LILO of Agra - Meerut 765 kV S/C line of PGCIL at G. NOIDA
(xiii) Hapur – G.Noida 765kV S/C line
(xiv) New 765/400kV substation at Maipuri with 2x1000MVA (7x333 MVA, 1 phase units) ICTs
(xv) Mainpuri 765kV UPPCL – Mainpuri 400kV PGCIL 400kV quad D/C line
(xvi) New 765/400/220kV substation at G.Noida with 2x1500MVA (7x500MVA, 1 phase units) 765/400kV and 2x500MVA 400/220kV ICTs.
(xvii) Reewa Road Allahabad – Banda 400kV quad D/C line
(xviii) Banda – Orai 400kV quad D/C line
(xix) Orai – Mainpuri 765kV UPPCL 400kV quad D/C line
(xx) Establishment of 400kV substation at Banda with 400/220kV 2x315 MVA ICTs
(xxi) Establishment of 400kV substation at Orai with 400/220kV 2x315 MVA ICTs

Evacuation of power to beneficiaries

To facilitate regional constituents to draw power from the project and also to provide direct connectivity of the project with the regional Grid it is proposed that 400 kV Meja- Reewa Road(Allahabad) D/c quad line(mentioned at sl.no. vii above) may be deleted from the scope of UPPCL and a 400 kV D/c quad line between Meja – Allahabad (PG) may be constructed by Powergrid for evacuation of share of NR beneficiaries other than UP. In addition UPPCL may construct a 400 kV D/C quad line from Allahabad (PG) to Reewa Road (Allahabad).

Proposed Transmission system

- Meja- Allahabad (PG) 400kV D/c quad line to be constructed by PGCIL.
- Allahabad(PG)- Reewa Road (Allahabad) 400kV D/c quad line to be constructed by UPPCL in place of earlier approved 400 kV Meja-Reewa Road (Allahabad) quad line.

Members may discuss and finalise

5. <u>HPPTCL's requirement of 220 kV bays at 400kV Parbati Pooling station at Banala(PGCIL):</u>

Himachal Pradesh Power Transmission Corpration Limited(HPPTCL) intimated that in Kullu area, huge hydel potential has been identified in two valleys i.e Bhunter – Manikaran-Barsain and Bhunter – Kullu – Manali area. For evacuating the power from these areas, HPPTCL requires 4 no. 220 kV bays at proposed Parbati pooling station (PGCIL) at Banala for terminating following 220 kV D/C lines:-

a) 220 kV D/C line from Barsain to Banala – estimated potential -500 MW
b) 220 kV D/C from Bajoura to Banala – estimated potential -100- 200 MW

As Parbati pooling point S/S is agreed as 400 kV switching station under Regional transmission system, HPPTCL is ready to share transmission charges for providing 400/220 kV ICT at Banala.

Members may discuss and concur.

6. <u>Requirement of 220 kV bays for system strengthening in Punjab.</u>

PSEB has intimated that one No. 500 MVA, 400/220 kV T/F along with 4 no. 220 kV line bays have already been approved under augmentation scheme for 400 kV Phagan Majra(Patiala) S/S which under implementation and likely to be completed by Sept. 2010. To provide connectivity at 220 kV level PSEB has requested 2 nos. 220 kV line bays at 400/220 kV Phagan Majra (Patiala) Sub-Station to be used for termination of their proposed 220 kV Nabha-Phagan Majra (Patialia) D/C line. PSEB also stated that in case the expected delivery of 500 MVA, 400/220 kV ICT for 400 kV Phagan Majra Sub-station, is delayed then at least the work of these 2 no. 220 kV bays may be got completed by end of May 2010.

Members may discuss and concur.