Agenda of 9th System Studies Meeting in NER

Date: 10.09.2015. **Venue: Hotel Nandan, Guwahati**

1. Review of SPS I, II, III & SPS IV related to Palatana GBPP, OTPC after commissioning of Palatana Module II

Out of the four (4) System Protection Scheme (SPS) associated with generating Unit-1 (363.3MW) of OTPC at Palatana, two (2) SPS have already been implemented:

SPS II (implemented w.e.f 23.02.15):

In case of tripping of 400 kV Palatana- Silchar D/C lines (with Module I generation of Palatana, OTPC), load will be disconnected by tripping of the following elements:

132 kV Silchar - Srikona D/C
132 kV Silchar - Panchgram
132 kV Badarpur - Panchgram
132 kV Silchar - Dullavcherra - Dharmanagar

And Generation of Palatana, OTPC will be reduced to around 20 MW excluding their auxiliary consumption.

During 5th SS meeting, OTPC representative informed that they are planning different scheme in place of SPS-II above, since reduction of generation to 20 MW is not possible.

NERLDC stated that 400/132 kV, 125 MVA ICT at Palatana should be tripped under this SPS II for safe, secure & reliable operation of the grid.

After detailed deliberation, the Sub-committee requested OTPC to give the detail presentation about the scheme proposed by them in the next meeting for further discussion. OTPC agreed.

During 8th SS Meeting, DGM, (SO-II), NERLDC informed that till date they have not received the new scheme planned by them.

After detailed deliberation, the Sub-committee directed OTPC to send the schematic details of the new scheme planned by them to NERLDC/NERPC by **16.08.2015**.

NERLDC/OTPC may kindly intimate the current status.

SPS III (implemented w.e.f 23.02.15):

In case of tripping of 400 kV Silchar - Byrnihat & 400 kV Silchar - Azara lines (with Module I generation of Palatana, OTPC), Generation of Palatana, OTPC will be reduced to around 200 MW.

SPS IV (implemented w.e.f 14.09.13):

In case of tripping of 400 kV Silchar – Byrnihat & 400 kV Silchar- Azra lines (without generation of Palatana, OTPC), load will disconnected by tripping of the following elements:

132 kV Silchar - Srikona D/C
132 kV Silchar - Panchgram
132 kV Badarpur - Panchgram
132 kV Silchar – Dullavcherra - Dharmanagar

OTPC & POWERGRID informed that above scheme has already been implemented by them.

As Palatana is now generating more than 500 MW, SPS I, SPS II & SPS III associated with Palatana, OTPC are to be redesigned:-

SPS I (implemented w.e.f 14.09.13):

In case of tripping of Module I & II of Palatana, OTPC, load disconnection is to be enhanced.

SPS IV (implemented w.e.f 23.02.15):

In case of tripping of 400 kV Silchar – Byrnihat & 400 kV Silchar- Azra lines (without generation of Palatana, OTPC), load disconnection is to be enhanced.

NERLDC gave presentation on enhancement of load shedding through SPS I/SPS IV attached in ***Annexure -1 (a, b, c & d) of earlier minutes*** related to tripping of Palatana machines. DGM (SO-II), NERLDC informed that Palatana is generating more than 550 MW. In case of tripping of Palatana machine with more than 550 MW generation, SPS I / SPS IV related load disconnection amount is not sufficient for safe, secure & reliable grid operation. It is required to enhance SPS I / SPS IV related load disconnection. SPS I / SPS IV related load disconnection may be enhanced if 132/33 kV, 2x50 MVA transformers at Silchar & 132 kV Aizwal – Lungmual line also disconnected through these SPS.

P&E, Mizoram informed that 132 kV Aizwal – Lungmual line may be opened through SPS I / SPS IV in case of tripping of Palatana machines.

MSPCL is requested to connect radial load of around 35 MW at 132/33 kV, 2x50 MVA transformers at Imphal. NERTS, POWERGRID was requested to explore the implementation of SPS I / SPS IV based load disconnection through these elements also.

AGM, LDC, AEGCL suggested to disconnect the ICT at Silchar instead of increasing the number of feeders to be disconnected and this requires many wiring activities and the scheme may not work properly during real time contingency.

All members agreed to the proposal of Assam and members requested NERLDC to carry out the system study for above proposal. Members also requested NERTS to

check the alternate feasibility for additional wiring in case load enhancement by disconnecting at Imphal S/S & Luangmual S/S of POWERGRID is required.

During 8th SS meeting, DGM (AM) stated that tripping of ICT at Imphal is not feasible and the possibility is only at Silchar.

GM (AM) added that unless all the links are covered by OPGW it would not be possible to implement SPS through PLCC.

DGM (SOII), NERLDC informed that OPGW work of 400 kV Silchar – Imphal D/C lines (Charged at 132 kV) is under progress.

The Sub-committee requested NERTS to check the feasibility at Silchar so that the scheme can be implemented at the earliest.

NERTS/NERLDC may kindly intimate the current status.

2. Assessment of Inter State Total Transfer Capability (TTC), Transmission Reliability Margin (TRM) and Available Transfer Capability (ATC) by SLDC on respective Inter-State Transmission Corridor:

As per Clause No. 4.1 of 'Detailed Procedure for Relieving Congestion in Real Time Operation', SLDC shall assess TTC, TRM and ATC on it's inter-state transmission corridor considering a mesh intra-state corridor for import or export of power with the Inter-state Transmission system (ISTS).

SLDCs of NER are requested to assess the above on monthly basis, 5 months in advance (eg: TTC/TRM/ATC for the month of November to be calculated by 15th of July), for further assessment of TTC, ATC and TRM of NER –ER corridor by NERLDC and for assessment of TTC / ATC for a group of control areas, individual control areas with the region and state-control-area to state-control-area by NERLDC, if required.

The names of following officers who are carrying out the system studies were furnished by the constituents.

Constituent	Name of Nodal Officer	Contact No	Email id:
Ar. Pradesh	Domo Kamduk	09707380294	sldcitnagar@gmail. com
Assam	Navojit Patir	09612950771	
Manipur	S.J. Kumar Sharma	09436144113	sldcmanipur@gmail.com
Mizoram	Zoramdina	09774285158	sldc_mizoram@ rediffmail.com
Meghalaya	D.J. Lyngdoh	09863063375	davidjeremy123@yahoo.co.in
Nagaland			
Tripura	Mrinal Paul	09436137022	mrinalpaulnit@gmail.com

Nagaland may kindly intimate the name of Nodal Officer.

NERLDC have assessed TTC of each control area of NER for January'16 which is given below and the same has been emailed to SLDCs of NER. States may check the TTC of their control areas as computed by NERLDC and issue comments, if any by 20th September'15. If no comments received from any states TTC, ATC & TRM figures of States control area and group of control areas will be finalized and may be uploaded in NLDC website, if required.

Sl. No	State	OFFPEAK Case		PEAK Case	
		Contingency	Total Transfer Capability	Contingency	Total Transfer Capability
1	Arunachal Pradesh	N-1 of 132/33 kV, 2x16 MVA Transformers at Deomali	165	N-1 of 132/33 kV, 2x16 MVA Transformers at Deomali	165
2	Assam	N-1 of 220/132 kV, 3x100 MVA transformers at Sarusajai	1175	N-1 of 220/132 kV, 3x100 MVA transformers at Sarusajai	1295
3	Manipur	N-1 of 132 kV Imphal (PG) - Imphal D/C	260	N-1 of 132 kV Imphal (PG) - Imphal D/C	260
4	Meghalaya	N-1 of 132 kV Killing-Epip II D/C	250	N-1 of 132 kV Killing-Epip II D/C	250
5	Mizoram	N-1 of 132/33kV, 12.5 MVA transformer at Luangmual/Zimabawk/Serchip/Lunglei	98	N-1 of 132/33kV, 12.5 MVA transformer at Luangmual/Zimabawk/Serchip/Lunglei	98
6	Nagaland	N-1 of 132/66 kV, 25 MVA tranformer at Mokokchung	97	N-1 of 132/66 kV, 25 MVA tranformer at Mokokchung	97
7	Tripura	N-1 of 132 kV Palatana - Udaipur S/C	130	N-1 of 132 kV Palatana - Udaipur S/C	126

3. Load-ability of 132 kV Lumnsnong – Panchgram Line:

It has been observed from system study that 132 kV Badarpur – Khliehriat line will be highly loaded in case of 700 MW Palatana generation. To reduce the loading of 132 kV Badarpur – Khliehriat line, 132 kV Lumnsnong – Panchgram Line is to be connected in loop. However, it has been seen that loading of 132 kV Lumshnong – Panchgram Line will be around 80 MW in case of tripping of 132 kV 132 kV Badarpur – Khliehriat line. Hence, loading capacity of 132 kV Lumnsnong – Panchgram Line is to be enhanced.

It was discussed during 98th, 99th, 100th, 101st & 102nd OCC meetings.

The Sub-committee requested to AEGCL and MePTCL to take up the necessary action accordingly.

AEGCL & MePTCL may kindly inform the latest status.

4. Submission of Detailed scheme and Schematic diagram of each SPS in NER:

SPS document of NER is updated on monthly basis for which details of SPS scheme, Date from which it is effective, Schematic Diagram of SPS are required. At present 9 no of SPS are in service in NER grid which can be categorized as:

a. Tripping of critical line(s) / corridor

i. Tripping of 400 kV Silchar- Palatana D/C lines

ii. Tripping of 400 kV Silchar – Azara S/C and 400 kV Silchar – Byrnihat S/C lines with no generation in Palatana

iii. Tripping of 132 kV Umiam Stg-I to Umiam St-III D/C lines

iv. Tripping of 400/132 kV, 2x200 MVA ICTs at Silchar (PG)

b. Safe evacuation of generation

i. Tripping of 400 kV Silchar – Azara S/C and 400 kV Silchar – Byrnihat S/C lines with 1st Module Palatana CCGT

ii. Generation evacuation of AGTPP

c. Overloading of Transformers / Critical line(s)

i. Overloading of 220 kV Salakati – BTPS D/C lines

ii. SPS associated with more than 60 MW loading from LV to HV side of Azara ICTs

d. For Reliable operation of Grid

i. Tripping of 1st Module of Palatana CCGT

MePTCL has furnished details of SPS scheme, Schematic Diagram of SPS as in Sl. No. a(iii).

AEGCL, POWERGRID & NEEPCO is requested to furnish details of SPS scheme, Schematic Diagram of SPS related to them.

5. Constraint in inter-state corridor & intra-state elements of Tripura System in case of exporting 100 MW power to Bangladesh under certain scenarios:

It has been agreed to provide 100 MW power to Bangladesh through 132 kV Surjamaninagar (TSECL) – Comilla (Bangladesh) D/C lines.

Presently, one circuit of 400 kV Palatana – Surjamaninagar D/C (Charged at 132 kV) & One 400/132 kV, 125 MVA ICT at Palatana are under operation. Other circuit of 400 kV Palatana – Surjamaninagar D/C (Charged at 132 kV) could not be completed yet since the bay originally designated for this line was used by 132 kV Palatana –

Udaipur line (which was used by Palatana for drawing start-up power in commissioning phase).

It has been observed from system study results that there will be constraint in inter-state corridor & intra-state elements of Tripura System in case of exporting 100 MW power to Bangladesh under certain scenarios.

To address these constraint, it is required to expedite commissioning of 2nd 400/132 kV, 125 MVA ICT at Palatana & second circuit of 400 kV Palatana – Surjamaninagar(TSECL) D/C (Charged at 132 kV) for short term measures and to commission of 400 kV Palatana – Surjamaninagar (TBCB) D/C line & 400/132 kV, 2x315 MVA ICT at Surjamaninagar(TBCB) & 132 kV Surjamaninagar(TSECL) – Surjamaninagar (TBCB) D/C line with high capacity/HTLS.

During 5th Standing Committee Meeting held at Imphal on 08.08.15, OTPC informed that procurement of 2nd ICT at Palatana is under progress. During 5th Standing Committee Meeting, Director, CEA stated that about 100 MW power is planned to be exported to Bangladesh from Tripura by December, 2015 and for reliable transfer of power to Bangladesh both the circuits from Palatana to Surajmaninagar are required. He requested TSECL to disconnect their 132 kV line to Udaipur from Palatana so that the other circuit of Palatana-Surajmaninagar can be connected. Construction of 3rd 132 kV line bay at Palatana was approved in this meeting.

Members may like to discuss.

6. Enhancement of Transformation capacity of 400/132 kV Silchar substation:

Installation of 3rd 400/132 kV, 315 MVA transformer at Silchar along with associated bays in GIS by POWERGRID was approved in 5th Standing Committee Meeting held at Imphal on 08.08.15.

It has been observed from system study that transformation capacity of 400/132 kV Silchar substation is to be enhanced for exporting power to Bangladesh under certain condition.

It is requested to expedite commissioning of 3rd 400/132 kV, 315 MVA transformer at Silchar.

7. Construction of new lines & re-conducting of the lines for evacuation of power from 4x21+2x25.5 MW AGTPP:

Construction of 132 kV D/C lines with high capacity HTLS conductor (equivalent to single moose) from AGTPP to P. K. Bari (under TBCB) was approved in 5th Standing Committee Meeting held at Imphal on 08.08.15. Re-conductoring of Agartala-Agartala 132 kV D/C lines (by POWERGRID) was approved in 4th Standing Committee Meeting held at Guwahati on 13.12.14.

These lines are required for evacuation of power from 4x21+2x25.5 MW AGTPP. STG I & STG II of AGTPP are under commercial operation.

It is requested to expedite commissioning of these lines.

8. Formation of 2nd node of NER-ER corridor:

It was agreed in 5th Standing Committee Meeting held at Imphal on 08.08.15 that there is a need for 2nd 400 kV AC node for interconnection with national grid and detailed studies are required to be carried out to identify the second node and its inter-connection with the national grid. In this meeting, it was proposed to bypass of Balipara-Bongaigaon 400 kV D/C quad line with series compensation at Bongaigaon, connect Bonagigaon – Alipurduar 400 kV D/C quad line after completion of LILO work of 400 kV Bongaigaon – Binaguri 400 kV D/C quad lines at Alipurduar & terminated to Alipurduar.

It is requested to expedite commissioning of LILO work of 400 kV Bongaigaon – Binaguri 400 kV D/C quad lines at Alipurduar.

9. Installation Bus Reactor at Ranganadi:

Installation of 80 MVAR Bus Reactor at Ranganadi by NEEPCO was approved in 5th Standing Committee Meeting for VAR compensation at Ranganadi.

It is requested to expedite commissioning of 80 MVAR Bus Reactor at Ranganadi by NEEPCO.

10. Upgradation of Busbar Scheme of Dimapur, Imphal & Aizwal

132 kV Dimapur (PG), 132 kV Imphal (PG), 132 kV Aizawl (PG) are important nodes which cater major loads to Nagaland, Manipur and Mizoram respectively. Presently the Busbar Schemes at these substations are Single Main & Transfer Bus Scheme.

The Busbar Schemes at these substations need to be upgraded to Double Main Bus Scheme, in order to improve reliability of Power System of Nagaland, Manipur & Mizoram respectively as well as NER Grid.

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