

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	March 6, 2022
Hours:	18:00 Hours

Date	Time	Load(MW)
12-Jan-22	18:00hrs	492.25

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	0.00	THP under total Shutdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-35.11	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	217.21	Unit-I & II under Annual Maintenance .400kV MHP-JLG Line III under Annual Maintenance . 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG-ALI I (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	58.12	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	160.11	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	80.33	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	53.09	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	81.58	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	12.67	
		-	-	80MVA, 220/132kV ICT - II (HV)	12.80	
		-	-	220kV Tsirang - Jigmeling Line	-71.81	
-	-	132kV Gelephu - Salakati Line	-11.85			
Total	218.23	Auxiliary Consumption & Transformation Losses at Generator end	0.47%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	9.06	Unit-I under maintenance. Unit-III on standby.
		Unit- II	84.05	220kV CHP - Birpara Line- II	9.16	
		Unit- III	0.00	220kV CHP - Malbase Line- III	79.08	
		Unit- IV	83.83	220kV CHP - Semtokha Line- IV	49.10	
		-	-	220kV Malbase - Birpara Line	-45.64	
		-	-	66kV CHP - Chumdo Line	16.03	
		-	-	66kV CHP - Gedu Line	2.98	
		-	-	3x3MVA, 66/11kV TFR	1.52	
Total	167.88	Auxiliary Consumption & Transformation Losses at Generator end	0.57%			
4	24MW BHP (U/S)	Unit- I	7.10	220kV BHP - Semtokha Line	71.70	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	22.77	
		Total	7.10	220kV BHP - Tsirang Line	-67.79	
5	40MW BHP (L/S)	Unit- I	20.10	5MVA, 66/11kV TFR	0.60	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	16.42	
		Total	20.10	Auxiliary Consumption & Transformation Losses at Generator end	-0.29%	
6	126MW DHP	Unit-I	27.73	220kV DHP - Tsirang Line	0.00	Unit-II under Annual Maintenance. 220kV DHP_Tsirang Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	27.52	
		-	-	220kV Jigmeling - Dagapela Line	-18.46	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	27.73	Auxiliary Consumption & Transformation Losses at Gen. end	0.04%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	14.83	Unit-I under AMP. Unit-IV on Standby.
		Unit-II	15.05	132kV KHP - Kilikhar Line	14.36	
		Unit- III	15.08	5MVA, 132/11kV TFR	0.51	
		Unit- IV	0.00	132kV Motanga - Rangia Line	0.00	
		Total	30.13	Auxiliary Consumption & Transformation Losses at Generator end	1.43%	

Note: Generation-Load Summary (MW) for March 06, 2022 at 18:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	222.81	357.15	356.27	-62.53	0.88
2	Eastern Grid	248.36	53.73	52.28	122.82	1.45
Total		471.17	410.88	408.55	60.29	2.33

Note: Generation-Load Summary for March 06, 2021 at 18:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	253.44	264.10	262.43	-15.97	1.67
2	Eastern Grid	120.19	73.28	71.25	52.22	2.03
Total		373.63	337.38	333.68	36.25	3.70

NOTE- BHP data collected from site.

- The Instantaneous load balance,calculated as (Total generation - (Total export-Import) - Total domestic load), do not tend towards zero. This could be due to the following reasons:
 - Not all the meters are digital and nor are all the meter at all locations can be read at same time (say 9:00hrs) due to many meter to be read manually.
 - The clocks of all the locations are not synchronized.
- This report is generated to give an idea of the generation & load flow for the system at a particular instant.

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	March 7, 2022
Hours:	09:00 Hours

Date	Time	Load(MW)
12-Jan-22	18:00hrs	492.25

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	0.00	THP under total shutdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line - IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-42.85	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	186.49	Unit-I & II under Annual Maintenance. 400kV MHP-JLG Line III under Annual Maintenance. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG-ALI I (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	93.53	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	94.11	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	65.28	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	45.09	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	72.30	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	13.77	
		-	-	80MVA, 220/132kV ICT - II (HV)	13.94	
		-	-	220kV Tsirang - Jigmeling Line	-66.83	
-	-	132kV Gelephu - Salakati Line	-8.31			
Total	187.64	Auxiliary Consumption & Transformation Losses at Generator end	0.61%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	6.98	Unit-IV standby. Unit-I under Annual Maintenance.
		Unit- II	77.32	220kV CHP - Birpara Line- II	6.99	
		Unit- III	78.22	220kV CHP - Malbase Line- III	77.17	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	42.92	
		-	-	220kV Malbase - Birpara Line	-47.83	
		-	-	66kV CHP - Chumdo Line	14.68	
		-	-	66kV CHP - Gedu Line	3.20	
		-	-	3x3MVA, 66/11kV TFR	1.11	
Total	155.54	Auxiliary Consumption & Transformation Losses at Generator end	1.60%			
4	24MW BHP (U/S)	Unit- I	8.10	220kV BHP - Semtokha Line	69.10	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	22.74	
		Total	8.10	220kV BHP - Tsirang Line	-63.64	
5	40MW BHP (L/S)	Unit- I	20.10	5MVA, 66/11kV TFR	0.46	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	15.06	
		Total	20.10	Auxiliary Consumption & Transformation Losses at Generator end	-1.63%	
6	126MW DHP	Unit-I	38.19	220kV DHP - Tsirang Line	0.00	Unit-II under Annual maintenance. 220kV DHP_Tsirang Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	37.95	
		-	-	220kV Jigmeling - Dagapela Line	-29.05	
		-	-	5MVA, 220/33kV TFR	0.15	
Total	38.19	Auxiliary Consumption & Transformation Losses at Generator end	0.24%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	16.86	Unit-I under AMP. Unit-IV on Standby.
		Unit-II	16.21	132kV KHP - Kilikhar Line	14.53	
		Unit- III	16.20	5MVA, 132/11kV TFR	0.62	
		Unit- IV	0.00	132kV Motanga - Rangia Line	1.26	
		Total	32.41	Auxiliary Consumption & Transformation Losses at Generator end	1.24%	

Note: Generation-Load Summary (MW) for March 07, 2022 at 09:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	221.93	365.47	363.35	-76.71	2.12
2	Eastern Grid	220.05	42.88	41.33	110.34	1.55
Total		441.98	408.35	404.68	33.63	3.67

Note: Generation-Load Summary for March 07, 2021 at 09:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	271.11	185.57	182.96	81.00	2.61
2	Eastern Grid	120.24	53.11	52.53	71.67	0.58
Total		391.35	238.68	235.49	152.67	3.19

NOTE-BHP data collected from Site.

- The Instantaneous load balance,calculated as (Total generation - (Total export-Import) - Total domestic load), do not tend towards zero. This could be due to the following reasons:
 - Not all the meters are digital and nor are all the meter at all locations can be read at same time (say 9:00hrs) due to many meter to be read manually.
 - The clocks of all the locations are not synchronized.
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