

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	July 3, 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	185.19	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	186.53	400kV THP - Siliguri Line - II	0.00	
		Unit- III	185.41	400kV THP - Siliguri Line- IV	558.64	
		Unit- IV	184.28	400kV THP - Malbase Line - III	546.78	
		Unit- V	185.41	400kV Malbase - Siliguri Line	551.65	
		Unit- VI	185.93	-	-	
		Total	1,112.75	Auxiliary Consumption & Transformation Losses at Generator end	0.66%	
2	720MW MHP	Unit-I	197.87	400kV MHP - Jigmeling Line - I	0.00	Unit III under shutdown. Unit-IV & 400kV MHP-JLG line I tripped. 400kV MHP-JLG Line IV on Standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby
		Unit-II	197.68	400kV MHP - Jigmeling Line - II	196.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	197.07	
		Unit-IV	0.00	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)	21.72	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	91.63	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	137.81	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	136.91	
		-	-	80MVA, 220/132kV ICT - I (HV)	-34.35	
		-	-	80MVA, 220/132kV ICT - II (HV)	-35.05	
		-	-	220kV Tsirang - Jigmeling Line	84.46	
-	-	132kV Gelephu - Salakati Line	13.80			
Total	395.55	Auxiliary Consumption & Transformation Losses at Generator end	0.63%			
3	336MW CHP	Unit- I	91.37	220kV CHP - Birpara Line- I	73.74	
		Unit- II	91.20	220kV CHP - Birpara Line- II	73.71	
		Unit- III	92.70	220kV CHP - Malbase Line- III	143.38	
		Unit- IV	91.35	220kV CHP - Semtokha Line- IV	54.31	
		-	-	220kV Malbase - Birpara Line	9.32	
		-	-	66kV CHP - Chumdo Line	13.97	
		-	-	66kV CHP - Gedu Line	4.71	
		-	-	3x3MVA, 66/11kV TFR	1.37	
Total	366.62	Auxiliary Consumption & Transformation Losses at Generator end	0.39%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	42.50	
		Unit- II	12.10	66kV BHP - Lobeysa Line	24.32	
		Total	24.40	220kV BHP - Tsirang Line	-1.98	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.57	
		Unit- II	21.20	30MVA ICT, 220/66kV (HV)	1.07	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Generator end	1.04%	
6	126MW DHP	Unit-I	44.35	220kV DHP - Tsirang Line	88.88	220kV DHP_Dagapela Line on Standby.
		Unit-II	45.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	35.89	
		-	-	5MVA, 220/33kV TFR	0.45	
Total	89.35	Auxiliary Consumption & Transformation Losses at Gen. end	0.02%			
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	37.16	
		Unit-II	16.50	132kV KHP - Kilikhar Line	27.83	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.43	
		Unit- IV	16.50	132kV Motanga - Rangia Line	29.72	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	0.88%	

Note: Generation-Load Summary (MW) for July 03, 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	1,634.82	283.30	273.83	1,267.06	9.47
2	Eastern Grid	461.55	136.14	133.08	409.87	3.06
Total		2,096.37	419.44	406.91	1,676.93	12.53

Note: Generation-Load Summary for July 03, 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	1,668.44	258.49	255.92	1,291.05	2.57
2	Eastern Grid	659.43	79.72	76.33	698.61	3.40
Total		2,327.87	338.21	332.25	1,989.66	5.97

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:	July 4, 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	184.52	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	184.21	400kV THP - Siliguri Line - II	0.00	
		Unit- III	184.53	400kV THP - Siliguri Line- IV	556.80	
		Unit- IV	184.98	400kV THP - Malbase Line - III	546.66	
		Unit- V	186.40	400kV Malbase - Siliguri Line	551.16	
		Unit- VI	185.77	-	-	
		Total	1,110.41	Auxiliary Consumption & Transformation Losses at Generator end	0.63%	
2	720MW MHP	Unit-I	197.80	400kV MHP - Jigmeling Line - I	0.00	Unit III under shutdown. 400kV MHP-JLG Line I under shutdown & 400kV MHP-JLG Line IV on Standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby
		Unit-II	197.84	400kV MHP - Jigmeling Line - II	294.59	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.85	
		Unit-IV	197.83	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)	22.40	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	139.60	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	210.10	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	210.10	
		-	-	80MVA, 220/132kV ICT - I (HV)	30.00	
		-	-	80MVA, 220/132kV ICT - II (HV)	30.60	
		-	-	220kV Tsirang - Jigmeling Line	72.90	
-	-	132kV Gelephu - Salakati Line	12.90			
Total	593.47	Auxiliary Consumption & Transformation Losses at Generator end	0.51%			
3	336MW CHP	Unit- I	91.29	220kV CHP - Birpara Line- I	79.55	
		Unit- II	91.20	220kV CHP - Birpara Line- II	79.46	
		Unit- III	92.27	220kV CHP - Malbase Line- III	149.55	
		Unit- IV	91.50	220kV CHP - Semtokha Line- IV	38.63	
		-	-	220kV Malbase - Birpara Line	13.29	
		-	-	66kV CHP - Chumdo Line	11.04	
		-	-	66kV CHP - Gedu Line	5.08	
		-	-	3x3MVA, 66/11kV TFR	0.90	
Total	366.26	Auxiliary Consumption & Transformation Losses at Generator end	0.56%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	49.70	
		Unit- II	12.10	66kV BHP - Lobeyasa Line	23.82	
		Total	24.40	220kV BHP - Tsirang Line	-8.50	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.42	
		Unit- II	21.20	30MVA ICT, 220/66kV (HV)	0.46	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Generator end	1.00%	
6	126MW DHP	Unit-I	41.35	220kV DHP - Tsirang Line	82.87	220kV DHP_Dagapela Line on Standby.
		Unit-II	42.01	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	34.70	
		-	-	5MVA, 220/33kV TFR	0.47	
Total	83.36	Auxiliary Consumption & Transformation Losses at Generator end	0.02%			
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Line	42.87	
		Unit-II	16.50	132kV KHP - Kilikhar Line	22.32	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.32	
		Unit- IV	16.50	132kV Motanga - Rangia Line	26.40	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	0.75%	

Note: Generation-Load Summary (MW) for July 04, 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	1,626.13	272.97	263.29	1,280.26	9.68
2	Eastern Grid	659.47	133.27	129.75	599.10	3.52
Total		2,285.60	406.24	393.04	1,879.36	13.20

Note: Generation-Load Summary for July 04, 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	1,668.24	255.96	248.97	1,289.88	6.99
2	Eastern Grid	659.39	60.24	56.59	721.55	3.65
Total		2,327.63	316.20	305.56	2,011.43	10.64

NOTE- All EAST & 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.