

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: January 26, 2022
Hours: 18:00 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	0.00	400kV THP - Siliguri Line - I	0.00	THP under total Shutdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-51.71	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	129.81	400kV MHP - Jigmeling Line - I	228.10	Unit-III on Standby. Unit-II under Annual Maintenance. 400kV MHP-JLG Line II, III & IV on standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line I (Interim) under Standby. 400kV JLG_ALI Line II (Direct) on Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	100.36	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)	108.47	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	45.81	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	69.06	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	17.16	
		-	-	80MVA, 220/132kV ICT - II (HV)	17.42	
		-	-	220kV Tsirang - Jigmeling Line	-57.34	
-	-	132kV Gelephu - Salakati Line	-6.99			
Total	230.17	Auxiliary Consumption & Transformation Losses at Generator end	0.90%			
3	336MW CHP	Unit- I	82.72	220kV CHP - Birpara Line- I	6.72	Unit-IV on Standby. Unit-III under Annual Maintenance 220kV CHP_Birpara Line II under Breakdown since 29.12.21.
		Unit- II	83.86	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	60.66	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	72.51	
		-	-	220kV Malbase - Birpara Line	-36.50	
		-	-	66kV CHP - Chumdo Line	21.47	
		-	-	66kV CHP - Gedu Line	2.87	
		-	-	3x3MVA, 66/11kV TFR	1.99	
Total	166.58	Auxiliary Consumption & Transformation Losses at Generator end	0.22%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	71.10	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	7.60	66kV BHP - Lobeyasa Line	27.84	
		Total	7.60	220kV BHP - Tsirang Line	-76.53	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	1.05	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	16.20	30MVA ICT, 220/66kV (HV)	21.44	
		Total	16.20	Auxiliary Consumption & Transformation Losses at Generator end	1.43%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	24.36	Unit-I under Annual Maintenance. 220kV DHP-Dagapela Line on standby.
		Unit-II	24.55	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	16.53	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	24.55	Auxiliary Consumption & Transformation Losses at Gen. end	-0.04%			
7	60MW KHP	Unit- I	15.02	132kV KHP - Nangkhoh Line	9.57	Unit-II under Annual Maintenance. Unit III on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	19.35	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.70	
		Unit- IV	15.11	132kV Motanga - Rangia Line	5.71	
		Total	30.13	Auxiliary Consumption & Transformation Losses at Generator end	1.69%	

Note: Generation-Load Summary (MW) for January 26, 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	214.93	353.76	353.07	-81.49	0.69
2	Eastern Grid	260.30	89.37	86.79	113.59	2.58
Total		475.23	443.13	439.86	32.10	3.27

Note: Generation-Load Summary for January 26, 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	296.54	269.19	261.57	27.35	7.62
2	Eastern Grid	116.10	81.82	75.43	34.28	6.39
Total		412.64	351.01	337.00	61.63	14.01

NOTE- BHP load 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:

- 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.

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:	January 27, 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	0.00	400kV THP - Siliguri Line - I	0.00	THP under total shutdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-54.58	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	96.85	400kV MHP - Jigmeling Line - I	190.29	Unit III on Standby. Unit-II under Annual Maintenance. 400kV MHP-JLG Line II, III & IV on standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line I (Interim) under Standby. 400kV JLG_ALI Line II (Direct) on Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	95.07	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)	89.39	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	37.81	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	59.81	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	15.52	
		-	-	80MVA, 220/132kV ICT - II (HV)	15.78	
		-	-	220kV Tsirang - Jigmeling Line	-42.71	
-	-	132kV Gelephu - Salakati Line	-3.94			
Total	191.92	Auxiliary Consumption & Transformation Losses at Generator end	0.85%			
3	336MW CHP	Unit- I	87.44	220kV CHP - Birpara Line- I	15.61	Unit-IV on Standby. Unit-III under Annual Maintenance. 220kV CHP_Birpara Line II under breakdown.
		Unit- II	85.70	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	75.11	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	60.00	
		-	-	220kV Malbase - Birpara Line	-33.01	
		-	-	66kV CHP - Chumdo Line	16.86	
		-	-	66kV CHP - Gedu Line	3.68	
		-	-	3x3MVA, 66/11kV TFR	1.78	
Total	173.14	Auxiliary Consumption & Transformation Losses at Generator end	0.06%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	60.90	U/S Unit-I and L/S Unit-I under maintenance.
		Unit- II	7.20	66kV BHP - Lobeysa Line	24.34	
		Total	7.20	220kV BHP - Tsirang Line	-63.85	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.89	
		Unit- II	14.70	30MVA ICT, 220/66kV (HV)	17.94	
		Total	14.70	Auxiliary Consumption & Transformation Losses at Generator end	-1.74%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	24.80	Unit-I under Annual Maintenance. 220kV DHP_Dagapela Line on standby.
		Unit-II	25.02	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	15.73	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	25.02	Auxiliary Consumption & Transformation Losses at Generator end	0.08%			
7	60MW KHP	Unit- I	15.12	132kV KHP - Nangkhoh Line	12.18	Unit-III on standby. Unit-II under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Line	16.94	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.72	
		Unit- IV	15.09	132kV Motanga - Rangia Line	6.50	
		Total	30.21	Auxiliary Consumption & Transformation Losses at Generator end	1.23%	

Note: Generation-Load Summary (MW) for January 27, 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	220.06	334.75	335.01	-71.98	-0.26
2	Eastern Grid	222.13	79.24	77.24	100.18	2.00
Total		442.19	413.99	412.25	28.20	1.74

Note: Generation-Load Summary for January 27, 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	281.45	222.45	217.75	59.00	4.70
2	Eastern Grid	130.19	65.25	64.47	64.94	0.78
Total		411.64	287.70	282.22	123.94	5.48

NOTE-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.
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