

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	January 15, 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	-56.01	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	129.91	400kV MHP - Jigmeling Line - I	253.62	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	125.41	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)	115.55	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	53.14	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	80.76	
		-	-	80MVA, 220/132kV ICT - I (HV)	22.74	
		-	-	80MVA, 220/132kV ICT - II (HV)	22.24	
		-	-	220kV Tsirang - Jigmeling Line	-55.21	
-	-	132kV Gelephu - Salakati Line	-8.57			
Total	255.32	Auxiliary Consumption & Transformation Losses at Generator end	0.67%			
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	88.91	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	78.33	
		Unit- IV	88.14	220kV CHP - Semtokha Line- IV	71.51	
		-	-	220kV Malbase - Birpara Line	-44.53	
		-	-	66kV CHP - Chumdo Line	20.64	
		-	-	66kV CHP - Gedu Line	4.18	
		-	-	3x3MVA, 66/11kV TFR	1.83	
Total	177.05	Auxiliary Consumption & Transformation Losses at Generator end	0.32%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	71.20	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	8.10	66kV BHP - Lobeyasa Line	28.80	
		Total	8.10	220kV BHP - Tsirang Line	-76.75	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.87	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	15.90	30MVA ICT, 220/66kV (HV)	21.91	
		Total	15.90	Auxiliary Consumption & Transformation Losses at Generator end	-0.50%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	26.78	Unit-I under Annual Maintenance. 220kV DHP-Dagapela Line on standby.
		Unit-II	27.01	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	16.18	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	27.01	Auxiliary Consumption & Transformation Losses at Gen. end	0.11%			
7	60MW KHP	Unit- I	15.00	132kV KHP - Nangkhor Line	11.47	Unit-III on standby Unit-IV under Annual Maintenance.
		Unit-II	15.02	132kV KHP - Kilikhar Line	17.47	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.65	
		Unit- IV	0.00	132kV Motanga - Rangia Line	0.00	
		Total	30.02	Auxiliary Consumption & Transformation Losses at Generator end	1.44%	

Note: Generation-Load Summary (MW) for January 15, 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	228.06	383.81	383.34	-100.54	0.47
2	Eastern Grid	285.34	104.80	102.67	125.33	2.13
Total		513.40	488.61	486.01	24.79	2.60

Note: Generation-Load Summary for January 15, 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	351.01	260.39	254.12	76.05	6.27
2	Eastern Grid	130.84	76.49	74.94	68.92	1.55
Total		481.85	336.88	329.06	144.97	7.82

NOTE- BHP & KHP 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 16, 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	-53.69	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	135.33	400kV MHP - Jigmeling Line - I	214.68	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	80.24	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)	92.02	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	47.17	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	72.16	
		-	-	80MVA, 220/132kV ICT - I (HV)	18.45	
		-	-	80MVA, 220/132kV ICT - II (HV)	18.73	
		-	-	220kV Tsirang - Jigmeling Line	-39.57	
-	-	132kV Gelephu - Salakati Line	-3.61			
Total	215.57	Auxiliary Consumption & Transformation Losses at Generator end	0.41%			
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	72.60	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	72.17	
		Unit- IV	77.97	220kV CHP - Semtokha Line- IV	57.99	
		-	-	220kV Malbase - Birpara Line	-34.12	
		-	-	66kV CHP - Chumdo Line	17.03	
		-	-	66kV CHP - Gedu Line	1.95	
		-	-	3x3MVA, 66/11kV TFR	1.49	
Total	150.57	Auxiliary Consumption & Transformation Losses at Generator end	-0.04%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	61.50	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	7.60	66kV BHP - Lobeyasa Line	24.61	
		Total	7.60	220kV BHP - Tsirang Line	-63.10	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.74	
		Unit- II	15.60	30MVA ICT, 220/66kV (HV)	17.65	
		Total	15.60	Auxiliary Consumption & Transformation Losses at Generator end	-2.37%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	26.77	Unit-I under Annual Maintenance. 220kV DHP_Dagapela Line on standby.
		Unit-II	26.98	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	15.57	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	26.98	Auxiliary Consumption & Transformation Losses at Generator end	0.04%			
7	60MW KHP	Unit- I	14.99	132kV KHP - Nangkhoh Line	14.35	Unit III on standby. Unit-IV under Annual Maintenance.
		Unit-II	15.05	132kV KHP - Kilikhar Line	14.75	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.64	
		Unit- IV	0.00	132kV Motanga - Rangia Line	0.00	
		Total	30.04	Auxiliary Consumption & Transformation Losses at Generator end	1.01%	

Note: Generation-Load Summary (MW) for January 16, 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	200.75	328.13	328.73	-87.81	-0.60
2	Eastern Grid	245.61	90.32	89.13	115.72	1.19
Total		446.36	418.45	417.86	27.91	0.59

Note: Generation-Load Summary for January 16, 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	318.02	221.43	217.73	80.59	3.70
2	Eastern Grid	130.04	65.70	64.83	80.34	0.87
Total		448.06	287.13	282.56	160.93	4.57

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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