

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	June 6, 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	165.88	400kV THP - Siliguri Line - I	0.00	Unit-II & III on standby. Unit V tripped at 17:59 hrs . 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	205.73	
		Unit- IV	167.26	400kV THP - Malbase Line - III	273.54	
		Unit- V	0.00	400kV Malbase - Siliguri Line	191.19	
		Unit- VI	148.66	-	-	
		Total	481.80	Auxiliary Consumption & Transformation Losses at Generator end	0.53%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	179.10	Unit- I 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	99.80	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	130.70	400kV MHP - Jigmeling Line - III	180.40	
		Unit-IV	130.40	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)	81.90	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	111.90	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	168.70	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	34.90	
		-	-	80MVA, 220/132kV ICT - II (HV)	35.60	
		-	-	220kV Tsirang - Jigmeling Line	14.80	
-	-	132kV Gelephu - Salakati Line	9.40			
Total	360.90	Auxiliary Consumption & Transformation Losses at Generator end	0.39%			
3	336MW CHP	Unit- I	63.82	220kV CHP - Birpara Line- I	57.61	220kV Malbase-Birpara line under shutdown.
		Unit- II	54.02	220kV CHP - Birpara Line- II	57.70	
		Unit- III	64.52	220kV CHP - Malbase Line- III	60.57	
		Unit- IV	62.52	220kV CHP - Semtokha Line- IV	48.95	
		-	-	220kV Malbase - Birpara Line	0.00	
		-	-	66kV CHP - Chumdo Line	13.81	
		-	-	66kV CHP - Gedu Line	4.24	
		-	-	3x3MVA, 66/11kV TFR	1.33	
Total	244.88	Auxiliary Consumption & Transformation Losses at Generator end	0.27%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	53.21	
		Unit- II	12.10	66kV BHP - Lobeyasa Line	25.60	
		Total	24.40	220kV BHP - Tsirang Line	-19.70	
5	40MW BHP (L/S)	Unit- I	20.40	5MVA, 66/11kV TFR	0.70	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	4.11	
		Total	41.40	Auxiliary Consumption & Transformation Losses at Generator end	9.10%	
6	126MW DHP	Unit-I	38.32	220kV DHP - Tsirang Line	38.08	Unit II on standby 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	15.30	
		-	-	5MVA, 220/33kV TFR	0.18	
Total	38.32	Auxiliary Consumption & Transformation Losses at Gen. end	0.16%			
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	42.10	
		Unit-II	16.50	132kV KHP - Kilikhar Line	22.70	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.47	
		Unit- IV	16.50	132kV Motanga - Rangia Line	46.70	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	1.11%	

Note: Generation-Load Summary (MW) for June 06, 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	830.80	303.77	294.52	512.23	9.25
2	Eastern Grid	426.90	105.00	102.87	336.70	2.13
Total		1,257.70	408.77	397.39	848.93	11.38

Note: Generation-Load Summary for June 06, 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	993.96	221.77	211.39	740.19	10.38
2	Eastern Grid	536.90	79.39	76.81	489.51	2.58
Total		1,530.86	301.16	288.20	1,229.70	12.96

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:	June 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	117.70	400kV THP - Siliguri Line - I	0.00	Unit-II & V on standby. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	139.23	400kV THP - Siliguri Line- IV	234.87	
		Unit- IV	118.36	400kV THP - Malbase Line - III	286.02	
		Unit- V	0.00	400kV Malbase - Siliguri Line	223.98	
		Unit- VI	148.90	-	-	
		Total	524.19	Auxiliary Consumption & Transformation Losses at Generator end	0.63%	
2	720MW MHP	Unit-I	149.80	400kV MHP - Jigmeling Line - I	342.02	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	179.86	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	180.60	400kV MHP - Jigmeling Line - III	344.98	
		Unit-IV	180.29	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)	89.03	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	235.43	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	354.47	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	32.78	
		-	-	80MVA, 220/132kV ICT - II (HV)	33.40	
		-	-	220kV Tsirang - Jigmeling Line	2.16	
-	-	132kV Gelephu - Salakati Line	22.20			
Total	690.55	Auxiliary Consumption & Transformation Losses at Generator end	0.51%			
3	336MW CHP	Unit- I	63.40	220kV CHP - Birpara Line- I	70.16	220kV Malbase-Birpara line under shutdown.
		Unit- II	71.85	220kV CHP - Birpara Line- II	70.44	
		Unit- III	64.20	220kV CHP - Malbase Line- III	83.39	
		Unit- IV	62.21	220kV CHP - Semtokha Line- IV	20.00	
		-	-	220kV Malbase - Birpara Line	0.00	
		-	-	66kV CHP - Chumdo Line	10.65	
		-	-	66kV CHP - Gedu Line	4.89	
		-	-	3x3MVA, 66/11kV TFR	0.99	
Total	261.66	Auxiliary Consumption & Transformation Losses at Generator end	0.44%			
4	24MW BHP (U/S)	Unit- I	10.30	220kV BHP - Semtokha Line	72.80	
		Unit- II	10.00	66kV BHP - Lobeyssa Line	23.91	
		Total	20.30	220kV BHP - Tsirang Line	-39.10	
5	40MW BHP (L/S)	Unit- I	19.00	5MVA, 66/11kV TFR	0.37	
		Unit- II	18.80	30MVA ICT, 220/66kV (HV)	4.51	
		Total	37.80	Auxiliary Consumption & Transformation Losses at Generator end	0.21%	
6	126MW DHP	Unit-I	43.33	220kV DHP - Tsirang Line	43.10	Unit-II on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	25.26	
		-	-	5MVA, 220/33kV TFR	0.22	
Total	43.33	Auxiliary Consumption & Transformation Losses at Generator end	0.02%			
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	42.36	
		Unit-II	16.50	132kV KHP - Kilikhar Line	22.63	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.36	
		Unit- IV	16.50	132kV Motanga - Rangia Line	45.14	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	0.98%	

Note: Generation-Load Summary (MW) for June 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	887.28	285.67	281.10	599.45	4.57
2	Eastern Grid	756.55	101.47	97.27	657.24	4.20
Total		1,643.83	387.14	378.37	1,256.69	8.77

Note: Generation-Load Summary for June 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	1,338.77	209.01	192.98	1,082.94	16.03
2	Eastern Grid	659.87	69.48	65.60	637.21	3.88
Total		1,998.64	278.49	258.58	1,720.15	19.91

NOTE-MHP,KHP & 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.

2. This report is generated to give an idea of the generation & load flow for the system at a particular instant.