

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	June 17, 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	186.67	400kV THP - Siliguri Line - I	0.00	Unit-VI tripped at 14:48hrs. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	187.03	400kV THP - Siliguri Line - II	0.00	
		Unit- III	185.26	400kV THP - Siliguri Line- IV	466.47	
		Unit- IV	186.32	400kV THP - Malbase Line - III	458.69	
		Unit- V	185.74	400kV Malbase - Siliguri Line	461.87	
		Unit- VI	0.00	-	-	
		Total	931.02	Auxiliary Consumption & Transformation Losses at Generator end	0.63%	
2	720MW MHP	Unit-I	197.73	400kV MHP - Jigmeling Line - I	293.84	Unit III under shutdown. 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.
		Unit-II	197.89	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.67	
		Unit-IV	197.79	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)	40.15	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	135.23	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	202.40	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	203.28	
		-	-	80MVA, 220/132kV ICT - I (HV)	24.31	
		-	-	80MVA, 220/132kV ICT - II (HV)	24.79	
		-	-	220kV Tsirang - Jigmeling Line	40.87	
-	-	132kV Gelephu - Salakati Line	2.60			
Total	593.41	Auxiliary Consumption & Transformation Losses at Generator end	0.66%			
3	336MW CHP	Unit- I	91.57	220kV CHP - Birpara Line- I	73.32	
		Unit- II	90.42	220kV CHP - Birpara Line- II	73.06	
		Unit- III	90.94	220kV CHP - Malbase Line- III	145.56	
		Unit- IV	91.69	220kV CHP - Semtokha Line- IV	49.75	
		-	-	220kV Malbase - Birpara Line	6.01	
		-	-	66kV CHP - Chumdo Line	13.77	
		-	-	66kV CHP - Gedu Line	5.76	
		-	-	3x3MVA, 66/11kV TFR	1.54	
Total	364.62	Auxiliary Consumption & Transformation Losses at Generator end	0.51%			
4	24MW BHP (U/S)	Unit- I	10.20	220kV BHP - Semtokha Line	51.20	
		Unit- II	9.80	66kV BHP - Lobeyasa Line	24.70	
		Total	20.00	220kV BHP - Tsirang Line	-20.91	
5	40MW BHP (L/S)	Unit- I	17.00	5MVA, 66/11kV TFR	0.58	
		Unit- II	19.00	30MVA ICT, 220/66kV (HV)	5.73	
		Total	36.00	Auxiliary Consumption & Transformation Losses at Generator end	0.77%	
6	126MW DHP	Unit-I	32.31	220kV DHP - Tsirang Line	64.87	220kV DHP_Dagapela Line on Standby.
		Unit-II	33.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	32.48	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	65.31	Auxiliary Consumption & Transformation Losses at Gen. end	0.37%			
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	42.52	
		Unit-II	16.50	132kV KHP - Kilikhar Line	22.17	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.54	
		Unit- IV	16.50	132kV Motanga - Rangia Line	30.52	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	1.17%	

Note: Generation-Load Summary (MW) for June 17, 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	1,416.95	295.35	286.96	1,080.73	8.39
2	Eastern Grid	659.41	126.25	121.58	574.03	4.67
Total		2,076.36	421.60	408.54	1,654.76	13.06

Note: Generation-Load Summary for June 17, 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	1,588.12	243.75	225.30	1,301.25	18.45
2	Eastern Grid	658.93	83.14	80.27	618.91	2.87
Total		2,247.05	326.89	305.57	1,920.16	21.32

NOTE-KHP, MHEP, JLG & 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 18, 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	186.37	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	184.73	400kV THP - Siliguri Line - II	0.00	
		Unit- III	185.16	400kV THP - Siliguri Line- IV	556.34	
		Unit- IV	184.48	400kV THP - Malbase Line - III	546.97	
		Unit- V	185.34	400kV Malbase - Siliguri Line	548.31	
		Unit- VI	185.77	-	-	
		Total	1,111.85	Auxiliary Consumption & Transformation Losses at Generator end	0.77%	
2	720MW MHP	Unit-I	197.87	400kV MHP - Jigmeling Line - I	294.04	Unit III under shutdown. 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.
		Unit-II	197.79	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.78	
		Unit-IV	197.85	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)	-21.90	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	151.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	227.20	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	226.50	
		-	-	80MVA, 220/132kV ICT - I (HV)	19.00	
		-	-	80MVA, 220/132kV ICT - II (HV)	19.40	
		-	-	220kV Tsirang - Jigmeling Line	93.50	
-	-	132kV Gelephu - Salakati Line	3.80			
Total	593.51	Auxiliary Consumption & Transformation Losses at Generator end	0.62%			
3	336MW CHP	Unit- I	91.71	220kV CHP - Birpara Line- I	83.15	
		Unit- II	90.14	220kV CHP - Birpara Line- II	82.83	
		Unit- III	91.70	220kV CHP - Malbase Line- III	156.03	
		Unit- IV	91.68	220kV CHP - Semtokha Line- IV	24.52	
		-	-	220kV Malbase - Birpara Line	14.46	
		-	-	66kV CHP - Chumdo Line	11.62	
		-	-	66kV CHP - Gedu Line	5.10	
		-	-	3x3MVA, 66/11kV TFR	0.96	
Total	365.23	Auxiliary Consumption & Transformation Losses at Generator end	0.28%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	69.28	
		Unit- II	12.10	66kV BHP - Lobeyssa Line	25.02	
		Total	24.40	220kV BHP - Tsirang Line	-29.36	
5	40MW BHP (L/S)	Unit- I	20.60	5MVA, 66/11kV TFR	0.41	
		Unit- II	21.20	30MVA ICT, 220/66kV (HV)	1.81	
		Total	41.80	Auxiliary Consumption & Transformation Losses at Generator end	1.28%	
6	126MW DHP	Unit-I	63.63	220kV DHP - Tsirang Line	126.03	220kV DHP_Dagapela Line on Standby.
		Unit-II	63.14	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	32.60	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	126.77	Auxiliary Consumption & Transformation Losses at Generator end	0.43%			
7	60MW KHP	Unit- I	16.60	132kV KHP - Nangkhoh Line	45.10	
		Unit-II	16.60	132kV KHP - Kilikhar Line	19.90	
		Unit- III	16.60	5MVA, 132/11kV TFR	0.50	
		Unit- IV	16.60	132kV Motanga - Rangia Line	28.10	
		Total	66.40	Auxiliary Consumption & Transformation Losses at Generator end	1.36%	

Note: Generation-Load Summary (MW) for June 18, 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	1,670.05	291.46	280.51	1,285.09	10.95
2	Eastern Grid	659.91	116.81	112.22	636.60	4.59
Total		2,329.96	408.27	392.73	1,921.69	15.54

Note: Generation-Load Summary for June 18, 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	1,653.54	250.47	230.29	1,323.37	20.18
2	Eastern Grid	658.97	76.18	72.56	662.49	3.62
Total		2,312.51	326.65	302.85	1,985.86	23.80

NOTE- BHP generation 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.
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