

**Additional Agenda for
Eastern Region Standing Committee Meeting**

1.0 Strengthening of 400kV Farakka-Malda corridor

It is observed that loading on 400kV Farakka-Malda-I&II during lean months of Nov'12 to Mar'13 have been in the range of 500 MW to 700MW per ckt for about 40% of time during every month. This high loading is primarily due to inter Regional power flow from ER to NER.

As studied by ERLDC/NLDC, in case of loading of 650MW per ckt, the loading on the other ckt could go up to around 950MW under n-1 condition. Under this critical loading condition, tripping of surviving circuit within a small time interval may cause severe power swing across Farakka-Kahalgaon-Biharshariff-Muzaffarpur-Purnea-Siliguri corridor.

In order to strengthen the transmission corridor between northern and southern part of West Bengal, a 400 kV D/c line from Purnea to Rajarhat (via Farakka & Gokarna) alongwith 2x500 MVA, 400/220 kV new sub-station at Rajarhat was planned, however, the scheme got delayed due to delay in acquisition of land at Rajarhat.

In view of the above, it is proposed that 400kV Farakka-Malda lines be re-conducted with high capacity conductor. Reconductoring of this section alongwith implementation of Purnea – Rajarhat 400 kV D/c line will provide a stronger interconnection between northern and southern part of the regional grid.

Members may discuss and approve.

2.0 Procurement of Spare 765/400 kV ICTs for Eastern Region

POWERGRID has been operating ten (10) units of 500 MVA, 765/400 kV ICTs at Gaya Sub-station and Four(4) units of 500 MVA, 765/400 kV ICTs at Sasaram. Thirteen(13) more units of 500 MVA, 765/400 kV ICTs are scheduled for commissioning at Angul Substation and seven(7) more units of 500MVA, 765/400kV ICTs are to be commissioned at Jharsuguda Substation. These transformers are manufactured at off-shore works of Hyosung (South Korea), CG

(Hungary) and TBAE(China). Any major failure of these ICTs shall necessitate their repair in their off-shore works only, which is time consuming because of long time for transportation of the unit from site to works & back and manufacture of winding. Any failure of these units may lead to overloading of the other units operating in parallel and may cause transmission constraint at 765 kV level specially in view of ensuing commissioning of various power projects in the Region.

In view of the above, it is proposed that POWERGRID may be allowed to procure two (2) nos. additional single phase 765/400 kV ICT of 500 MVA capacity each as spare for Eastern Regional Grid.

Members may discuss and approve.

3.0 Augmentation of Transformation capacity at 400/220kV Baripada Station

Review of loading pattern of 400/220 kV ICTs at Baripada sub-station of POWERGRID during last one year has revealed that loading on two(2) ICTs of 315 MVA capacity operating at this Substation has exceeded 400MW on several occasions with maximum loading had gone up to **501 MW** during April 2013. (Loading pattern attached at **Annexure-I**)

In view of such increased loading pattern and to meet any eventuality due to failure of any one of the ICTs at the above sub-station, POWERGRID proposes for augmentation of transformation capacity by additional one(1) no. 500 MVA ICT as tripping of any one of the ICTs may lead to overloading of the other ICT and might cause cascaded tripping of remaining ICTs in service leading to complete outage. In view of the space constraint at Baripada, the ICT be provided with GIS bay.

Members may discuss and approve.

4.0 Augmentation of Transformation capacity at Jamshedpur and Sasaram Stations

It has been observed that loading on each of the 400/220kV 315MVA ICTs at Jamshedpur had exceeded 175MW at no. of instances and reached upto 210

MW on 16th May'13(loading pattern attached at **Annexure II-A**) and the ICTs at Sasaram exceeded 250MW on several occasions with maximum reaching upto 305MW during May'13(loading pattern attached at **Annexure II-B**). In view of such increased loading pattern and to meet any eventuality due to failure of anyone of the ICTs at the above sub-stations, POWERGRID proposes for augmentation of transformation capacity at Jamshedpur and Sasaram. The same was deliberated in the 86th OCC meeting held at Kolkata on 21.06.2013 also.

In view of space constrains at Sasaram, two (02) nos. of 315MVA, 400/220KV ICTs at Sasaram be replaced with two(2) nos. 500MVA, 400/220KV ICTs and additional one(1) no. 500MVA, 400/220KV ICT be installed at Jamshedpur. The replaced ICTs may be kept as Regional spares after refurbishment.

Members may discuss and approve.

5.0 Modification of 132kV Bus arrangement at 220/132kV Sub-station

Single Main & Transfer Bus Scheme has been adopted at 132kV level of 220/132kV Siliguri Sub-station of POWERGRID whereas for 220kV system Double Main & Transfer Scheme has been adopted. Now with the addition of Chuzachen HEP(2x55MW) besides Rangit(3x20MW) and Rammam(4x12.75 MW), 132kV system around Siliguri has become very important. As such to improve reliability of 132kV system, it is proposed that 132kV Bus Bar scheme at Siliguri be upgraded to double Main and Transfer Scheme. In case of any space constraint, 132kV GIS bays be considered at Siliguri Sub-station.

Members may discuss and approve.

6.0 Requirement of 765kV Reactor (Spare) at Sasaram

There are 3 units of 110MVA, 1-ph Reactors at 765kV Bus at Sasaram Substation. As the voltage at 765kV Bus at Sasaram is generally high, failure of any one unit of the Reactor may lead to over Voltage in the system. So, it is proposed that one 765kV, 110MVA 1-ph Reactor be approved as spare for the station.

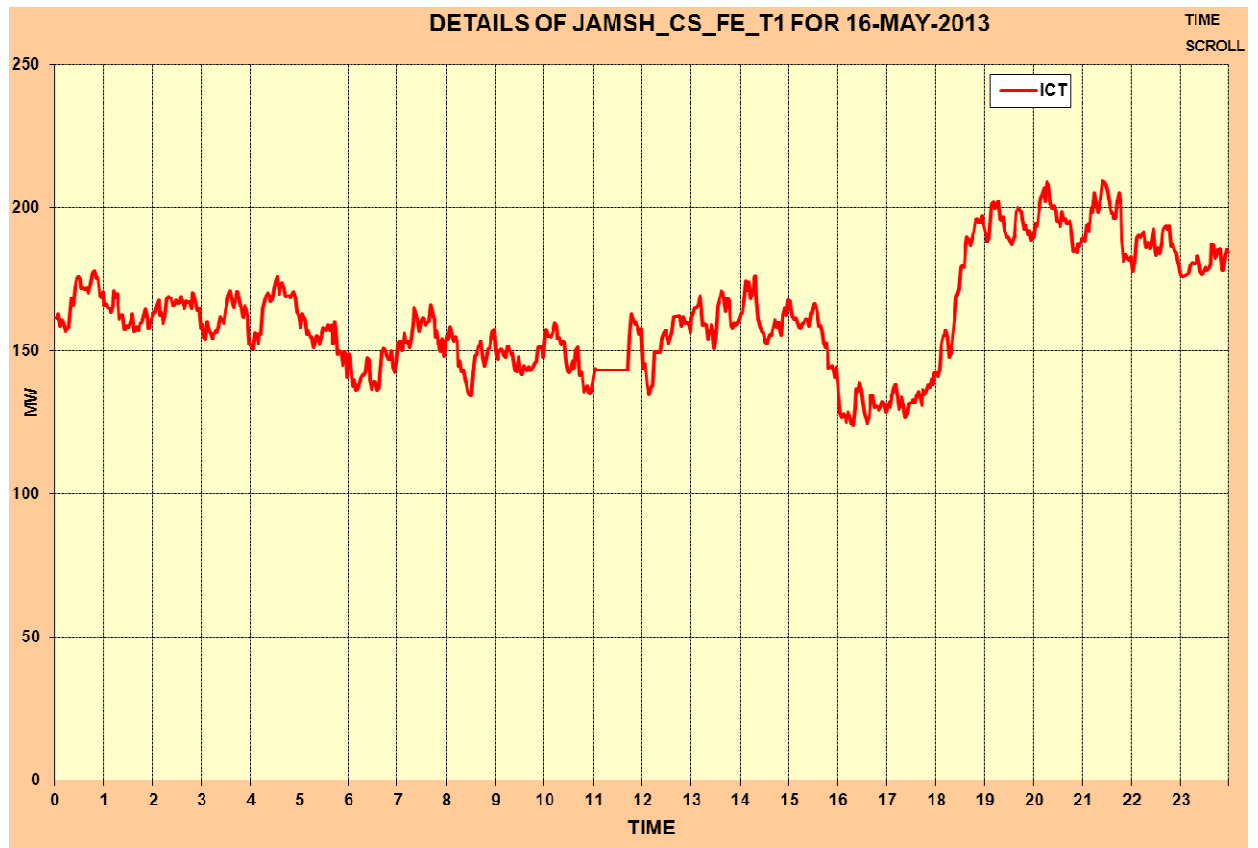
Members may discuss and approve.

7.0 Installation of OPGW on new transmission lines of Eastern Region

- The PMUs are to be installed at Darlipalli, Nabinagar & North Karanpura Thermal Power Stations, which shall require Fiber based Communication System. Therefore, it is proposed to install OPGW in place of one earth-wire on lines originating from these Thermal Power Plants. Further, it is also proposed to provide physical redundancy for communication path wherever available. Accordingly, installation of OPGW shall be required on the following transmission lines:
 - 1) 765 KV D/C Darlipalli TPS–Jharsuguda line (37 Km)
 - 2) 400 KV D/C Nabinagar – Patna line (146 Km)
 - 3) 400 KV D/C Nabinagar – Gaya line (95 Km)
 - 4) 400 KV D/C North Karanpura – Ranchi line (101 Km)
 - 5) 400 KV D/C North Karanpura – Gaya line (102 Km)
- For Sagardighi TPS of West Bengal, OPGW is being provided by WBSETCL on their transmission line but to provide redundancy, OPGW is proposed on 400 KV D/C Sagardighi – Behrampur (PG) (30 Km) transmission line.
- Punatsangchhu – Alipurduar transmission line is under construction under Punatsangchhu Power Plant in Bhutan. For Bhutan portion of this line, OPGW is being installed by BPC (Bhutan Power Corporation). On Indian Portion of 71 Km OPGW is proposed to be installed by POWERGRID which shall be used for grid operation.

Members may discuss and approve.

Jamshedpur ICT-I on 16 May 13



Sasaram ICT for May 13

