



भारत सरकार Government of India
विद्युत मंत्रालय Ministry of Power
उत्तर पूर्वी क्षेत्रीय विद्युत समिति

North Eastern Regional Power Committee
मेघालया स्टेट हाउसिंग फिनांस को- आपरेटिव सोसायटी लि. बिल्डिंग
Meghalaya State Housing Finance Co-Operative Society Ltd. Building
नाग्रिम हिल्स, शिल्लोंग - 793003
Nongrim Hills, Shillong - 793003.

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No. NERPC/AS/OCC/2009/ 5671-705

Date: 15th February, 2010

To

1. Managing Director, AEGCL, Bijuli Bhawan, Guwahati - 781 001
2. Member (Tech), MeSEB, Lumjingshai, Short Round Road, Shillong - 793 001
3. Chief Engineer (WE Zone), Department of Power, Govt. of Arunachal Pradesh, Itanagar- 791 111
4. Chief Engineer (EE Zone), Department of Power, Govt. of Arunachal Pradesh, Itanagar- 791 111
5. Chief Engineer (P), Department of Power, Govt. of Nagaland, Kohima - 797 001
6. Chief Engineer (P), Electricity Department, Govt. of Manipur, Keishampat, Imphal - 795 001
7. Chief Engineer (P&E), Department of Power, Govt. of Mizoram, Aizawl - 796 001
8. General Manager, TSECL, Agartala - 799 001
9. GM, NERLDC, Dongtiah-Lower Nongrah, Lapalang, Shillong -793 006
10. ED (O&M), NERTS, PGCIL, Dongtiah-Lower Nongrah, Lapalang, Shillong -793 006
11. ED (O&M), NEEPCO Ltd., Brookland Compound, Lower New Colony, Shillong-793003
12. ED (Commercial), NEEPCO Ltd., Brookland Compound, Lower New Colony, Shillong-793003
13. ED (O&M), NHPC, NHPC Office Complex, Sector-33, Faridabad, Haryana-121003
14. ED (Commercial), NHPC, NHPC Office Complex, Sector-33, Faridabad, Haryana-121003
15. Vice President, PTCIL, 2nd Floor, NBCC Tower, 15, Bhikaji Cama Place, New Delhi - 110022
16. AGM(BD), NVVN, Core5, 3rd Floor, Scope Complex, 7 Institutional Area, Lodhi Road, New Delhi - 110003
17. Member Secretary, ERPC, 14 Golf Club Road, Tollygunge, Kolkata-700033
18. Chief Engineer, GM Division, Central Electricity Authority, New Delhi - 110066

Sir,

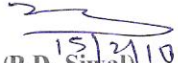
Sub: Minutes of the 47th OCC Meeting held on 10th February, 2010 at Shillong.

The Minutes of the 47th OCC Meeting of NERPC held on 10.02.2010 at "NERLDC Conference Hall, Shillong is enclosed for favour of kind information and necessary action please.

The minutes is also available on the website of NERPC www.nerpc.nic.in

Encl: As above

भवदीय / Yours faithfully,


(P.D. Siwal) 10

Superintending Engineer (O)

Copy to:

1. SA to Member(GO&D), CEA, Sewa Bhawan, R.K. Puram, New Delhi - 110066
2. Chief Engineer, AEGCL, Bijuli Bhavan, Guwahati - 781001
3. Chief Engineer, APGCL, Bijuli Bhavan, Guwahati - 781001
4. MD, CA DISCOM, Bijuli Bhavan, Guwahati - 781001
5. MD, UA DISCOM, Bijuli Bhavan, Guwahati - 781001
6. MD, LA DISCOM, Bijuli Bhavan, Guwahati - 781001
7. S.E. (Trans. & Dist), MeSEB Lumjingshai, Short Round Road, Shillong - 793 001
8. Head of SLDC, MeSEB, Lumjingshai, Short Round Road, Shillong - 793 001
9. Head of SLDC, Department of Power, Govt. of Arunachal Pradesh, Itanagar- 791 111
10. A.C.E. (Gen & Trans), Department of Power, Govt. of Nagaland, Kohima - 797 001
11. Head of SLDC, Department of Power, Dimapur, Nagaland
12. A.C.E. (Power-I), Electricity Department, Govt. of Manipur, Keishampat, Imphal - 795 001
13. Head of SLDC, Electricity Department, Govt. of Manipur, Keishampat, Imphal - 795 001
14. S.E. (Trans & Dist), Department of Power, Govt. of Mizoram, Aizawl - 796 001
15. Head of SLDC, Department of Power, Govt. of Mizoram, Aizawl - 796 001
16. Head of SLDC, TSECL, Agartala - 799 001
17. Chief Engineer(Elect), Loktak HEP, Vidyut Vihar, Kom Keirap, Manipur- 795124

North Eastern Regional Power Committee

MINUTES OF THE 47th

OPERATION COORDINATION SUB-COMMITTEE MEETING OF NERPC

Date: 10/02/2010 (Wednesday)

Time: 10:30 hrs

Venue: “NERLDC Conference Hall”, Shillong.

The List of Participants in the 47th OCC Meeting is attached at **Annexure - I**

Shri A.K. Jain, Member Secretary I/C, NERPC welcomed all the participants to the 47th OCC meeting. Noticing that not all the constituents were present, he, however, hoped that the meeting would carry through the agenda effectively.

A. CONFIRMATION OF MINUTES

CONFIRMATION OF MINUTES OF 46th MEETING OF OPERATION SUB-COMMITTEE OF NERPC.

Member Secretary I/C mentioned that the minutes of the 46th meeting of the OCC held on 15th January, 2010 were circulated to all the concerned, vide letter no. NERPC/AS/OCC/2009/5121 – 5155, dated 22nd January, 2010.

As no comment was received from any of the constituents, the minutes of the 44th OCC Meeting were confirmed.

ITEMS FOR DISCUSSION

B. Operational Performance & Grid Discipline during January, 2010.

Member Secretary I/C, NERPC requested NERLDC to give their presentation on the grid performance for the month of January, 2010. NERLDC gave their presentation that included following key parameters as follows:-

- i) **Average frequency** during January, 2010 was 49.72 Hz compared to 49.78 Hz for the previous month.
- ii) **Minimum frequency** in January, 2010 was 48.79 Hz (08.01.10 at 16:42 hrs) compared to 48.83 Hz for the previous month.
- iii) **Maximum frequency** was 51.08 Hz (02.01.10 at 03:04 hrs) as against 50.57 Hz in the previous month.
- iv) **System frequency** remained within permissible range of 49.2 Hz to 50.3 Hz for 95.27 % of the time, below 49.2 Hz for 3.13 % and above 50.3 Hz for 1.60 % of time as against the corresponding values of 97.49 %, 1.45 % and 1.06 % in the previous month i.e. December, 2009.
- v) **Regional peak** demand in January, 2010 was 1599 MW as compared to 1678 MW, in December, 2009 a decrease of 4.67 % over the previous month.
- vi) **Energy requirement** was 774.59 MUs in January, 2010 compared to 789.35 MUs in the previous month.
- vii) **Regional energy availability** in January, 2010 was 721.46 MUs compared to 732.06 MUs in the previous month- a decrease of 1.87 % over the previous month.
- viii) **Rise in demand met** was highest of (3.13 %) in Manipur followed by Meghalaya (1.84%) and Ar. Pradesh (1.39 %) over the previous month.
- ix) **Drop in demand met** was recorded in Mizoram (3.13 %) followed by Nagaland (2.08 %), Assam (1.80 and Tripura (0.72 %) over the previous month viz. December, 2009.
- x) **Over Voltages** at 400 kV substations were observed at Bongaigaon, Balipara and Misa where maximum voltage observed was 424 kV, 433 KV and 435 KV respectively.
- xi) **No Over Voltages** at 220kV S/S and 132 kV S/S were observed.
- xii) **Regional Generation & Inter-regional Exchanges:** During the month of January, 2010 compared to December, 2009 is given below:

SN	Parameter	January, 2010	December, 2009
REGIONAL GENERATION & INTER - REGIONAL EXCHANGES (in MU)			
1	Total Generation in NER (Gross)	559.679	628.646
2	Total Central Sector Generation in NER (Gross)	321.594	388.492
3	Inter-Regional Energy Exchanges		
	(a) NER - ER	0.00	0.00
	(b) ER - NER	179.450	121.365
	(c) Net Import	179.450	121.365

The detail of grid performance during the month of January, 2010 is enclosed at **Annexure-II.**

NERLDC also gave a presentation on following major activities carried out during the month of January, 2010:

- (i) **Mock Black Start** exercise of Khandong HEP conducted on 20.01.2010
- (ii) **Mock Black Start** exercise of Doyang HEP conducted on 29.01.2010, &
- (iii) Isolation of NER **for measurement of harmonics** carried out on 31.01.2010

Details of the above are given in **Annexure - III, IV & V** respectively

Shri. T.S. Singh, AGM, NERLDC appreciated all the constituents for their co-operation to make the above exercise successful. He further enquired NEEPCO and MeSEB if all their generating stations are operated in FGMO mode. The NEEPCO informed that all the stations are operated in FGMO. MeSEB also informed that except Stage - IV, others are operated in FGMO.

NERTS stated that the THD measurements have been carried out and the report is still awaited from CPRI. This report will be placed before the Committee in the next OCC meeting. Shri Singh stated that since the THD was very high in the region compared to those in the other regions, the lifespan of transformer would get affected and hence NERTC, PGCIL should find a remedial solution to the problem. The PGCIL agreed to the request.

The Sub-committee noted as above.

Thereafter, he requested Shri P. D. Siwal, S. E (O), NERPC to take up the agenda items for discussion.

FOLLOW UP ACTION

C. 1. Installation of Under Frequency Load-shedding Relays (UFRs) in NER

Member Secretary I/C informed that this issue has had been discussed many times and the RPC approved implementation of the scheme during the 8th RPC meeting held on 12th January, 2010. He further informed that, except Manipur & Arunachal Pradesh, all constituents have furnished the list of identified feeders.

The sub-Committee requested the NERPC to write to Departments concerned of Manipur & of Arunachal Pradesh to finalize & forward the list of feeders as per the decision taken during the 8th TCC/RPC meetings.

C. 2. Non-functioning of SCADA in Arunachal Pradesh state

During the 46th OCC meeting it was decided that Arunachal Pradesh would explore the possibility of getting the defective modem repaired or procure new modem if required and intimate the progress in the next OCC meeting.

Since no representative from Ar. Pradesh was present the current status could not be ascertained.

C. 3 Energy metering issues in NER

The PGCIL informed that CPRI Bangalore was entrusted for type test of meters but the same could not be carried out by them. They informed that the ERDI has been given the job and that installation would be completed within a few days of receiving the meters after testing.

The sub-Committee requested PGCIL to pursue the matter and complete the installation of remaining meters at the earliest.

C. 4 Single Phase Auto-reclosure of Transmission lines.

POWERGRID informed that the joint inspection with NEEPCO was under progress and the status would be intimated in the next OCC meeting.

The sub-Committee requested PGCIL to carry out the work as per the recommendation of TCC/RPC.

C. 5 Special Protection Schemes (SPS) for Vulnerable 132 kV Pockets in NER.

POWERGRID informed that they have planned to take shutdown of 132 KV Imphal (PG) – Imphal (Manipur) on 17.02.2010 to carry out the installation of CT.

The Sub-committee noted as above.

C. 6 Status of gravelling work by AEGCL at Balipara substation

Assam informed that re-tendering was called for the gravelling work and the same would be completed shortly.

The Sub-committee noted as above.

C. 7 Non-functioning of 48 V DC supply at Kopili HEP.

NEEPCO informed that they have placed the order for both the battery & charger and the work will be completed within 1 month.

The sub-Committee noted as above.

C. 8 Status of Loktak – Jiribam Ckt - I.

Since no representative from Manipur was present the current status could not be updated.

C. 9 Status of Total Harmonic Distortion (THD) in NE grid.

AGM, NERLDC stated that the same was discussed under Item B. The PGCIL was requested to furnish the analysis and remedial solution in the next OCC meeting.

The sub-Committee noted as above.

D. N E W I T E M S

D. 1 Non-compliance of SLDC/NERLDC's request by Khandong- Assam.

Assam informed that they faced difficulties in taking shut down or doing load shedding of 33 KV line (Khandong – Umrangshu) to which consumers of Assam are connected beyond Umrangshu colony of NEEPCO.

NEEPCO informed that they never declined to this but they felt that there might be communication problem at the 33 KV S/S. Moreover, since no CB has been

provided by Assam, load shedding of Assam's consumers beyond the colony of NEEPCO could not be done.

Member Secretary I/C noted that the issue being bilateral, both Assam & NEEPCO were requested to find a solution to the problem jointly. Hence this agenda item was closed at this stage.

The sub-Committee noted as above.

D. 2 Furnishing information on commissioning work of new 220/132 KV ICT and new 132 KV Khandong - Kopili line compliance of SLDC/NERLDC's request by Khandong- Assam.

PGCIL informed that the installation of new 160 MVA ICT, 220/132 KV has already completed on the 21.01.2010. Further PGCIL informed that the 132 KV Khandong - Kopili line would be completed by April, 2010.

The sub-Committee noted as above.

D. 3 State-wise anticipated peak demand/requirement, shortage for February March & April, 2010.

The sub-Committee reviewed anticipated peak demand/energy requirement and finalized the same for the months of February, March & April, 2010.

February, 2010 March, 2010 April, 2010

SN	State	February, 2010 (in MW)		March, 2010 (in MW)		April, 2010 (in MW)	
		Peak Demand	Peak Availability	Peak Demand	Peak Availability	Peak Demand	Peak Availability
1	AP	80	75	80	70	85	75
2	Assam	845	730	830	700	850	730
3	Manipur	95	80	90	80	90	80
4	Meghalaya	297	220	280	200	275	185
5	Mizoram	70	50	65	45	60	45
6	Nagaland	90	75	85	70	80	75
7	Tripura	140	131	135	125	130	120
	Region	1585	1330	1565	1290	1570	1310

D. 4 Generation Outage Planning (ongoing and planned outages)

NEEPCO informed that the required shutdown has already been approved during the last OCC meeting. There was no generation outage planning propose during the meeting.

The sub-Committee noted as above.

D. 5 Outage Planning of Transmission elements

The Sub-committee **discussed and approved** the programme of outages for transmission lines during the months of February/March, 2010 as proposed by PGCIL. The same is enclosed at **Annexure D. 5.**

The sub-Committee approved the programme.

D. 6 Estimated Transmission Availability Certificate (TAC) for the month of December, 2009.

The Final TAC certified by NERPC for the month of December, 2009 issued vide letter No: NERPC/AS/TAC/2009/5485 dated 08.02.2010 is **99.6389%**

The estimated Transmission System Availability for the month of January, 2010 furnished by PGCIL was intimated as **99.61%** as per details at **Annexure D. 6.** The constituents were requested to examine the outage details as published in the website of NERPC (data furnished by PGCIL) before **20.02.2010** so as to ensure issue of certification by NERPC before the stipulated date i.e. 28.02.2010.

The sub-Committee noted as above.

D. 6 Major grid disturbances in the previous month (January , 2010)

NERLDC informed that there was no major grid disturbance during the month of January, 2010.

The Sub-committee noted as above.

D. 7 Any other item

- (i) S.E (O), NERPC enquired from NERLDC if the weekly report of transmission line disturbances/tripping were furnished by them to NERPC Secretariat. NERLDC informed that all the above information indicating status of transmission line outages/generation outages etc. were furnished daily by them to NERPC. They also informed that based on these daily reports, weekly report is prepared and made available on the website of NERLDC.

The Sub-committee noted as above.

- (ii) S.E (O), NERPC also enquired from NERLDC about the UCC meeting, whether this meeting is to be coordinated by NERPC Secretariat or NERLDC. AGM, NERLDC informed that the above meeting at present is being coordinated by NERLDC. However, NERLDC has no objection if this meeting is coordinated by NERPC.

The Sub-committee decided that henceforth this meeting will be coordinated by NERPC.

D. 7 Date and Venue of next OCC

It is proposed to hold the 48th OCC meeting of NERPC on 12th March, 2010 (Friday) at NERLDC, Shillong.

The meeting ended with a vote of thanks to the Chair.

List of Participants in the 47th OCC meeting held on 10/02/2010**Venue : “NERLDC Conference Hall”, Shillong.**

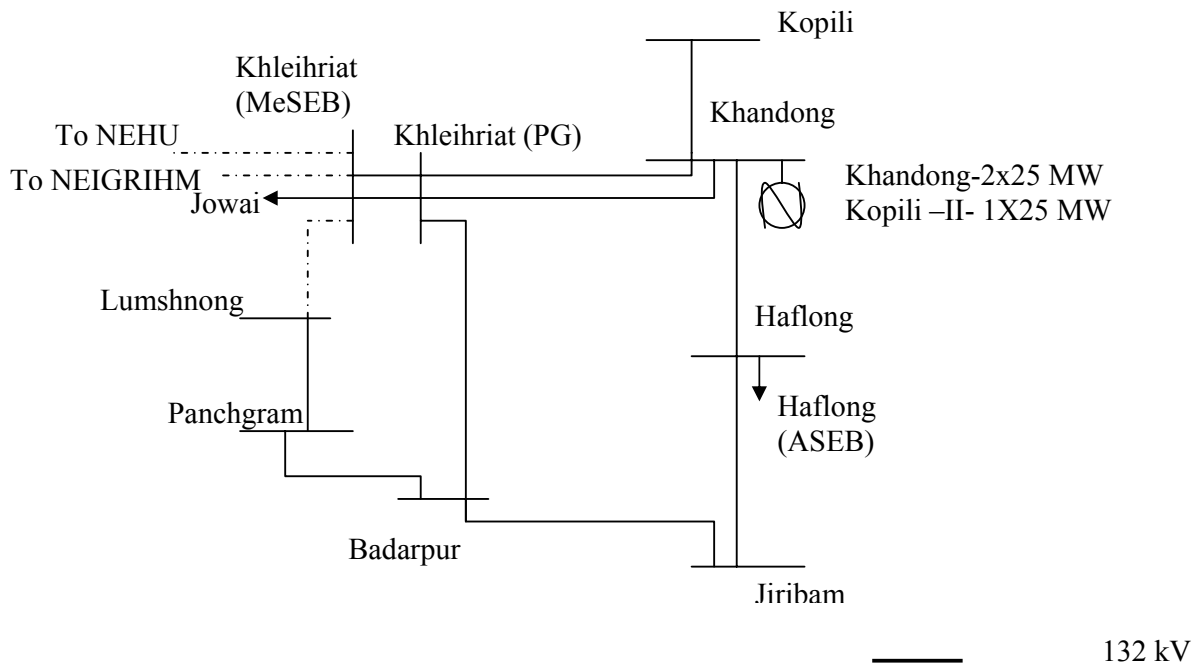
Sl. No	Name & Designation	Organization	Contact No. /e-mail ID
1.	No Representative	Arunachal Pradesh	
2.	Sh. A.K. Saikia, Sr. Manager, SLDC	Assam	09864116176
3.	Sh. D.C. Das, Manager, SLDC	Assam	09954110254
4.	No Representative	Manipur	
5.	Sh. F.E. Kharshiing, EE, SLDC,	Meghalaya	09863066960
6.	Sh. T. Gidon, AEE, SLDC,	Meghalaya	09436326178
7.	No Representative	Mizoram	
8.	No Representative	Nagaland	
9.	No Representative	Tripura	
10.	Sh. T.S.Singh, A.G.M	NERLDC	09436302717
11.	Sh. N. R. Paul, DGM	NERLDC	09436302723
12.	Sh Anupam Kumar, AE	NERLDC	09436335379
13.	Sh. P. S. Stafford, DGM	NERTS	09436302806
14.	Sh. S. Das, CM	NERTS	
15.	Sh. Bhaskar Goswami, Sr. Mgr	NEEPCO	09436163983
16.	No Representative)	NHPC	
17.	Sh. A.K.Jain, MS I/C	NERPC	
18.	Sh. P.D. Siwal, S.E	NERPC	09436998378
18.	Sh.B. Lyngkhoi, AS	NERPC	09436163419
19.	Sh. D.K. Bauri, AEE	NERPC	09863317236

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Report on mock black start exercise of Khandong HEP conducted on
27.01.10

Background:

Khandong is connected to main grid through 132 kV Khandong-Kopili, 132 kV khandong-Khleihriat-D/C & 132 kV Khandong-Haflong lines. During normal grid operation, when any blackout occurs, Khandong generation is restored by providing start up power from Kopili by closing the Bus-coupler at Kopili & charging 132 kV Kopili-Khandong line. Khandong generation is generally used to increase availability in 132 kV pocket. But if any problem arises in Kopili B/C or 132 kV Kopili- Khandong line becomes faulty then difficulty arises in providing power to Khandong from main grid.



Step by step details of mock black start exercise

1. Consent was taken from SLDC Assam, Manipur, Meghalaya, Mizoram & Tripura for load shedding if required.

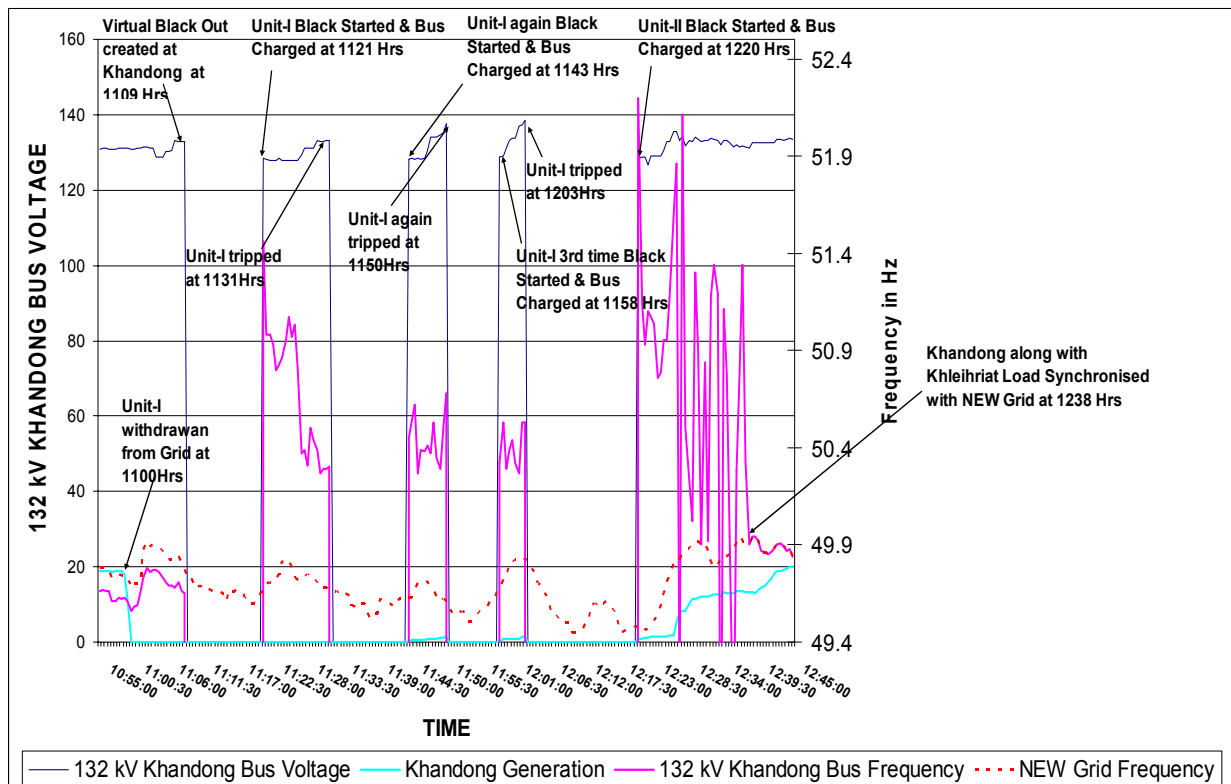
2. Consent was taken from Meghalaya for keeping 132 kV Khleihriat (Me) –NEHU & 132 kV Khleihriat (Me) –NEIGRIHMS lines in open condition.
3. Consent was taken from Assam & Meghalaya for power interruption at Haflong & Khleihriat respectively.
4. Loktak & AGTPP generation was maximized.
5. Tripura was kept in injecting mode to the grid.
6. The running unit of Khandong (Unit – I) was withdrawn at 11:00 Hrs.
7. At 11:02 Hrs, 132 kV Khandong - Khleihriat – I line opened.
8. Loading of 132 kV Dimapur –Imphal & 132 kV Loktak-Jiribam lines was monitored continuously & was kept within limits.
9. At 11:03 Hrs, 132 kV Kopili- Khandong line was opened.
10. At 11:06 Hrs, 132 kV Khandong-Khleriat –II line was opened.
11. At 11:09 Hrs, 132 kV Khandong -Haflong line was opened and Khandong Bus become dead.
12. At 11:10 Hrs, station power supply of Khandong restored through Khandong DG set.
13. At 11:14 Hrs, Khandong U-I black started.
14. At 11:21 Hrs, Khandong Bus A & B charged.
15. At 11:24 Hrs, 132 kV Khleihriat (PG) – Khleihriat (Me)-D/C line opened.
16. At 11:25 Hrs, 132 kV Khleihriat – Badarpur line opened & Khleihrait(PG) bus become dead.
17. At 11:26 Hrs, 132 KV Khandong- Khleihriat –I line charged.
[at Khandong, Freq = 51.03 Hz, Bus voltage = 128kV, M/C MVAR = (-)4]
18. At 11:29 Hrs, Khleihriat (PG) bus charged & 132 kV Khleihriat(PG) – Khleihriat(Me) -I line charged.
19. At 11:31 Hrs, Khandong unit-I tripped due to Excitation problem.
20. At 11:36 Hrs, 132 kV Khandong- Khleihriat –I line opened again.
21. At 11:36 Hrs, 132 kV Khleihriat(PG) – Khleihriat(Me) –I line opened.
22. At 11:36 Hrs, 132 kV Jiribam -Haflong line opened.
23. At 11:40 Hrs, Khandong U-I again black started.
24. At 11:43 Hrs, Khandong Bus A & B charged. [(Freq 50.45Hz, Voltage 128kV, m/c MVAR (-)0.65]
25. At 11:43 Hrs local Umrangshu load (1 MW) connected.
26. At 11:46 Hrs, 132 kV Khandong-Haflong line charged. [at Khandong, Freq 50.43Hz, Voltage 128kV, m/c MVAR (-)2]

27. At 11:49 Hrs , power extended to Khleihriat by charging 132 kV Khandong- Khleihriat –I line[at Khandong Freq 50.41Hz, Voltage 135kV, m/c MVAR (-)7]
28. At 11:49 Hrs, 132 kV Khleihriat(PG) – Khleihriat(Me) –I line charged.
29. At 11:50 Hrs, Khandong U-I tripped due to Excitation problem.
30. At 11:51 Hrs, 132 kV Khandong-Haflong line, Khandong- Khleihriat –I line and Khleihriat(PG) – Khleihriat(Me) –I line opened again.
31. At 11:52 Hrs, 132 kV Khleihriat – Badarpur line and 132kV Khleihriat(PG) – Khleihriat(Me) –I line charged to connect Khleihriat(Me) load.
32. At 11:56 Hrs 132 kV Jiribam -Haflong line charged and Haflong load connected by charging 132 kV haflong Bus & extending power to Haflong(ASEB).
33. At 11:56 Hrs, Khandong unit -I again black started.
34. At 11:58 Hrs, Khandong Bus A & B charged[at Khandong, Freq 50.24Hz, Voltage 129kV, m/c MVAR (-)0.5]
35. At 11:58 Hrs, 132 kV Khleihriat – Badarpur and Khleihriat(PG) – Khleihriat(Me) -I line opened to make Khleihriat(PG) & Khleihriat(Me) bus dead.
36. At 11:59 Hrs, 132 kV Khandong- Khleihriat –I line charged[at Khandong, Freq 50.41Hz, Voltage 129kV, m/c MVAR (-)1]
37. At 12:00 Hrs, 132 kV Khleihriat(PG) – Khleihriat(Me) -I line charged.
38. At 12:03 Hrs, Khandong unit I tripped due to Excitation problem.
39. At 12:04 Hrs, 132 kV Khandong- Khleihriat –I line opened again.
40. At 12:07 Hrs, 132 kV Khleihriat(PG) – Khleihriat(Me) -I line opened.
41. At 12:08 Hrs, 132 kV Khleihriat – Badarpur and 132kV Khleihriat(PG) – Khleihriat(Me) -I line closed to restore Khleihriat(Me) load.
42. At 12:10 Hrs, Khandong U-II black started.
43. At 12:20 Hrs, Khandong Bus A & B charged[at Khandong, Freq 50.06Hz, Voltage 128kV, m/c MVAR (-)0.5]
44. At 12:20 Hrs, local Umrangshu load (1MW) was connected.
45. At 12:21 Hrs, 132kV Khleihriat(PG) – Khleihriat(Me) -I line opened.
46. At 12:22 Hrs 132 kV Khleihriat – Badarpur line opened.
47. At 12:24 Hrs, power extended to Khleihriat by charging 132kV Khandong- Khleihriat –I line [at Khandong, Freq 51.08Hz, Voltage 130.5kV, m/c MVAR (-)1]
48. At 12:25 Hrs Khleihriat (PG) – Khleihriat (Me) -I line charged& Khleihriat(Me) connects load.
49. At 12:26 Hrs, Machine MVAR (-) 4, Volt 135kV, Freq 48.83Hz, Load 5MW.

50. At 12:29 Hrs, Machine MVAR (-)4, Volt 134KV, Freq 51.30Hz, Load 11.4MW.
51. At 12:31 Hrs, Machine MVAR (-) 3, Volt 133kV, Freq 50.84Hz, Load 12MW.
52. At 12:37 Hrs, Machine MVAR (-) 2, Volt 132 kV, Freq 51.34Hz, Load 13.69 MW
53. At 12:38 Hrs Khandong along with Khleihriat load was synchronized with the main grid through 132 kV Khandong – Haflong line. (Freq 49.88 Hz).
54. At 12:42 Hrs, 132 kV Kopili - Khandong line charged.
55. At 12:44 Hrs, 132 KV Khandong - Khleihriat –II line was charged.
56. At 12:45 Hrs 132 kV Khleihriat – Badarpur charged.
57. At 12:46 Hrs 132kV Khleihriat(PG) – Khleihriat(Me) – II line charged.

Conclusion:

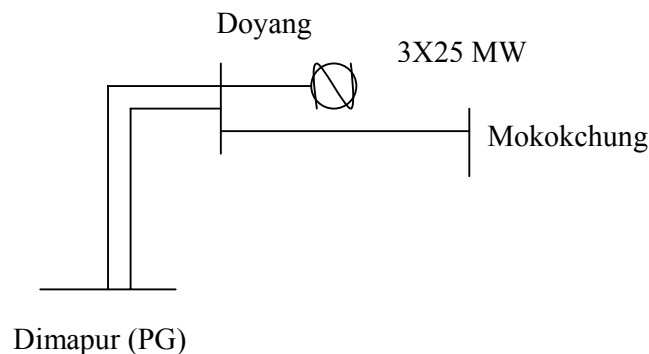
Mock Black Start of Khandong was successfully carried out today (on 27.01.10) and the restoration procedure will be modified in line with the experience gathered from the exercise.



Report for Mock Black Start exercise of Doyang Units on 29.01.2010

Background:

- Doyang is connected to Main grid through 132 kV Dimapur-Doyang-D/C line. Mokokchung (Nagaland) load is radially connected with Doyang. . During S/D or outage of 132 kV Dimapur-Golaghat-Mariani line or during peak hours Doyang generation helps in reducing the loading of 100 MVA ICT at Dimapur (PG). During black out Doyang never black started their machines earlier. Generally, they receive start up power from Dimapur (PG) through any one of the 132 kV Dimapur-Doyang-D/C line. This mock black start is carried out so that if required Doyang can black start their machines and restore Mokokchung (Nagaland) as well as Dimapur (Nagaland) load in case of necessity.
- Doyang Unit-I, Unit-II & Unit-III commissioned on 08/07/2000, 05/07/2000 & 29/06/2000 respectively.



- For power interruption at Mokokchung consent from SLDC Nagaland was taken.
- As intimated by Doyang PH, during mock black start exercise machine (Unit-3) was operated on free governor mode.

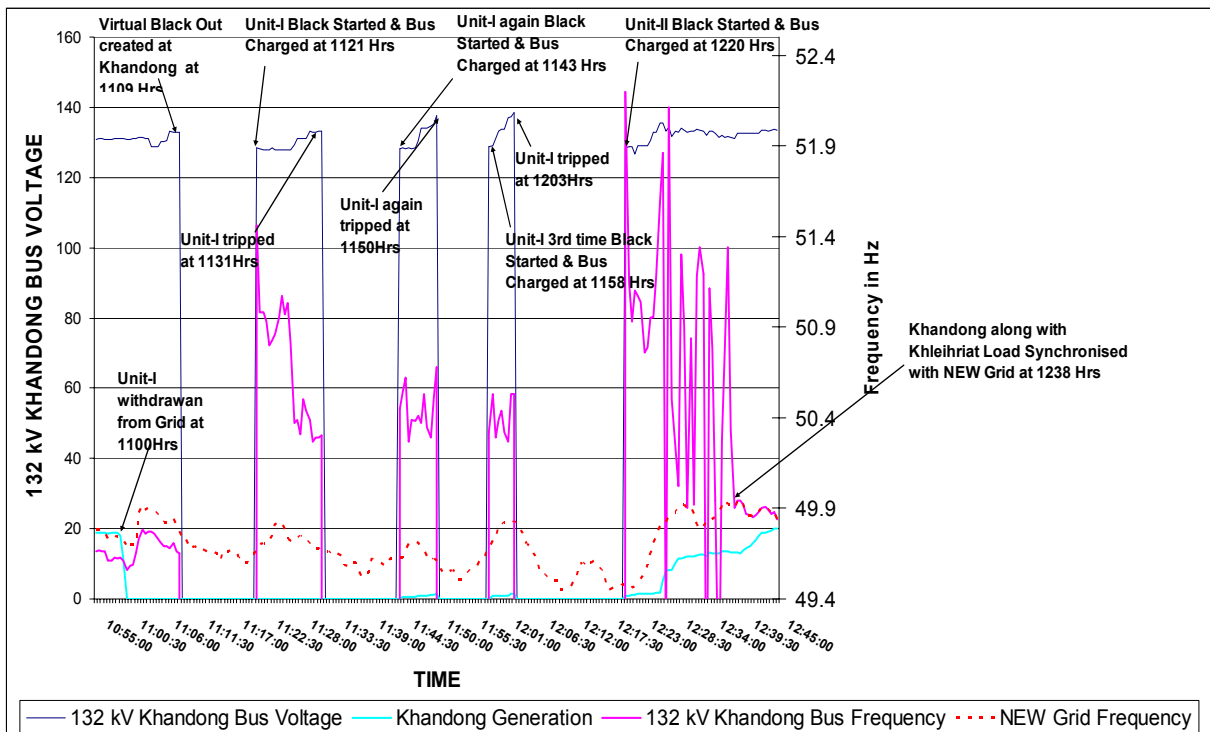
Detail steps of mock black start exercise

1. At 11:01 Hrs, 132 kV Doyang-Mokokchung line was opened.
2. At 11:02 Hrs, 132 kV Doyang-Dimapur-I line opened.
3. At 11:03 Hrs, 132 kV Doyang-Dimapur-II line opened & Doyang Bus becomes dead.
4. At 11:16 Hrs, Doyang Unit-3 black started & charged its 132 kV Bus.

5. At 11:18 Hrs, 132 kV Doyang-Mokokchung line charged.
(Doyang, Freq - 50.64 Hz, Bus voltage - 128.5 kV, M/C MVAR = (-) 2)
6. At 11:20 Hrs, Doyang Bus Voltage 129 kV, Freq-52.19 Hz; Machine-MVAR (-) 0.6; Generation -3MW.
7. At 11:22 Hrs, 132 kV Doyang-Dimapur-I line charged from Doyang.
(Doyang – Bus Freq - 50.92 Hz, Bus voltage - 133 kV, M/C MVAR = (-) 0.49, Generation - 3 MW)
8. At 11:30 Hrs, Doyang - Bus Freq – 49.87 Hz, Bus voltage - 134 kV, M/C MVAR = (-) 5.6, Generation - 5.4 MW, NEW Grid Frequency- 49.84 Hz)
Doyang maximum generated 5.60 MW before synchronization.
9. At 11:32 Hrs, Doyang Generation Synchronized at Dimapur (PG).
10. At 11:52 Hrs, 132 kV Doyang-Dimapur-II line charged.

Conclusion:

Doyang Mock Black Start was carried out successfully today i.e. on 29.01.10 from 1101 to 1132 Hrs. The experience gathered from this mock exercise will help in revising the present Black start procedure of NER.



Annexure – D.5

The Shutdown Programme for the month of January, 2010 as approved in the 47th OCC Meeting held at NERLDC, Shillong on 10.02.2010 are as follows:

Sl. No	Name of T/L	S/D Date	S/D Time	Purpose	Areas/Feeder affected	Agency
1.	400 KV– Balipara-Ranganadi - I	12..02.2010 & 13.02.2010	08.00 hrs to 16:00 hrs	AMP	Balipara- Ranganadi - I	PGCIL
2.	400 KV– Balipara-Ranganadi - II	26..02.2010 & 27.02.2010			Balipara- Ranganadi - II	PGCIL
3.	400 KV Misa – Balipara I	23..02.2010 & 24.02.2010& 25.02.2010			Loktak - Imphal	PGCIL
4.	400 KV Misa – Balipara II	05.02.2010			Rananadi – Itanagar	PGCIL
5.	132 KV Misa - Kathalguri	05.02.2010 & 06.02.2010			Misa - Kathalguri	PGCIL
6.	220 KV Misa – Samaguri-I	27.01.2010 & 28.01.2010			Misa – Samaguri-I	PGCIL
7.	220 KV Misa – Samaguri-II	29.01.2010 & 30.01.2010			Misa – Samaguri-II	PGCIL
8.	400 KV Balipara – Bongaigaon-I	20.01.2010 & 21.01.2010			Balipara – Bongaigaon-I	PGCIL
9.	400 KV Balipara – Bongaigaon-II	22.01.2010 & 23.01.2010			Balipara – Bongaigaon-II	PGCIL
10.	132 KV Kopili – Khandong	20.01.2010 & 21.01.2010	09:30 to 16:00 hrs	Replacement of ICT	Kopili – Khandong	NEEPCO
11.	132 KV Khandong – Khliehriat-I	to be intimated	09:30 to 16:00 hrs	AMP	Khandong – Khliehriat-I	NEEPCO

Note: All the associates bays maintenance would be done during the shutdown of respective Transmission lines.

Sl. No	NAME OF SUB-STATION/BAYS/ICT/ REACTOR	S/D Date	S/D Time	Purpose	Areas/Feeder affected	Agency
1.	400 KV Bongaigaon-I Main Bay at Balipara	02.02.2010 & 03.02.2010	09:00 hrs to 15:00hrs	AMP	Nil	PGCIL
2.	400 KV Bongaigaon-II Main bay at Balipara	18.01.2010 & 19.01.2010			Nil	PGCIL
3.	Misa-I – Ranganadi-II Tie at Balipara	21.01.2010 & 22.01.2010			Nil	PGCIL
4.	Misa-II – Ranganadi-I Tie at Balipara	27.01.2010 & 28.01.2010			Nil	PGCIL
5.	33 KV Incomer bay & 1 MVA Transformer at Balipara	23.01.2010 & 25.01.2010			4x25 MVAR Tertiary Reactors & 1 MVA Transformer	PGCIL
6.	Tertiary reactor-III at Balipara	29.01.2010 & 30.01.2010			4x25 MVAR Tertiary Reactor-III	PGCIL
7.	220 KV Bus coupler bay at Misa	22.01.2010 & 23.01.2010	08:00hrs to 14:00 hrs	AMP	Nil	PGCIL
8.	33 KV Bus at Nirjuli	28.01.2010	08:00hrs to 16:00 hrs	To attend hot spot	All 33 kV AP feeders	PGCIL
9.	132 KV ICT-I at Nirjuli			PGCIL		
10.	132 KV ICT-II at Nirjuli			PGCIL		

ANNEXURE - D.6

AVAILABILITY CALCULATION AS PER CERC GUIDE LINES

For The Month :- Jan-'2010

A. Transmission Lines :-

Sl.No	Transmission Lines	Line Length (KMs)	NSC	Cktkm* NSC	(Date of Commercial Operation) D.O.C.O	Total Hours of line during the period under consideration in mms. (a)	Non-avail. of line due to Force Majeure events. (b)		(Ti) (a-b)	Non-Avail. of line in Hrs. (Tnal) Attri. to Powergrid		OH x Cktkm x NSC
							Hrs.	min		Hrs.	min	
1	132KV D/C RC Nagar-Agartala-I	8.384	1	8.384	01.04.98	44640	2	30	44490	0	0	0
2	132KV D/C RC Nagar-Agartala-II	8.384	1	8.384	01.04.98	44640	2	20	44500	0	0	0
3	132KV S/C Badarpur-Kolasib	107.226	1	107.226	01.02.00	44640	1	15	44565	0	0	0
4	132KV S/C Kolasib-Aizwal	66.098	1	66.098	01.02.00	44640	1	12	44568	0	0	0
5	132 KV S/C Aizwal-Kumarghat	131.000	1	131	01.02.89	44640	0	0	44640	0	30	3930
6	132 KV S/C Aizwal - Zemabawk	6.719	1	6.719	01.09.88	44640	0	31	44609	0	0	0
7	132KV S/C Badarpur - Badarpur	1.023	1	1.023	01.02.00	44640	0	37	44603	2	56	180.048
8	132KV S/C Badarpur - Jiribam	67.210	1	67.21	01.02.00	44640	0	31	44609	0	0	0
9	132 KV S/C Badarpur - Khliehriat	76.646	1	76.646	01.02.00	44640	0	33	44607	0	0	0
10	132KV S/C Badarpur-Kumarghat	118.513	1	118.513	01.04.00	44640	0	33	44607	0	0	0
11	132 KV S/C Dimapur - Imphal	168.865	1	168.865	01.04.97	44640	0	0	44640	0	0	0
12	132KV D/C Doyang - Dimapur-I	92.526	1	92.526	01.04.97	44640	0	0	44640	4	31	25074.546
13	132KV D/C Doyang - Dimapur-II	92.526	1	92.526	01.04.97	44640	0	0	44640	0	0	0
14	132KV S/C Gohpur - Nirjuli	42.500	1	42.5	01.07.91	44640	1	10	44570	0	0	0
15	132 KV S/C Imphal - Imphal	1.500	1	1.5	01.04.97	44640	0	27	44613	0	0	0
16	132 KV S/C Jiribam - Aizwal	172.315	1	172.315	01.09.88	44640	0	39	44601	0	0	0
17	132 KV S/C Jiribam-Haflong	100.630	1	100.63	01.08.87	44640	0	20	44620	0	0	0
18	132KV S/C Jiribam - Loktak-II	82.400	1	82.4	01.07.89	44640	48	22	41738	0	0	0
19	132KV S/C Khandong - Haflong	63.166	1	63.166	01.10.87	44640	0	22	44618	0	0	0
20	132 KV S/C Khandong - Khliehriat-I	42.480	1	42.48	01.03.84	44640	0	29	44611	0	0	0
21	132 KV S/C Khandong - Khliehriat-II	40.933	1	40.933	01.02.00	44640	0	39	44601	0	0	0
22	132 KV S/C Khandong - Kopili	10.914	1	10.914	01.03.84	44640	0	6	44634	1	29	971.346
23	132 KV S/C Khliehriat-Khliehriat	7.801	1	7.801	01.02.00	44640	0	38	44602	0	0	0
24	132KV S/C Kumarghat-R.C.Nagar	104.020	1	104.02	01.01.01	44640	0	0	44640	7	27	46496.94
25	132 KV S/C Loktak - Imphal-II	35.040	1	35.04	01.07.83	44640	0	0	44640	0	0	0
26	132KV S/C Nirjuli-Ranganadi	22.29	1	22.29	01-10-2001	44640	0	13	44627	9	4	12125.76
27	132KV S/C Ranganadi-Ziro	44.52	1	44.523	01-04-2004	44640	0	13	44627	0	0	0
28	220 KV S/C Balipara-Tezpur	8.623	1	8.623	01.02.00	44640	0	57	44583	0	0	0
29	220 KV D/C Misa-Dimapur-I	123.520	1	123.52	01.04.96	44640	0	0	44640	0	0	0
30	220 KV D/C Misa-Dimapur-II	123.520	1	123.52	01.04.96	44640	0	0	44640	17	30	129696
31	220 KV D/C Misa-Kopili - I	72.791	1	72.791	01.03.84	44640	0	0	44640	0	0	0
32	220 KV D/C Misa-Kopili - II	72.791	1	72.791	01.02.88	44640	0	0	44640	26	22	115155.362
33	220 KV Misa-Kopili-III.	75.788	1	75.788	01.02.00	44640	0	0	44640	0	0	0
34	220 KV D/C Misa-Samaguri-I	34.439	1	34.439	01.03.84	44640	0	0	44640	0	0	0
35	220 KV D/C Misa-Samaguri-II	34.439	1	34.439	01.02.88	44640	0	0	44640	0	0	0
36	400 KV D/C Kathalguri-Mariani	162.864	2	325.728	01.08.95	44640	0	0	44640	0	0	0
37	400 KV D/C Misa- Kathalguri	382.864	2	765.728	01.04.98	44640	2	25	44495	0	0	0
38	400 KV D/C Misa- Mariani	220.000	2	440	01.04.98	44640	0	0	44640	0	0	0
39	400 KV D/C Balipara-Bongaigaon-I	289.721	2	579.442	01.02.00	44640	0	0	44640	18	25	640283.41
40	400 KV D/C Balipara-Bongaigaon-II	289.721	2	579.442	01.02.00	44640	0	0	44640	20	24	709237.008
41	400 KV D/C Misa-Balipara-I	95.407	2	190.814	01.02.00	44640	0	0	44640	0	0	0
42	400 KV D/C Misa-Balipara-II	95.407	2	190.814	01.02.00	44640	0	0	44640	0	0	0
43	400KV D/C Balipara-Ranganadi-I	166.335	2	332.67	01-01-2003	44640	0	0	44640	0	0	0
44	400KV D/C Balipara-Ranganadi-II	166.335	2	332.67	01-01-2003	44640	0	13	44627	0	0	0
				5998.851		1964160	67	15	1960125	108	38	1683150

Annexure- D.6**B. ICTs :-**

1	ICT at Bongaigaon	315	2.5	787.5	01.02.2000	44640	0	0	44640	0	0	0
2	ICT at Balipara	315	2.5	787.5	01.02.2000	44640	0	0	44640	0	0	0
3	ICT at Misa	315	2.5	787.5	01.02.2000	44640	0	0	44640	0	0	0
4	ICT at Salakati	50	2.5	125	14.08.1992	44640	0	0	44640	0	0	0
5	ICT at Dimapur	100	2.5	250	01.04.1994	44640	0	0	44640	0	0	0
6	ICT at Ziro	15	2.5	37.5	01.04.2004	44640	0	0	44640	0	0	0
7	ICT at Kumarghat	5	2.5	12.5	05.05.1987	44640	0	0	44640	0	0	0
8	ICT-I at Nirjuli	16	2.5	40	09.01.2009	44640	8	25	44135	4	35	11000
9	ICT-II at Nirjuli	10	2.5	25	20.10.1991	44640	0	22	44618	7	21	11025
				2852.5		401760	8	47	401233	11	56	22025

C. Bus Reactors :-

1	Reactor-I at Bongaigaon SS	50	4	200	01.02.2000	44640	0	0	44640	0	0	0
2	Reactor-II at Bongaigaon SS	50	4	200	01.02.2000	44640	0	0	44640	0	0	0
3	Balipara SS	50	4	200	01.02.2000	44640	0	0	44640	0	0	0
4	Misa SS	50	4	200	01.02.2000	44640	0	0	44640	0	0	0
5	Kumarghat SS	20	4	80	01.02.2000	44640	0	0	44640	0	0	0
6	Aizwal SS	20	4	80	01.02.2000	44640	0	0	44640	0	0	0
				960		267840	0	0	267840	0	0	0