

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: October 30, 2022
Hours: 18:00 Hours

Date **Time** **Load(MW)**
 24-Oct-22 18:10hrs 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	134.39	Unit-I under Shutdown. Unit-IV & 400kV Tala-Sili II on standby.
		Unit- II	119.27	400kV THP - Siliguri Line - II	0.00	
		Unit- III	89.77	400kV THP - Siliguri Line- IV	128.57	
		Unit- IV	0.00	400kV THP - Malbase Line - III	219.11	
		Unit- V	128.17	400kV Malbase - Siliguri Line	111.03	
		Unit- VI	150.36	-	-	
		Total	487.57	Auxiliary Consumption & Transformation Losses at Generator end	1.13%	
2	720MW MHP	Unit-I	140.19	400kV MHP - Jigmeling Line - I	95.45	Unit-II under 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	96.10	
		Unit-IV	140.54	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	87.15	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	69.28	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	47.86	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	73.58	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	14.91	
		-	-	80MVA, 220/132kV ICT - II (HV)	15.24	
		-	-	220kV Tsirang - Jigmeling Line	24.09	
-	-	132kV Gelephu - Salakati Line	7.57			
Total	280.73	Auxiliary Consumption & Transformation Losses at Generator end	0.72%			
3	336MW CHP	Unit- I	85.52	220kV CHP - Birpara Line- I	34.54	Unit-II on Standby. 66kV CHP-Chumdo Line under Shutdown.
		Unit- II	0.00	220kV CHP - Birpara Line- II	34.81	
		Unit- III	83.62	220kV CHP - Malbase Line- III	52.77	
		Unit- IV	74.08	220kV CHP - Semtokha Line- IV	108.47	
		-	-	220kV Malbase - Birpara Line	16.71	
		-	-	66kV CHP - Chumdo Line	0.00	
		-	-	66kV CHP - Gedu Line	11.15	
		-	-	3x3MVA, 66/11kV TFR	1.64	
Total	243.22	Auxiliary Consumption & Transformation Losses at Generator end	-0.07%			
4	24MW BHP (U/S)	Unit- I	7.10	220kV BHP - Semtokha Line	42.40	
		Unit- II	8.10	66kV BHP - Lobeyasa Line	27.83	
		Total	15.20	220kV BHP - Tsirang Line	-25.32	
5	40MW BHP (L/S)	Unit- I	15.15	5MVA, 66/11kV TFR	0.74	
		Unit- II	15.00	30MVA ICT, 220/66kV (HV)	12.98	
		Total	30.15	Auxiliary Consumption & Transformation Losses at Generator end	-0.66%	
6	126MW DHP	Unit-I	53.90	220kV DHP - Tsirang Line	53.63	Unit-II on standby 220kV DHP-Dagapela Line on standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.13	
		-	-	5MVA, 220/33kV TFR	0.10	
Total	53.90	Auxiliary Consumption & Transformation Losses at Gen. end	0.32%			
7	60MW KHP	Unit- I	12.96	132kV KHP - Nangkhoh Line	26.42	
		Unit-II	12.98	132kV KHP - Kilikhar Line	24.33	
		Unit- III	12.97	5MVA, 132/11kV TFR	0.58	
		Unit- IV	12.95	132kV Motanga - Rangia Line	22.79	
		Total	51.86	Auxiliary Consumption & Transformation Losses at Generator end	1.02%	

Note: Generation-Load Summary (MW) for October 30, 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	830.04	345.90	340.69	460.05	5.21
2	Eastern Grid	332.59	204.88	202.32	151.80	2.56
Total		1,162.63	550.78	543.01	611.85	7.77

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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	334.60	322.34	868.68	12.26
2	Eastern Grid	342.18	85.73	83.84	313.94	1.89
Total		1,602.95	420.33	406.18	1,182.62	14.15

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: October 31, 2022
Hours: 09:00 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	135.70	Unit-I under Shutdown. Unit-IV & 400kV Tala-Sil II under standby.
		Unit- II	118.23	400kV THP - Siliguri Line - II	0.00	
		Unit- III	88.00	400kV THP - Siliguri Line- IV	130.29	
		Unit- IV	0.00	400kV THP - Malbase Line - III	195.88	
		Unit- V	128.16	400kV Malbase - Siliguri Line	115.86	
		Unit- VI	128.91	-	-	
		Total	463.30	Auxiliary Consumption & Transformation Losses at Generator end	0.31%	
2	720MW MHP	Unit-I	149.79	400kV MHP - Jigmeling Line - I	112.04	Unit-III under shutdown. 400kV MHP-JLG Line II & IV and Unit II on Standby. 132kV MHP_Yurmo 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	112.65	
		Unit-IV	150.18	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	73.62	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	54.08	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	66.91	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	101.39	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	9.21	
		-	-	80MVA, 220/132kV ICT - II (HV)	9.42	
		-	-	220kV Tsirang - Jigmeling Line	25.98	
-	-	132kV Gelephu - Salakati Line	4.57			
Total	299.97	Auxiliary Consumption & Transformation Losses at Generator end	0.55%			
3	336MW CHP	Unit- I	84.69	220kV CHP - Birpara Line- I	35.24	Unit-II on Standby. 66kV CHP-Chumdo Line under Shutdown
		Unit- II	0.00	220kV CHP - Birpara Line- II	35.09	
		Unit- III	83.39	220kV CHP - Malbase Line- III	71.16	
		Unit- IV	74.52	220kV CHP - Semtokha Line- IV	89.38	
		-	-	220kV Malbase - Birpara Line	2.53	
		-	-	66kV CHP - Chumdo Line	0.00	
		-	-	66kV CHP - Gedu Line	10.49	
		-	-	3x3MVA, 66/11kV TFR	0.98	
Total	242.60	Auxiliary Consumption & Transformation Losses at Generator end	0.11%			
4	24MW BHP (U/S)	Unit- I	7.90	220kV BHP - Semtokha Line	44.30	
		Unit- II	7.60	66kV BHP - Lobeysa Line	25.30	
		Total	15.50	220kV BHP - Tsirang Line	-25.15	
5	40MW BHP (L/S)	Unit- I	15.10	5MVA, 66/11kV TFR	0.38	
		Unit- II	14.00	30MVA ICT, 220/66kV (HV)		
		Total	29.10	Auxiliary Consumption & Transformation Losses at Generator end	-0.52%	
6	126MW DHP	Unit-I	53.35	220kV DHP - Tsirang Line	53.10	Unit-II under standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	60.92	
		-	-	5MVA, 220/33kV TFR	0.30	
Total	53.35	Auxiliary Consumption & Transformation Losses at Generator end	-0.09%			
7	60MW KHP	Unit- I	13.07	132kV KHP - Nangkhoh Line	32.42	
		Unit-II	13.01	132kV KHP - Kilikhar Line	19.81	
		Unit- III	13.13	5MVA, 132/11kV TFR	0.40	
		Unit- IV	14.01	132kV Motanga - Rangia Line	16.79	
		Total	53.22	Auxiliary Consumption & Transformation Losses at Generator end	1.11%	

Note: Generation-Load Summary (MW) for October 31, 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	803.85	323.16	321.75	454.71	1.41
2	Eastern Grid	353.19	189.51	187.26	189.66	2.25
Total		1,157.04	512.67	509.01	644.37	3.66

Note: Generation-Load Summary for October 31, 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	1,241.90	300.36	298.29	863.39	2.07
2	Eastern Grid	347.07	75.15	72.81	350.07	2.34
Total		1,588.97	375.51	371.10	1,213.46	4.41

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.
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