

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: November 2, 2022
Hours: 18:00 Hours

Date: 24-Oct-22
Time: 18:10hrs
Load(MW): 578.88

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	120.94	Unit-I under Shutdown. Unit-IV on Standby. 400kV THP- Siliguri Line- II on Standby.
		Unit- II	119.07	400kV THP - Siliguri Line - II	0.00	
		Unit- III	89.81	400kV THP - Siliguri Line- IV	115.80	
		Unit- IV	0.00	400kV THP - Malbase Line - III	227.57	
		Unit- V	128.32	400kV Malbase - Siliguri Line	89.70	
		Unit- VI	129.48	-	-	
		Total	466.68	Auxiliary Consumption & Transformation Losses at Generator end	0.51%	
2	720MW MHP	Unit-I	129.83	400kV MHP - Jigmeling Line - I	96.10	Unit-II on standby. Unit-III under shutdown. 400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmoo line I not in service. 400kV JLG_ALI Direct line II Standby. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	96.79	
		Unit-IV	150.18	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	84.87	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	79.41	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	44.29	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	68.04	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	15.34	
		-	-	80MVA, 220/132kV ICT - II (HV)	15.69	
		-	-	220kV Tsirang - Jigmeling Line	14.45	
-	-	132kV Gelephu - Salakati Line	7.40			
Total	280.01	Auxiliary Consumption & Transformation Losses at Generator end	0.80%			
3	336MW CHP	Unit- I	75.51	220kV CHP - Birpara Line- I	26.96	Unit-II on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	26.91	
		Unit- III	74.55	220kV CHP - Malbase Line- III	50.39	
		Unit- IV	74.59	220kV CHP - Semtokha Line- IV	91.22	
		-	-	220kV Malbase - Birpara Line	5.69	
		-	-	66kV CHP - Chumdo Line	22.22	
		-	-	66kV CHP - Gedu Line	4.88	
		-	-	3x3MVA, 66/11kV TFR	1.35	
Total	224.65	Auxiliary Consumption & Transformation Losses at Generator end	0.32%			
4	24MW BHP (U/S)	Unit- I	7.29	220kV BHP - Semtokha Line	47.92	
		Unit- II	7.32	66kV BHP - Lobeyasa Line	27.40	
		Total	14.61	220kV BHP - Tsirang Line	-33.11	
5	40MW BHP (L/S)	Unit- I	14.09	5MVA, 66/11kV TFR	0.83	
		Unit- II	13.95	30MVA ICT, 220/66kV (HV)	13.60	
		Total	28.04	Auxiliary Consumption & Transformation Losses at Generator end	-0.91%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	51.22	Unit-I on Standby 220kV DHP-Dagapela Line on Standby.
		Unit-II	51.51	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.22	
		-	-	5MVA, 220/33kV TFR	0.28	
Total	51.51	Auxiliary Consumption & Transformation Losses at Gen. end	0.02%			
7	60MW KHP	Unit- I	12.00	132kV KHP - Nangkhoh Line	23.25	
		Unit-II	12.01	132kV KHP - Kilikhar Line	24.72	
		Unit- III	12.04	5MVA, 132/11kV TFR	0.71	
		Unit- IV	13.11	132kV Motanga - Rangia Line	22.60	
		Total	49.16	Auxiliary Consumption & Transformation Losses at Generator end	0.98%	

Note: Generation-Load Summary (MW) for November 02, 2022 at 18:00hrs.

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	785.49	385.04	382.33	386.00	2.71
2	Eastern Grid	329.17	201.29	198.56	142.33	2.73
Total		1,114.66	586.33	580.89	528.33	5.44

Note: Generation-Load Summary for November 02, 2021 at 18:00hrs.

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	1,130.26	323.20	322.97	761.87	0.23
2	Eastern Grid	308.55	77.85	76.69	275.89	1.16
Total		1,438.81	401.05	399.66	1,037.76	1.39

NOTE- Motanga 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: November 3, 2022
Hours: 09:00 Hours

Date	Time	Load(MW)
2-Nov-22	18:06hrs	598.023

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	120.94	Unit-I under Shutdown. Unit-IV on Standby. 400kV THP- Siliguri Line- II on Standby.
		Unit- II	117.06	400kV THP - Siliguri Line - II	0.00	
		Unit- III	89.21	400kV THP - Siliguri Line- IV	116.83	
		Unit- IV	0.00	400kV THP - Malbase Line - III	192.64	
		Unit- V	98.79	400kV Malbase - Siliguri Line	98.88	
		Unit- VI	129.44	-	-	
		Total	434.50	Auxiliary Consumption & Transformation Losses at Generator end	0.94%	
2	720MW MHP	Unit-I	120.21	400kV MHP - Jigmeling Line - I	93.91	Unit-III under shutdown. Unit-II, 400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmoo line I not in service. 400kV JLG_ALI Direct line II Standby. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	94.44	
		Unit-IV	140.52	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	70.66	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	57.67	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	51.47	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	78.19	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	9.43	
		-	-	80MVA, 220/132kV ICT - II (HV)	9.63	
		-	-	220kV Tsirang - Jigmeling Line	22.49	
-	-	132kV Gelephu - Salakati Line	3.47			
Total	260.73	Auxiliary Consumption & Transformation Losses at Generator end	0.66%			
3	336MW CHP	Unit- I	76.91	220kV CHP - Birpara Line- I	29.99	Unit-II on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	29.83	
		Unit- III	75.87	220kV CHP - Malbase Line- III	64.98	
		Unit- IV	74.82	220kV CHP - Semtokha Line- IV	77.88	
		-	-	220kV Malbase - Birpara Line	-1.08	
		-	-	66kV CHP - Chumdo Line	17.58	
		-	-	66kV CHP - Gedu Line	5.18	
		-	-	3x3MVA, 66/11kV TFR	0.92	
Total	227.60	Auxiliary Consumption & Transformation Losses at Generator end	0.54%			
4	24MW BHP (U/S)	Unit- I	7.60	220kV BHP - Semtokha Line	43.09	
		Unit- II	7.20	66kV BHP - Lobeyssa Line	24.29	
		Total	14.80	220kV BHP - Tsirang Line	-25.85	
5	40MW BHP (L/S)	Unit- I	13.70	5MVA, 66/11kV TFR	0.39	
		Unit- II	13.60	30MVA ICT, 220/66kV (HV)	10.20	
		Total	27.30	Auxiliary Consumption & Transformation Losses at Generator end	0.43%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	50.69	Unit-I on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	50.97	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.80	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	50.97	Auxiliary Consumption & Transformation Losses at Generator end	0.16%			
7	60MW KHP	Unit- I	12.05	132kV KHP - Nangkhoh Line	28.61	
		Unit-II	12.09	132kV KHP - Kilikhar Line	18.80	
		Unit- III	12.05	5MVA, 132/11kV TFR	0.40	
		Unit- IV	12.05	132kV Motanga - Rangia Line	17.46	
		Total	48.24	Auxiliary Consumption & Transformation Losses at Generator end	0.89%	

Note: Generation-Load Summary (MW) for November 03, 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	755.17	337.29	331.70	395.39	5.59
2	Eastern Grid	308.97	180.87	178.72	150.59	2.15
Total		1,064.14	518.16	510.42	545.98	7.74

Note: Generation-Load Summary for November 03, 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	1,134.73	309.55	307.21	763.78	2.34
2	Eastern Grid	317.60	62.05	59.54	316.95	2.51
Total		1,452.33	371.60	366.75	1,080.73	4.85

NOTE-Motanga 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.

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