

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	June 4, 2022
Hours:	19:00 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	137.11	400kV THP - Siliguri Line - I	0.00	Unit-III & V on standby. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	69.18	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	165.81	
		Unit- IV	69.14	400kV THP - Malbase Line - III	245.03	
		Unit- V	0.00	400kV Malbase - Siliguri Line	152.16	
		Unit- VI	139.43	-	-	
		Total	414.86	Auxiliary Consumption & Transformation Losses at Generator end	0.97%	
2	720MW MHP	Unit-I	129.89	400kV MHP - Jigmeling Line - I	188.59	Unit- II on standby 400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	130.91	400kV MHP - Jigmeling Line - III	189.70	
		Unit-IV	120.11	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)	69.10	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	121.83	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	182.94	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	27.01	
		-	-	80MVA, 220/132kV ICT - II (HV)	27.57	
		-	-	220kV Tsirang - Jigmeling Line	11.46	
-	-	132kV Gelephu - Salakati Line	9.71			
Total	380.91	Auxiliary Consumption & Transformation Losses at Generator end	0.69%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	41.56	Unit-I on standby.
		Unit- II	67.58	220kV CHP - Birpara Line- II	41.42	
		Unit- III	69.80	220kV CHP - Malbase Line- III	70.37	
		Unit- IV	59.88	220kV CHP - Semtokha Line- IV	24.48	
		-	-	220kV Malbase - Birpara Line	12.70	
		-	-	66kV CHP - Chumdo Line	12.89	
		-	-	66kV CHP - Gedu Line	4.68	
		-	-	3x3MVA, 66/11kV TFR	1.08	
Total	197.26	Auxiliary Consumption & Transformation Losses at Generator end	0.40%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	72.10	
		Unit- II	12.10	66kV BHP - Lobeyasa Line	24.58	
		Total	24.40	220kV BHP - Tsirang Line	-31.85	
5	40MW BHP (L/S)	Unit- I	20.40	5MVA, 66/11kV TFR	0.61	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	1.41	
		Total	41.50	Auxiliary Consumption & Transformation Losses at Generator end	0.70%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	50.72	Unit-I on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	51.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	26.35	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	51.00	Auxiliary Consumption & Transformation Losses at Gen. end	0.16%			
7	60MW KHP	Unit- I	16.54	132kV KHP - Nangkhon Line	42.18	
		Unit-II	16.48	132kV KHP - Kilikhar Line	22.82	
		Unit- III	16.60	5MVA, 132/11kV TFR	0.56	
		Unit- IV	16.52	132kV Motanga - Rangia Line	51.37	
		Total	66.14	Auxiliary Consumption & Transformation Losses at Generator end	0.88%	

Note: Generation-Load Summary (MW) for June 04, 2022 at 19:00hrs.

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	729.02	303.91	298.57	413.65	5.34
2	Eastern Grid	447.05	92.66	89.46	365.85	3.20
Total		1,176.07	396.57	388.03	779.50	8.54

Note: Generation-Load Summary for June 04, 2021 at 19:00hrs.

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	727.03	227.68	216.55	457.61	11.13
2	Eastern Grid	441.37	78.92	77.11	404.19	1.81
Total		1,168.40	306.60	293.66	861.80	12.94

NOTE- BHP data collected from site.

1. 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:

- i) 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.
- ii) The clocks of all the locations are not synchronized.

2. 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:	June 5, 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	137.39	400kV THP - Siliguri Line - I	0.00	Unit-III on standby. Unit V under maintenance. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	69.41	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	188.00	
		Unit- IV	99.51	400kV THP - Malbase Line - III	252.15	
		Unit- V	0.00	400kV Malbase - Siliguri Line	175.54	
		Unit- VI	139.98	-	-	
		Total	446.29	Auxiliary Consumption & Transformation Losses at Generator end	1.38%	
2	720MW MHP	Unit-I	135.21	400kV MHP - Jigmeling Line - I	189.13	Unit- II on standby 400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	135.84	400kV MHP - Jigmeling Line - III	190.36	
		Unit-IV	110.43	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)	50.42	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	129.39	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	194.83	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.45	
		-	-	80MVA, 220/132kV ICT - II (HV)	20.79	
		-	-	220kV Tsirang - Jigmeling Line	17.69	
-	-	132kV Gelephu - Salakati Line	11.20			
Total	381.48	Auxiliary Consumption & Transformation Losses at Generator end	0.52%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	42.75	Unit-I on standby
		Unit- II	73.59	220kV CHP - Birpara Line- II	42.94	
		Unit- III	72.86	220kV CHP - Malbase Line- III	83.43	
		Unit- IV	73.98	220kV CHP - Semtokha Line- IV	33.73	
		-	-	220kV Malbase - Birpara Line	5.67	
		-	-	66kV CHP - Chumdo Line	12.14	
		-	-	66kV CHP - Gedu Line	3.89	
		-	-	3x3MVA, 66/11kV TFR	0.86	
Total	220.43	Auxiliary Consumption & Transformation Losses at Generator end	0.31%			
4	24MW BHP (U/S)	Unit- I	8.70	220kV BHP - Semtokha Line	62.80	
		Unit- II	8.30	66kV BHP - Lobeyasa Line	22.45	
		Total	17.00	220kV BHP - Tsirang Line	-36.94	
5	40MW BHP (L/S)	Unit- I	16.30	5MVA, 66/11kV TFR	0.34	
		Unit- II	15.70	30MVA ICT, 220/66kV (HV)	6.18	
		Total	32.00	Auxiliary Consumption & Transformation Losses at Generator end	0.71%	
6	126MW DHP	Unit-I	30.27	220kV DHP - Tsirang Line	56.76	DHP Unit I on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	26.97	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	25.80	
		-	-	5MVA, 220/33kV TFR	0.45	
Total	57.24	Auxiliary Consumption & Transformation Losses at Generator end	0.05%			
7	60MW KHP	Unit- I	16.51	132kV KHP - Nangkhoh Line	44.23	
		Unit-II	16.57	132kV KHP - Kilikhar Line	20.78	
		Unit- III	16.45	5MVA, 132/11kV TFR	0.29	
		Unit- IV	16.49	132kV Motanga - Rangia Line	40.40	
		Total	66.02	Auxiliary Consumption & Transformation Losses at Generator end	1.09%	

Note: Generation-Load Summary (MW) for June 05, 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	772.96	300.37	293.16	454.90	7.21
2	Eastern Grid	447.50	89.37	86.66	375.82	2.71
Total		1,220.46	389.74	379.82	830.72	9.92

Note: Generation-Load Summary for June 05, 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	755.56	235.10	226.87	499.22	8.23
2	Eastern Grid	626.23	75.17	62.52	572.30	12.65
Total		1,381.79	310.27	289.39	1,071.52	20.88

NOTE-BHP collected from Site.

1. 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:

- i) 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.
- ii) The clocks of all the locations are not synchronized.

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