

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	June 13, 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	147.16	400kV THP - Siliguri Line - I	0.00	Unit IV on Standby. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	68.90	400kV THP - Siliguri Line - II	0.00	
		Unit- III	118.82	400kV THP - Siliguri Line- IV	265.79	
		Unit- IV	0.00	400kV THP - Malbase Line - III	261.40	
		Unit- V	118.43	400kV Malbase - Siliguri Line	263.32	
		Unit- VI	79.96	-	-	
		Total	533.27	Auxiliary Consumption & Transformation Losses at Generator end	1.14%	
2	720MW MHP	Unit-I	129.87	400kV MHP - Jigmeling Line - I	193.49	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	130.14	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	194.83	
		Unit-IV	130.58	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)	63.67	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	80.19	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	121.22	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	120.50	
		-	-	80MVA, 220/132kV ICT - I (HV)	21.06	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.37	
		-	-	220kV Tsirang - Jigmeling Line	10.29	
-	-	132kV Gelephu - Salakati Line	-2.33			
Total	390.59	Auxiliary Consumption & Transformation Losses at Generator end	0.58%			
3	336MW CHP	Unit- I	62.68	220kV CHP - Birpara Line- I	35.88	
		Unit- II	59.42	220kV CHP - Birpara Line- II	35.81	
		Unit- III	75.79	220kV CHP - Malbase Line- III	115.20	
		Unit- IV	58.86	220kV CHP - Semtokha Line- IV	49.96	
		-	-	220kV Malbase - Birpara Line	-30.93	
		-	-	66kV CHP - Chumdo Line	13.53	
		-	-	66kV CHP - Gedu Line	4.87	
		-	-	3x3MVA, 66/11kV TFR	1.24	
Total	256.75	Auxiliary Consumption & Transformation Losses at Generator end	0.10%			
4	24MW BHP (U/S)	Unit- I	8.60	220kV BHP - Semtokha Line	48.78	
		Unit- II	8.20	66kV BHP - Lobeysa Line	22.37	
		Total	16.80	220kV BHP - Tsirang Line	-24.82	
5	40MW BHP (L/S)	Unit- I	15.20	5MVA, 66/11kV TFR	0.70	
		Unit- II	15.30	30MVA ICT, 220/66kV (HV)	6.33	
		Total	30.50	Auxiliary Consumption & Transformation Losses at Generator end	0.57%	
6	126MW DHP	Unit-I	38.83	220kV DHP - Tsirang Line	38.59	220kV DHP_Dagapela Line on Standby. Unit-II on standby
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	31.13	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	38.83	Auxiliary Consumption & Transformation Losses at Gen. end	0.10%			
7	60MW KHP	Unit- I	16.39	132kV KHP - Nangkhoh Line	43.33	
		Unit-II	16.45	132kV KHP - Kilikhar Line	21.66	
		Unit- III	16.55	5MVA, 132/11kV TFR	0.30	
		Unit- IV	16.62	132kV Motanga - Rangia Line	40.87	
		Total	66.01	Auxiliary Consumption & Transformation Losses at Generator end	1.09%	

Note: Generation-Load Summary (MW) for June 13, 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	876.15	295.99	289.34	569.87	6.65
2	Eastern Grid	456.60	106.44	103.45	360.45	2.99
Total		1,332.75	402.43	392.79	930.32	9.64

Note: Generation-Load Summary for June 13, 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	1,680.47	249.79	233.71	1,267.75	16.08
2	Eastern Grid	658.82	71.18	67.08	750.57	4.10
Total		2,339.29	320.97	300.79	2,018.32	20.18

NOTE- BHP Generation 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 14, 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	146.70	400kV THP - Siliguri Line - I	0.00	Unit IV on Standby. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	69.28	400kV THP - Siliguri Line - II	0.00	
		Unit- III	99.11	400kV THP - Siliguri Line- IV	242.66	
		Unit- IV	0.00	400kV THP - Malbase Line - III	238.90	
		Unit- V	88.53	400kV Malbase - Siliguri Line	239.87	
		Unit- VI	81.04	-	-	
		Total	484.66	Auxiliary Consumption & Transformation Losses at Generator end	0.64%	
2	720MW MHP	Unit-I	135.19	400kV MHP - Jigmeling Line - I	203.69	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	140.20	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	204.92	
		Unit-IV	135.51	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)	24.70	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	95.64	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	139.82	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	138.33	
		-	-	80MVA, 220/132kV ICT - I (HV)	6.34	
		-	-	80MVA, 220/132kV ICT - II (HV)	6.44	
		-	-	220kV Tsirang - Jigmeling Line	19.34	
-	-	132kV Gelephu - Salakati Line	-0.60			
Total	410.90	Auxiliary Consumption & Transformation Losses at Generator end	0.56%			
3	336MW CHP	Unit- I	61.82	220kV CHP - Birpara Line- I	38.79	
		Unit- II	64.05	220kV CHP - Birpara Line- II	38.68	
		Unit- III	76.01	220kV CHP - Malbase Line- III	122.48	
		Unit- IV	59.67	220kV CHP - Semtokha Line- IV	43.01	
		-	-	220kV Malbase - Birpara Line	-32.06	
		-	-	66kV CHP - Chumdo Line	12.20	
		-	-	66kV CHP - Gedu Line	4.22	
		-	-	3x3MVA, 66/11kV TFR	1.03	
Total	261.55	Auxiliary Consumption & Transformation Losses at Generator end	0.44%			
4	24MW BHP (U/S)	Unit- I	9.80	220kV BHP - Semtokha Line	51.50	
		Unit- II	9.50	66kV BHP - Lobeysa Line	22.89	
		Total	19.30	220kV BHP - Tsirang Line	-20.49	
5	40MW BHP (L/S)	Unit- I	17.80	5MVA, 66/11kV TFR	0.40	
		Unit- II	17.50	30MVA ICT, 220/66kV (HV)	-2.03	
		Total	35.30	Auxiliary Consumption & Transformation Losses at Generator end	0.55%	
6	126MW DHP	Unit-I	42.34	220kV DHP - Tsirang Line	42.14	220kV DHP_Dagapela Line on Standby. Unit-II on standby
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	30.94	
		-	-	5MVA, 220/33kV TFR	0.19	
Total	42.34	Auxiliary Consumption & Transformation Losses at Generator end	0.02%			
7	60MW KHP	Unit- I	16.02	132kV KHP - Nangkhor Line	44.43	
		Unit-II	16.46	132kV KHP - Kilikhar Line	20.37	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.34	
		Unit- IV	16.50	132kV Motanga - Rangia Line	31.72	
		Total	65.48	Auxiliary Consumption & Transformation Losses at Generator end	0.52%	

Note: Generation-Load Summary (MW) for June 14, 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	843.15	295.87	291.32	527.94	4.55
2	Eastern Grid	476.38	90.81	88.18	404.91	2.63
Total		1,319.53	386.68	379.50	932.85	7.18

Note: Generation-Load Summary for June 14, 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	1,640.73	189.03	173.09	1,322.80	15.94
2	Eastern Grid	657.99	75.37	72.39	711.52	2.98
Total		2,298.72	264.40	245.48	2,034.32	18.92

NOTE- BHP & all eastern 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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