

AVAILABILITY CALCULATION AS PER CERC GUIDE LINES

For The Month :- Feb-'2010

A. Transmission Lines :-

Sl.No.	Transmission Lines	Line Length (KMs)	NSC	Cktkm* NSC	(Date of Commer-cial Operation) D.O.C.O	Total Hours of line during the period under consi-deration in mns. (a)		Non-avail. of line due to Force Majeure events. (b)		(Ti) (a-b)	Non -Avail. of line in Hrs. (Tnal) Attri. to Powergrid Hrs. min		OH x Cktkm x NSC	Line wise NAFM	Line wise TAFM
						Hrs.	min	Hrs.	min		Hrs.	min			
1	132KV D/C RC Nagar-Agartala-I	8.384	1	8.384	01.04.98	40320	0	0	40320	0	0	0	0	0	100
2	132KV D/C RC Nagar-Agartala-II	8.384	1	8.384	01.04.98	40320	0	0	40320	0	0	0	0	0	100
3	132KV S/C Badarpur-Kolasib	107.226	1	107.226	01.02.00	40320	0	0	40320	0	0	0	0	0	100
4	132KV S/C Kolasib-Aizwal	66.098	1	66.098	01.02.00	40320	0	0	40320	0	0	0	0	0	100
5	132 KV S/C Aizwal-Kumarghat	131.000	1	131	01.02.89	40320	0	0	40320	30	3	236193	0.044717262	95.528274	
6	132 KV S/C Aizwal - Zemabawk	6.719	1	6.719	01.09.88	40320	0	0	40320	0	0	0	0	0	100
7	132KV S/C Badarpur - Badarpur	1.023	1	1.023	01.02.00	40320	0	0	40320	0	0	0	0	0	100
8	132KV S/C Badarpur - Jiribam	67.210	1	67.21	01.02.00	40320	0	0	40320	1	32	6183.32	0.002281746	99.771825	
9	132 KV S/C Badarpur - Khliehriat	76.646	1	76.646	01.02.00	40320	0	0	40320	0	0	0	0	0	100
10	132kV S/C Badarpur-Kumarghat	118.513	1	118.513	01.04.00	40320	0	0	40320	0	0	0	0	0	100
11	132 KV S/C Dimapur - Imphal	168.865	1	168.865	01.04.97	40320	0	32	40288	8	36	87134.34	0.012807784	98.719222	
12	132KV D/C Doyang - Dimapur-I	92.526	1	92.526	01.04.97	40320	0	0	40320	9	26	52369.716	0.014037698	98.59623	
13	132KV D/C Doyang - Dimapur-II	92.526	1	92.526	01.04.97	40320	34	59	38221	9	11	50981.826	0.014416159	98.558384	
14	132KV S/C Gohpur - Nirjuli	42.500	1	42.5	01.07.91	40320	1	23	40237	0	0	0	0	0	100
15	132 KV S/C Imphal - Imphal	1.500	1	1.5	01.04.97	40320	0	47	40273	0	0	0	0	0	100
16	132 KV S/C Jiribam - Aizwal	172.315	1	172.315	01.09.88	40320	0	0	40320	0	0	0	0	0	100
17	132 KV S/C Jiribam-Haflong	100.630	1	100.63	01.08.87	40320	0	0	40320	0	0	0	0	0	100
18	132KV S/C Jiribam - Loktak-II	82.400	1	82.4	01.07.89	40320	0	0	40320	30	7	148896.8	0.044816468	95.518353	
19	132KV S/C Khandong - Haflong	63.166	1	63.166	01.10.87	40320	0	23	40297	0	10	631.66	0.000248157	99.975184	
20	132 KV S/C Khandong - Khliehriat-I	42.480	1	42.48	01.03.84	40320	0	0	40320	8	15	21027.6	0.012276786	98.772321	
21	132 KV S/C Khandong - Khliehriat-II	40.933	1	40.933	01.02.00	40320	0	0	40320	0	0	0	0	0	100
22	132 KV S/C Khandong - Kopili	10.914	1	10.914	01.03.84	40320	0	4	40316	0	22	240.108	0.000545689	99.945431	
23	132 KV S/C Khliehriat-Khliehriat	7.801	1	7.801	01.02.00	40320	0	0	40320	0	0	0	0	0	100
24	132kV S/C Kumarghat-R.C.Nagar	104.020	1	104.02	01.01.01	40320	6	31	39929	0	0	0	0	0	100
25	132 KV S/C Loktak - Imphal-II	35.040	1	35.04	01.07.83	40320	1	19	40241	0	0	0	0	0	100
26	132KV S/C Nirjuli-Ranganadi	22.29	1	22.29	10/1/2001	40320	1	8	40252	0	14	312.06	0.000347809	99.965219	
27	132KV S/C Ranganadi-Ziro	44.52	1	44.523	4/1/2004	40320	1	16	40244	0	0	0	0	0	100
28	220 KV S/C Balipara-Tezpur	8.623	1	8.623	01.02.00	40320	0	0	40320	0	0	0	0	0	100
29	220 KV D/C Misa-Dimapur-I	123.520	1	123.52	01.04.96	40320	0	0	40320	18	17	135501.44	0.027207341	97.279266	
30	220 KV D/C Misa-Dimapur-II	123.520	1	123.52	01.04.96	40320	0	0	40320	0	0	0	0	0	100
31	220 KV D/C Misa-Kopili - I	72.791	1	72.791	01.03.84	40320	0	0	40320	0	0	0	0	0	100
32	220 KV D/C Misa-Kopili - II	72.791	1	72.791	01.02.88	40320	0	0	40320	0	0	0	0	0	100
33	220 KV Misa-Kopili-III.	75.788	1	75.788	01.02.00	40320	0	0	40320	0	0	0	0	0	100
34	220 KV D/C Misa-Samaguri-I	34.439	1	34.439	01.03.84	40320	0	0	40320	18	50	38916.07	0.028025794	97.197421	
35	220 KV D/C Misa-Samaguri-II	34.439	1	34.439	01.02.88	40320	0	0	40320	18	51	38950.509	0.028050595	97.19494	
36	400 KV D/C Kathalguri-Mariani	162.864	2	325.728	01.08.95	40320	0	0	40320	0	0	0	0	0	100
37	400 KV D/C Misa- Kathalguri	382.864	2	765.728	01.04.98	40320	0	0	40320	16	50	773385.28	0.025049603	97.49504	
38	400 KV D/C Misa- Mariani	220.000	2	440	01.04.98	40320	0	0	40320	18	36	491040	0.027678571	97.232143	
39	400 KV D/C Balipara-Bongaigaon-I	289.721	2	579.442	01.02.00	40320	0	0	40320	0	0	0	0	0	100
40	400 KV D/C Balipara-Bongaigaon-II	289.721	2	579.442	01.02.00	40320	0	0	40320	0	0	0	0	0	100
41	400 KV D/C Misa-Balipara-I	95.407	2	190.814	01.02.00	40320	0	0	40320	1	35	18127.33	0.002356151	99.764385	
42	400 KV D/C Misa-Balipara-II	95.407	2	190.814	01.02.00	40320	0	0	40320	7	9	81859.206	0.010639881	98.936012	
43	400KV D/C Balipara-Ranganadi-I	166.335	2	332.67	1/1/2003	40320	0	55	40265	17	35	350966.85	0.026201416	97.379858	
44	400KV D/C Balipara-Ranganadi-II	166.335	2	332.67	1/1/2003	40320	0	0	40320	16	15	324353.25	0.024181548	97.581845	
				5998.851		1774080	49	17	1771123	231	54	2857070.4	0.345886458	65.411354	

B. ICTs :-														
1	ICT at Bongaigaon	315	2.5	787.5	01.02.2000	40320	0	0	40320	0	0	0	0	100
2	ICT at Balipara	315	2.5	787.5	01.02.2000	40320	0	0	40320	0	0	0	0	100
3	ICT at Misa	315	2.5	787.5	01.02.2000	40320	0	0	40320	0	0	0	0	100
4	ICT at Salakati	50	2.5	125	14.08.1992	40320	0	0	40320	0	0	0	0	100
5	ICT at Dimapur	100	2.5	250	01.04.1994	40320	0	0	40320	0	0	0	0	100
6	ICT at Ziro	15	2.5	37.5	01.04.2004	40320	0	0	40320	0	0	0	0	100
7	ICT at Kumarghat	5	2.5	12.5	05.05.1987	40320	0	0	40320	0	0	0	0	100
8	ICT-I at Nirjuli	16	2.5	40	09.01.2009	40320	1	24	40236	0	0	0	0	100
9	ICT-II at Nirjuli	10	2.5	25	20.10.1991	40320	1	25	40235	0	0	0	0	100
				2852.5		362880	2	49	362711	0	0	0	0	100

C. Bus Reactors :-														
1	Reactor-I at Bongaigaon SS	50	4	200	01.02.2000	40320	0	0	40320	0	0	0	0	100
2	Reactor-II at Bongaigaon SS	50	4	200	01.02.2000	40320	0	0	40320	0	0	0	0	100
3	Balipara SS	50	4	200	01.02.2000	40320	0	0	40320	0	0	0	0	100
4	Misa SS	50	4	200	01.02.2000	40320	0	0	40320	0	0	0	0	100
5	Kumarghat SS	20	4	80	01.02.2000	40320	0	0	40320	0	0	0	0	100
6	Aizwal SS	20	4	80	01.02.2000	40320	0	0	40320	0	0	0	0	100
				960		241920	0	0	241920	0	0	0	0	100

No of days in month	28
Total elements	59
THM	40267

NAFM =

$$\frac{\text{Sum (Outage hours attributable to PG x Ckm x NSC) + Sum (Outage hours x MVA x 2.5) + Sum (Outage hours x MVAR x 4)}}{\text{THM x [Sum (Ckm x NSC) + Sum (MVA x 2.5) + Sum (MVAR x 4)]}}$$

$$= 0.007231738$$

$$\text{TAFM} = [100 - (100 \times \text{NAFM})]$$

$$= 99.28$$

$$\text{Availability for the month of February-'2010} = 99.28 \%$$

Comments

The formula for calculation of overall availability is

$$\text{NAFM} = \frac{\text{Sum (Outage hours attributable to PG x Ckm x NSC) + Sum (Outage hours x MVA x 2.5) + Sum (Outage hours x MVAR x 4)}{\text{THM x Sum of all weightage}}$$

The calculation forwarded by you is generally OK

However for clarity while submitting to RPC, first you can do separate sum for all lines, all ICTs and all Bus reactors etc. then do overall sum for all elements for calculation of overall availability.

THM - by definition it is the total hours in a month. In your calculation, you have deducted the outages under clause 6(i) & (ii) practically this is the procedure. But the formula says total hours in a month, there is no mention about net overall hours in a month. It is not clear. Other regions considering the way you have considered.

Column 'N' & 'O' not required. If you keep it there is no harm.
Heading of 'M' to be changed

Consideration of elements

For RPC purpose - Salakati - BTPC both ckts and Salakati - Geylegphug lines not to be considered as was done earlier
For internal purpose these elements are to be considered.