

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	October 29, 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	132.68	Unit-I under Shutdown. Unit-IV & 400kV Tala-Sili II on standby.
		Unit- II	117.01	400kV THP - Siliguri Line - II	0.00	
		Unit- III	89.38	400kV THP - Siliguri Line- IV	127.98	
		Unit- IV	0.00	400kV THP - Malbase Line - III	218.45	
		Unit- V	127.38	400kV Malbase - Siliguri Line	108.76	
		Unit- VI	149.51	-	-	
		Total	483.28	Auxiliary Consumption & Transformation Losses at Generator end	0.86%	
2	720MW MHP	Unit-I	100.20	400kV MHP - Jigmeling Line - I	109.56	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. 132kV Gelephu_Salakati under shutdown.
		Unit-II	100.23	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	110.26	
		Unit-IV	105.38	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	83.23	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	62.44	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	61.91	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	93.85	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	11.17	
		-	-	80MVA, 220/132kV ICT - II (HV)	11.48	
		-	-	220kV Tsirang - Jigmeling Line	21.87	
-	-	132kV Gelephu - Salakati Line	0.00			
Total	305.81	Auxiliary Consumption & Transformation Losses at Generator end	0.90%			
3	336MW CHP	Unit- I	85.06	220kV CHP - Birpara Line- I	35.27	Unit-II on Standby. 66kV CHP-Chumdo Line under Shutdown.
		Unit- II	0.00	220kV CHP - Birpara Line- II	35.48	
		Unit- III	84.58	220kV CHP - Malbase Line- III	59.33	
		Unit- IV	74.01	220kV CHP - Semtokha Line- IV	100.32	
		-	-	220kV Malbase - Birpara Line	12.39	
		-	-	66kV CHP - Chumdo Line	0.00	
		-	-	66kV CHP - Gedu Line	11.97	
		-	-	3x3MVA, 66/11kV TFR	1.64	
Total	243.65	Auxiliary Consumption & Transformation Losses at Generator end	-0.15%			
4	24MW BHP (U/S)	Unit- I	8.30	220kV BHP - Semtokha Line	47.00	
		Unit- II	8.10	66kV BHP - Lobeyasa Line	27.95	
		Total	16.40	220kV BHP - Tsirang Line	-29.40	
5	40MW BHP (L/S)	Unit- I	15.10	5MVA, 66/11kV TFR	0.76	
		Unit- II	15.00	30MVA ICT, 220/66kV (HV)	12.77	
		Total	30.10	Auxiliary Consumption & Transformation Losses at Generator end	0.41%	
6	126MW DHP	Unit-I	55.41	220kV DHP - Tsirang Line	55.11	Unit-II on standby 220kV DHP-Dagapela Line on standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.70	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	55.41	Auxiliary Consumption & Transformation Losses at Gen. end	0.18%			
7	60MW KHP	Unit- I	14.05	132kV KHP - Nangkhor Line	30.11	
		Unit-II	14.10	132kV KHP - Kilikhar Line	25.15	
		Unit- III	13.98	5MVA, 132/11kV TFR	0.60	
		Unit- IV	14.07	132kV Motanga - Rangia Line	28.05	
		Total	56.20	Auxiliary Consumption & Transformation Losses at Generator end	0.60%	

Note: Generation-Load Summary (MW) for October 29, 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	828.84	354.41	350.31	452.56	4.10
2	Eastern Grid	362.01	200.07	196.97	183.81	3.10
Total		1,190.85	554.48	547.28	636.37	7.20

Note: Generation-Load Summary for October 29, 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	1,203.90	320.23	319.09	838.77	1.14
2	Eastern Grid	349.32	82.83	80.07	311.39	2.76
Total		1,553.22	403.06	399.16	1,150.16	3.90

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: October 30, 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	141.95	Unit-I under Shutdown. Unit-IV & 400kV Tala-Sil II under standby.
		Unit- II	118.88	400kV THP - Siliguri Line - II	0.00	
		Unit- III	89.86	400kV THP - Siliguri Line- IV	135.87	
		Unit- IV	0.00	400kV THP - Malbase Line - III	204.61	
		Unit- V	128.62	400kV Malbase - Siliguri Line	121.20	
		Unit- VI	150.12	-	-	
		Total	487.48	Auxiliary Consumption & Transformation Losses at Generator end	1.04%	
2	720MW MHP	Unit-I	100.23	400kV MHP - Jigmeling Line - I	117.09	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	100.21	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	117.97	
		Unit-IV	105.49	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	68.83	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	51.59	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	72.23	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	108.66	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	8.79	
		-	-	80MVA, 220/132kV ICT - II (HV)	9.00	
		-	-	220kV Tsirang - Jigmeling Line	27.07	
-	-	132kV Gelephu - Salakati Line	6.57			
Total	305.93	Auxiliary Consumption & Transformation Losses at Generator end	0.67%			
3	336MW CHP	Unit- I	82.16	220kV CHP - Birpara Line- I	35.26	Unit-II on Standby. 66kV CHP-Chumdo Line under Shutdown
		Unit- II	0.00	220kV CHP - Birpara Line- II	34.96	
		Unit- III	87.59	220kV CHP - Malbase Line- III	74.19	
		Unit- IV	73.93	220kV CHP - Semtokha Line- IV	87.58	
		-	-	220kV Malbase - Birpara Line	0.00	
		-	-	66kV CHP - Chumdo Line	0.00	
		-	-	66kV CHP - Gedu Line	10.36	
		-	-	3x3MVA, 66/11kV TFR	1.38	
Total	243.68	Auxiliary Consumption & Transformation Losses at Generator end	-0.02%			
4	24MW BHP (U/S)	Unit- I	8.20	220kV BHP - Semtokha Line	44.90	
		Unit- II	7.90	66kV BHP - Lobeyasa Line	25.40	
		Total	16.10	220kV BHP - Tsirang Line	-23.42	
5	40MW BHP (L/S)	Unit- I	15.90	5MVA, 66/11kV TFR	0.39	
		Unit- II	15.60	30MVA ICT, 220/66kV (HV)	10.00	
		Total	31.50	Auxiliary Consumption & Transformation Losses at Generator end	0.69%	
6	126MW DHP	Unit-I	53.86	220kV DHP - Tsirang Line	53.60	Unit-II under standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.32	
		-	-	5MVA, 220/33kV TFR	0.25	
Total	53.86	Auxiliary Consumption & Transformation Losses at Generator end	0.02%			
7	60MW KHP	Unit- I	14.08	132kV KHP - Nangkhoh Line	34.56	
		Unit-II	14.04	132kV KHP - Kilikhar Line	20.79	
		Unit- III	14.12	5MVA, 132/11kV TFR	0.50	
		Unit- IV	14.08	132kV Motanga - Rangia Line	25.36	
		Total	56.32	Auxiliary Consumption & Transformation Losses at Generator end	0.83%	

Note: Generation-Load Summary (MW) for October 30, 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	832.62	336.31	330.97	469.24	5.34
2	Eastern Grid	362.25	176.50	173.99	212.82	2.51
Total		1,194.87	512.81	504.96	682.06	7.85

Note: Generation-Load Summary for October 30, 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	1,293.38	309.77	304.99	914.96	4.78
2	Eastern Grid	338.05	67.14	64.51	339.56	2.63
Total		1,631.43	376.91	369.50	1,254.52	7.41

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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