

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	January 1, 2022
Hours:	18:00 Hours

Date	Time	Load(MW)
30-Dec-21	18:00hrs	487.76

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. 400kV THP-Siliguri line I under breakdown. 400kV THP-Siliguri line II on Standby
		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	-59.70	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	114.75	400kV MHP - Jigmeling Line - I	218.39	Unit-II on Standby. Unit-IV 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 II (Interim) on standby. 400kV JLG_ALI Line I (Direct) on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	105.18	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)	103.22	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	44.64	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	68.45	
		-	-	80MVA, 220/132kV ICT - I (HV)	21.43	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.78	
		-	-	220kV Tsirang - Jigmeling Line	-44.21	
-	-	132kV Gelephu - Salakati Line	-3.19			
Total	219.93	Auxiliary Consumption & Transformation Losses at Generator end	0.70%			
3	336MW CHP	Unit- I	79.79	220kV CHP - Birpara Line- I	0.00	Unit-II on Standby. Unit IV under Annual Maintenance. 220kV CHP_Birpara Line I & II under breakdown.
		Unit- II	0.00	220kV CHP - Birpara Line- II	0.00	
		Unit- III	84.32	220kV CHP - Malbase Line- III	62.58	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	75.00	
		-	-	220kV Malbase - Birpara Line	-34.64	
		-	-	66kV CHP - Chumdo Line	21.35	
		-	-	66kV CHP - Gedu Line	2.85	
		-	-	3x3MVA, 66/11kV TFR	1.77	
Total	164.11	Auxiliary Consumption & Transformation Losses at Generator end	0.34%			
4	24MW BHP (U/S)	Unit- I	4.60	220kV BHP - Semtokha Line	65.00	
		Unit- II	4.40	66kV BHP - Lobeyasa Line	29.91	
		Total	9.00	220kV BHP - Tsirang Line	-68.76	
5	40MW BHP (L/S)	Unit- I	9.00	5MVA, 66/11kV TFR	0.96	
		Unit- II	9.00	30MVA ICT, 220/66kV (HV)	22.14	
		Total	18.00	Auxiliary Consumption & Transformation Losses at Generator end	-0.41%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	30.09	Unit-I under Annual Maintenance. 220kV DHP-Dagapela Line on standby.
		Unit-II	30.28	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	16.36	
		-	-	5MVA, 220/33kV TFR	0.15	
Total	30.28	Auxiliary Consumption & Transformation Losses at Gen. end	0.13%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	11.21	Unit I on standby. Unit-IV under Annual Maintenance.
		Unit-II	15.37	132kV KHP - Kilikhar Line	18.43	
		Unit- III	15.36	5MVA, 132/11kV TFR	0.70	
		Unit- IV	0.00	132kV Motanga - Rangia Line	0.00	
		Total	30.73	Auxiliary Consumption & Transformation Losses at Generator end	1.27%	

Note: Generation-Load Summary (MW) for January 01, 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	221.39	359.94	359.45	-94.34	0.49
2	Eastern Grid	250.66	96.55	94.62	109.90	1.93
Total		472.05	456.49	454.07	15.56	2.42

Note: Generation-Load Summary for January 01, 2020 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	339.10	265.20	263.09	62.14	2.11
2	Eastern Grid	137.28	55.97	54.97	93.07	1.00
Total		476.38	321.17	318.06	155.21	3.11

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.
- 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 2, 2022
Hours: 09:00 Hours

Date: 30-Dec-21 **Time:** 18:00hrs **Load(MW):** 487.76

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. 400kV THP-Siliguri line I under breakdown. 400kV THP-Siliguri line II on Standby
		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	-54.16	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	84.99	400kV MHP - Jigmeling Line - I	169.42	Unit-II on Standby. Unit-IV 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 II (Interim) on standby. 400kV JLG_ALI Line I (Direct) on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	85.24	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)	77.71	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	35.77	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	55.10	
		-	-	80MVA, 220/132kV ICT - I (HV)	16.16	
		-	-	80MVA, 220/132kV ICT - II (HV)	16.43	
		-	-	220kV Tsirang - Jigmeling Line	-27.25	
-	-	132kV Gelephu - Salakati Line	-0.46			
Total	170.23	Auxiliary Consumption & Transformation Losses at Generator end	0.48%			
3	336MW CHP	Unit- I	84.11	220kV CHP - Birpara Line- I	0.00	Unit-II on Standby. Unit-IV under Annual Maintenance. 220kV CHP_Birpara Line-I & II under breakdown..
		Unit- II	0.00	220kV CHP - Birpara Line- II	0.00	
		Unit- III	81.84	220kV CHP - Malbase Line- III	73.83	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	69.73	
		-	-	220kV Malbase - Birpara Line	-26.88	
		-	-	66kV CHP - Chumdo Line	18.58	
		-	-	66kV CHP - Gedu Line	2.47	
		-	-	3x3MVA, 66/11kV TFR	1.42	
Total	165.95	Auxiliary Consumption & Transformation Losses at Generator end	-0.05%			
4	24MW BHP (U/S)	Unit- I	4.50	220kV BHP - Semtokha Line	54.30	
		Unit- II	4.20	66kV BHP - Lobeyasa Line	26.80	
		Total	8.70	220kV BHP - Tsirang Line	-55.67	
5	40MW BHP (L/S)	Unit- I	8.60	5MVA, 66/11kV TFR	0.69	
		Unit- II	8.70	30MVA ICT, 220/66kV (HV)	18.95	
		Total	17.30	Auxiliary Consumption & Transformation Losses at Generator end	-0.46%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	30.21	Unit-I under Annual Maintenance. 220kV DHP_Dagapela Line on standby.
		Unit-II	30.98	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	15.54	
		-	-	5MVA, 220/33kV TFR	0.60	
Total	30.98	Auxiliary Consumption & Transformation Losses at Generator end	0.55%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	13.81	Unit I on standby. Unit-IV under Annual Maintenance.
		Unit-II	15.31	132kV KHP - Kilikhar Line	15.75	
		Unit- III	15.31	5MVA, 132/11kV TFR	0.69	
		Unit- IV	0.00	132kV Motanga - Rangia Line	2.76	
		Total	30.62	Auxiliary Consumption & Transformation Losses at Generator end	1.20%	

Note: Generation-Load Summary (MW) for January 02, 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	222.93	331.22	331.25	-81.04	-0.03
2	Eastern Grid	200.85	80.43	79.25	93.17	1.18
Total		423.78	411.65	410.50	12.13	1.15

Note: Generation-Load Summary for January 02, 2020 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	331.37	226.84	224.01	94.22	2.83
2	Eastern Grid	140.34	48.79	48.12	101.86	0.67
Total		471.71	275.63	272.13	196.08	3.50

NOTE-BHP, KHP & MHP 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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