

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	January 16, 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	-40.09	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	79.75	400kV MHP - Jigmeling Line - I	213.38	Unit-IV & II on Standby. 400kV MHP-JLG Line II, III & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) under Shutdown. 400kV JLG_ALI Line I (Direct) on Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	135.38	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	0.00	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)	107.69	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	41.10	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	62.41	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.74	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.08	
		-	-	220kV Tsirang - Jigmeling Line	-49.17	
-	-	132kV Gelephu - Salakati Line	-10.77			
Total	215.13	Auxiliary Consumption & Transformation Losses at Generator end	0.81%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I on Standby, Unit-III under Annual Maintenance 220kV CHP_Birpara Line I & II under Breakdown.
		Unit- II	91.46	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	75.55	
		Unit- IV	91.72	220kV CHP - Semtokha Line- IV	80.99	
		-	-	220kV Malbase - Birpara Line	-27.88	
		-	-	66kV CHP - Chumdo Line	22.01	
		-	-	66kV CHP - Gedu Line	2.16	
		-	-	3x3MVA, 66/11kV TFR	1.83	
Total	183.18	Auxiliary Consumption & Transformation Losses at Generator end	0.35%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	63.50	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	8.00	66kV BHP - Lobeyasa Line	28.12	
		Total	8.00	220kV BHP - Tsirang Line	-68.99	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.98	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	15.50	30MVA ICT, 220/66kV (HV)	21.82	
		Total	15.50	Auxiliary Consumption & Transformation Losses at Generator end	-0.47%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	25.26	Unit-I under Annual Maintenance. 220kV DHP-Dagapela Line on standby.
		Unit-II	25.48	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	16.55	
		-	-	5MVA, 220/33kV TFR	0.15	
Total	25.48	Auxiliary Consumption & Transformation Losses at Gen. end	0.27%			
7	60MW KHP	Unit- I	16.06	132kV KHP - Nangkhor Line	12.96	Unit-III on standby Unit-IV under Annual Maintenance.
		Unit-II	16.04	132kV KHP - Kilikhar Line	18.11	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.69	
		Unit- IV	0.00	132kV Motanga - Rangia Line	0.00	
		Total	32.10	Auxiliary Consumption & Transformation Losses at Generator end	1.06%	

Note: Generation-Load Summary (MW) for January 16, 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	232.16	349.30	348.70	-67.97	0.60
2	Eastern Grid	247.23	105.32	103.23	92.74	2.09
Total		479.39	454.62	451.93	24.77	2.69

Note: Generation-Load Summary for January 16, 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	321.32	251.17	245.72	54.84	5.45
2	Eastern Grid	130.94	76.02	74.68	70.23	1.34
Total		452.26	327.19	320.40	125.07	6.79

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:

- 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:	January 17, 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	-47.74	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	86.84	400kV MHP - Jigmeling Line - I	190.48	Unit-II & IV on Standby. 400kV MHP-JLG Line II, III & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) under Shutdown. 400kV JLG_ALI Line I (Direct) on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	104.47	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	0.00	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)	86.04	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	39.92	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	61.68	
		-	-	80MVA, 220/132kV ICT - I (HV)	18.89	
		-	-	80MVA, 220/132kV ICT - II (HV)	19.11	
		-	-	220kV Tsirang - Jigmeling Line	-34.02	
-	-	132kV Gelephu - Salakati Line	-3.80			
Total	191.31	Auxiliary Consumption & Transformation Losses at Generator end	0.43%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I on Standby. Unit-III under Annual Maintenance. 220kV CHP_Birpara Line-I & II under breakdown..
		Unit- II	84.69	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	81.03	
		Unit- IV	84.09	220kV CHP - Semtokha Line- IV	65.95	
		-	-	220kV Malbase - Birpara Line	-21.75	
		-	-	66kV CHP - Chumdo Line	17.69	
		-	-	66kV CHP - Gedu Line	2.20	
		-	-	3x3MVA, 66/11kV TFR	1.50	
Total	168.78	Auxiliary Consumption & Transformation Losses at Generator end	0.24%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	55.50	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	7.40	66kV BHP - Lobeyasa Line	24.66	
		Total	7.40	220kV BHP - Tsirang Line	-57.72	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.70	
		Unit- II	15.30	30MVA ICT, 220/66kV (HV)	17.89	
		Total	15.30	Auxiliary Consumption & Transformation Losses at Generator end	-1.94%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	26.72	Unit-I under Annual Maintenance. 220kV DHP_Dagapela Line on standby.
		Unit-II	26.93	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	15.58	
		-	-	5MVA, 220/33kV TFR	0.15	
Total	26.93	Auxiliary Consumption & Transformation Losses at Generator end	0.22%			
7	60MW KHP	Unit- I	15.03	132kV KHP - Nangkhoh Line	13.70	Unit III on standby. Unit-IV under Annual Maintenance.
		Unit-II	15.05	132kV KHP - Kilikhar Line	15.35	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.80	
		Unit- IV	0.00	132kV Motanga - Rangia Line	2.24	
		Total	30.08	Auxiliary Consumption & Transformation Losses at Generator end	0.76%	

Note: Generation-Load Summary (MW) for January 17, 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	218.41	321.92	321.89	-69.49	0.03
2	Eastern Grid	221.39	87.33	86.27	100.04	1.06
Total		439.80	409.25	408.16	30.55	1.09

Note: Generation-Load Summary for January 17, 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	315.16	219.64	216.82	82.84	2.82
2	Eastern Grid	132.03	64.60	61.30	80.11	3.30
Total		447.19	284.24	278.12	162.95	6.12

NOTE-BHP 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.
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