

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	June 9, 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	156.32	400kV THP - Siliguri Line - I	0.00	Unit-V under breakdown.. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	157.50	400kV THP - Siliguri Line - II	0.00	
		Unit- III	138.63	400kV THP - Siliguri Line- IV	330.14	
		Unit- IV	127.08	400kV THP - Malbase Line - III	394.68	
		Unit- V	0.00	400kV Malbase - Siliguri Line	314.60	
		Unit- VI	149.42	-	-	
		Total	728.95	Auxiliary Consumption & Transformation Losses at Generator end	0.57%	
2	720MW MHP	Unit-I	197.86	400kV MHP - Jigmeling Line - I	390.22	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	197.82	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	195.18	400kV MHP - Jigmeling Line - III	392.29	
		Unit-IV	195.39	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)	35.54	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	184.40	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	276.75	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	275.66	
		-	-	80MVA, 220/132kV ICT - I (HV)	41.31	
		-	-	80MVA, 220/132kV ICT - II (HV)	42.07	
		-	-	220kV Tsirang - Jigmeling Line	78.50	
-	-	132kV Gelephu - Salakati Line	20.40			
Total	786.25	Auxiliary Consumption & Transformation Losses at Generator end	0.48%			
3	336MW CHP	Unit- I	88.01	220kV CHP - Birpara Line- I	93.42	
		Unit- II	89.03	220kV CHP - Birpara Line- II	93.30	
		Unit- III	90.83	220kV CHP - Malbase Line- III	113.30	
		Unit- IV	91.04	220kV CHP - Semtokha Line- IV	38.27	
		-	-	220kV Malbase - Birpara Line	64.34	
		-	-	66kV CHP - Chumdo Line	13.88	
		-	-	66kV CHP - Gedu Line	4.78	
		-	-	3x3MVA, 66/11kV TFR	1.39	
Total	358.91	Auxiliary Consumption & Transformation Losses at Generator end	0.16%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	62.70	
		Unit- II	12.10	66kV BHP - Lobeyssa Line	26.17	
		Total	24.40	220kV BHP - Tsirang Line	-24.12	
5	40MW BHP (L/S)	Unit- I	20.00	5MVA, 66/11kV TFR	0.63	
		Unit- II	21.20	30MVA ICT, 220/66kV (HV)	-2.53	
		Total	41.20	Auxiliary Consumption & Transformation Losses at Generator end	0.34%	
6	126MW DHP	Unit-I	54.35	220kV DHP - Tsirang Line	106.78	220kV DHP_Dagapela Line on Standby.
		Unit-II	52.96	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	29.60	
		-	-	5MVA, 220/33kV TFR	0.52	
Total	107.31	Auxiliary Consumption & Transformation Losses at Gen. end	0.01%			
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	41.06	
		Unit-II	16.50	132kV KHP - Kilikhar Line	23.67	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.30	
		Unit- IV	16.50	132kV Motanga - Rangia Line	53.45	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	1.47%	

Note: Generation-Load Summary (MW) for June 09, 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	1,260.77	286.47	281.54	895.80	4.93
2	Eastern Grid	852.25	120.09	115.38	810.66	4.71
Total		2,113.02	406.56	396.92	1,706.46	9.64

Note: Generation-Load Summary for June 09, 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	890.60	235.10	225.02	602.54	10.08
2	Eastern Grid	659.72	79.65	75.27	633.03	4.38
Total		1,550.32	314.75	300.29	1,235.57	14.46

NOTE- MHP,KHP & 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 10, 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	182.59	400kV THP - Siliguri Line - I	0.00	Unit-V under breakdown. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	184.53	400kV THP - Siliguri Line - II	0.00	
		Unit- III	185.52	400kV THP - Siliguri Line- IV	423.98	
		Unit- IV	184.15	400kV THP - Malbase Line - III	492.35	
		Unit- V	0.00	400kV Malbase - Siliguri Line	406.82	
		Unit- VI	185.24	-	-	
		Total	922.03	Auxiliary Consumption & Transformation Losses at Generator end	0.62%	
2	720MW MHP	Unit-I	150.18	400kV MHP - Jigmeling Line - I	298.48	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	150.11	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	150.80	400kV MHP - Jigmeling Line - III	300.59	
		Unit-IV	150.49	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)	-7.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	152.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	229.20	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	228.10	
		-	-	80MVA, 220/132kV ICT - I (HV)	13.90	
		-	-	80MVA, 220/132kV ICT - II (HV)	14.20	
		-	-	220kV Tsirang - Jigmeling Line	63.90	
-	-	132kV Gelephu - Salakati Line	21.00			
Total	601.58	Auxiliary Consumption & Transformation Losses at Generator end	0.42%			
3	336MW CHP	Unit- I	91.03	220kV CHP - Birpara Line- I	91.55	
		Unit- II	90.74	220kV CHP - Birpara Line- II	91.44	
		Unit- III	91.33	220kV CHP - Malbase Line- III	114.35	
		Unit- IV	91.32	220kV CHP - Semtokha Line- IV	47.82	
		-	-	220kV Malbase - Birpara Line	60.39	
		-	-	66kV CHP - Chumdo Line	11.61	
		-	-	66kV CHP - Gedu Line	5.51	
		-	-	3x3MVA, 66/11kV TFR	1.02	
Total	364.42	Auxiliary Consumption & Transformation Losses at Generator end	0.31%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	45.60	
		Unit- II	12.10	66kV BHP - Lobeyssa Line	24.45	
		Total	24.40	220kV BHP - Tsirang Line	-5.17	
5	40MW BHP (L/S)	Unit- I	20.20	5MVA, 66/11kV TFR	0.40	
		Unit- II	21.20	30MVA ICT, 220/66kV (HV)	1.00	
		Total	41.40	Auxiliary Consumption & Transformation Losses at Generator end	0.79%	
6	126MW DHP	Unit-I	37.32	220kV DHP - Tsirang Line	72.85	220kV DHP_Dagapela Line on Standby.
		Unit-II	35.98	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	28.80	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	73.30	Auxiliary Consumption & Transformation Losses at Generator end	0.34%			
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	45.52	
		Unit-II	16.50	132kV KHP - Kilikhar Line	19.53	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.40	
		Unit- IV	16.50	132kV Motanga - Rangia Line	21.10	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	0.83%	

Note: Generation-Load Summary (MW) for June 10, 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	1,425.55	287.47	279.88	1,074.18	7.59
2	Eastern Grid	667.58	80.08	77.02	651.40	3.06
Total		2,093.13	367.55	356.90	1,725.58	10.65

Note: Generation-Load Summary for June 10, 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	1,011.24	228.74	216.34	739.01	12.40
2	Eastern Grid	659.67	74.31	71.01	628.85	3.30
Total		1,670.91	303.05	287.35	1,367.86	15.70

NOTE- MHP,KHP & 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.
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