

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: November 3, 2022
Hours: 18:00 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	120.46	Unit-I under Shutdown. Unit-IV on Standby. 400kV THP- Siliguri Line- II on Standby.
		Unit- II	118.80	400kV THP - Siliguri Line - II	0.00	
		Unit- III	108.28	400kV THP - Siliguri Line- IV	114.91	
		Unit- IV	0.00	400kV THP - Malbase Line - III	216.94	
		Unit- V	98.72	400kV Malbase - Siliguri Line	91.59	
		Unit- VI	129.79	-	-	
		Total	455.59	Auxiliary Consumption & Transformation Losses at Generator end	0.72%	
2	720MW MHP	Unit-I	120.22	400kV MHP - Jigmeling Line - I	0.00	Unit-II on standby. Unit-III under shutdown. 400kV MHP-JLG Line I 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	166.58	
		Unit-IV	140.59	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	92.36	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	82.83	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	32.41	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	49.53	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	-15.34	
		-	-	80MVA, 220/132kV ICT - II (HV)	-15.67	
		-	-	220kV Tsirang - Jigmeling Line	11.63	
-	-	132kV Gelephu - Salakati Line	8.53			
Total	260.81	Auxiliary Consumption & Transformation Losses at Generator end	0.72%			
3	336MW CHP	Unit- I	72.01	220kV CHP - Birpara Line- I	23.91	Unit-II on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	24.02	
		Unit- III	75.73	220kV CHP - Malbase Line- III	53.63	
		Unit- IV	74.75	220kV CHP - Semtokha Line- IV	91.32	
		-	-	220kV Malbase - Birpara Line	-2.55	
		-	-	66kV CHP - Chumdo Line	22.62	
		-	-	66kV CHP - Gedu Line	4.79	
		-	-	3x3MVA, 66/11kV TFR	1.50	
Total	222.49	Auxiliary Consumption & Transformation Losses at Generator end	0.31%			
4	24MW BHP (U/S)	Unit- I	7.50	220kV BHP - Semtokha Line	48.60	
		Unit- II	7.20	66kV BHP - Lobeyasa Line	27.66	
		Total	14.70	220kV BHP - Tsirang Line	-36.06	
5	40MW BHP (L/S)	Unit- I	13.20	5MVA, 66/11kV TFR	0.87	
		Unit- II	13.20	30MVA ICT, 220/66kV (HV)	14.80	
		Total	26.40	Auxiliary Consumption & Transformation Losses at Generator end	0.07%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	49.70	Unit-I on Standby 220kV DHP-Dagapela Line on Standby.
		Unit-II	49.99	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	63.08	
		-	-	5MVA, 220/33kV TFR	0.29	
Total	49.99	Auxiliary Consumption & Transformation Losses at Gen. end	0.00%			
7	60MW KHP	Unit- I	11.48	132kV KHP - Nangkhoh Line	22.76	
		Unit-II	11.50	132kV KHP - Kilikhar Line	24.32	
		Unit- III	12.04	5MVA, 132/11kV TFR	0.52	
		Unit- IV	13.13	132kV Motanga - Rangia Line	24.80	
		Total	48.15	Auxiliary Consumption & Transformation Losses at Generator end	1.14%	

Note: Generation-Load Summary (MW) for November 03, 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	769.17	385.20	381.19	372.34	4.01
2	Eastern Grid	308.96	205.32	202.90	115.27	2.42
Total		1,078.13	590.52	584.09	487.61	6.43

Note: Generation-Load Summary for November 03, 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	1,016.33	347.44	348.60	638.53	-1.16
2	Eastern Grid	309.77	78.02	76.60	262.11	1.42
Total		1,326.10	425.46	425.20	900.64	0.26

NOTE- Motanga 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.

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: November 4, 2022
Hours: 09:00 Hours

Date: 3-Nov-22 **Time:** 18:18hrs **Load(MW):** 600.914

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	129.87	Unit-I under Shutdown. Unit-IV on Standby. 400kV THP- Siliguri Line- II on Standby.
		Unit- II	118.86	400kV THP - Siliguri Line - II	0.00	
		Unit- III	108.05	400kV THP - Siliguri Line- IV	124.72	
		Unit- IV	0.00	400kV THP - Malbase Line - III	197.36	
		Unit- V	97.74	400kV Malbase - Siliguri Line	106.46	
		Unit- VI	129.57	-	-	
		Total	454.22	Auxiliary Consumption & Transformation Losses at Generator end	0.50%	
2	720MW MHP	Unit-I	120.13	400kV MHP - Jigmeling Line - I	0.00	Unit-II on standby. Unit-III under shutdown. 400kV MHP-JLG Line I 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	179.20	
		Unit-IV	135.52	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	75.12	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	59.29	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	47.44	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	71.06	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	7.32	
		-	-	80MVA, 220/132kV ICT - II (HV)	7.47	
		-	-	220kV Tsirang - Jigmeling Line	17.22	
-	-	132kV Gelephu - Salakati Line	2.31			
Total	255.65	Auxiliary Consumption & Transformation Losses at Generator end	0.52%			
3	336MW CHP	Unit- I	16.65	220kV CHP - Birpara Line- I	29.43	
		Unit- II	75.66	220kV CHP - Birpara Line- II	29.28	
		Unit- III	73.10	220kV CHP - Malbase Line- III	79.69	
		Unit- IV	74.24	220kV CHP - Semtokha Line- IV	76.10	
		-	-	220kV Malbase - Birpara Line	-13.60	
		-	-	66kV CHP - Chumdo Line	17.51	
		-	-	66kV CHP - Gedu Line	5.54	
		-	-	3x3MVA, 66/11kV TFR	1.24	
Total	239.65	Auxiliary Consumption & Transformation Losses at Generator end	0.36%			
4	24MW BHP (U/S)	Unit- I	7.40	220kV BHP - Semtokha Line	46.70	
		Unit- II	7.10	66kV BHP - Lobeyasa Line	24.60	
		Total	14.50	220kV BHP - Tsirang Line	-30.80	
5	40MW BHP (L/S)	Unit- I	13.30	5MVA, 66/11kV TFR	0.40	
		Unit- II	13.20	30MVA ICT, 220/66kV (HV)	10.60	
		Total	26.50	Auxiliary Consumption & Transformation Losses at Generator end	0.24%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	49.89	Unit-I on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	50.15	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.80	
		-	-	5MVA, 220/33kV TFR	0.25	
Total	50.15	Auxiliary Consumption & Transformation Losses at Generator end	0.02%			
7	60MW KHP	Unit- I	15.30	132kV KHP - Nangkhor Line	25.99	Unit-IV on Standby.
		Unit-II	15.37	132kV KHP - Kilikhar Line	19.11	
		Unit- III	15.29	5MVA, 132/11kV TFR	0.40	
		Unit- IV	0.00	132kV Motanga - Rangia Line	15.72	
		Total	45.96	Auxiliary Consumption & Transformation Losses at Generator end	1.00%	

Note: Generation-Load Summary (MW) for November 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	785.02	361.64	358.40	406.16	3.24
2	Eastern Grid	301.61	182.30	180.51	136.53	1.79
Total		1,086.63	543.94	538.91	542.69	5.03

Note: Generation-Load Summary for November 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	1,034.48	327.41	325.90	664.83	1.51
2	Eastern Grid	307.83	65.60	65.64	284.47	-0.04
Total		1,342.31	393.01	391.54	949.30	1.47

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.