

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: December 17, 2021
Hours: 18:00 Hours

Date	Time	Load(MW)
12-Dec-21	18:00hrs	472.23

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	Unit-I, II & III under Annual Maintenance & Unit-V on standby. 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	88.88	
		Unit- IV	137.57	400kV THP - Malbase Line - III	185.93	
		Unit- V	0.00	400kV Malbase - Siliguri Line	66.84	
		Unit- VI	139.97	-	-	
		Total	277.54	Auxiliary Consumption & Transformation Losses at Generator end	0.98%	
2	720MW MHP	Unit-I	135.01	400kV MHP - Jigmeling Line - I	133.05	Unit-II & III on Standby. Unit-IV under Annual Maintenance. 400kV MHP-JLG Line II & III on standby. 400kV MHP-JLG Line IV under Annual Maintenance. 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	0.00	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)	96.13	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	13.56	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	22.63	
		-	-	80MVA, 220/132kV ICT - I (HV)	24.44	
		-	-	80MVA, 220/132kV ICT - II (HV)	24.84	
		-	-	220kV Tsirang - Jigmeling Line	-30.81	
-	-	132kV Gelephu - Salakati Line	-1.23			
Total	135.01	Auxiliary Consumption & Transformation Losses at Generator end	1.45%			
3	336MW CHP	Unit- I	72.89	220kV CHP - Birpara Line- I	0.00	Unit-II on Standby. Unit IV under Annual Maintenance. 220kV CHP_Birpara Line I on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	4.95	
		Unit- III	69.91	220kV CHP - Malbase Line- III	33.07	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	78.58	
		-	-	220kV Malbase - Birpara Line	-17.21	
		-	-	66kV CHP - Chumdo Line	21.35	
		-	-	66kV CHP - Gedu Line	2.75	
		-	-	3x3MVA, 66/11kV TFR	2.03	
Total	142.80	Auxiliary Consumption & Transformation Losses at Generator end	0.05%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	58.30	L/S Unit I and U/S Unit I on Standby.
		Unit- II	10.00	66kV BHP - Lobeyasa Line	29.92	
		Total	10.00	220kV BHP - Tsirang Line	-59.54	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.92	
		Unit- II	19.60	30MVA ICT, 220/66kV (HV)	21.10	
		Total	19.60	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	33.80	Unit-I under Annual Maintenance. 220kV DHP-Dagapela Line on standby.
		Unit-II	34.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	16.01	
		-	-	5MVA, 220/33kV TFR	0.19	
Total	34.00	Auxiliary Consumption & Transformation Losses at Gen. end	0.03%			
7	60MW KHP	Unit- I	13.08	132kV KHP - Nangkhoh Line	7.17	Unit II on standby. Unit-IV under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Line	18.02	
		Unit- III	13.11	5MVA, 132/11kV TFR	0.54	
		Unit- IV	0.00	132kV Motanga - Rangia Line	2.25	
		Total	26.19	Auxiliary Consumption & Transformation Losses at Generator end	1.74%	

Note: Generation-Load Summary (MW) for December 17, 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	483.94	371.29	368.48	143.46	2.81
2	Eastern Grid	161.20	93.18	90.76	37.21	2.42
Total		645.14	464.47	459.24	180.67	5.23

Note: Generation-Load Summary for December 17, 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	405.70	255.70	245.61	131.00	10.09
2	Eastern Grid	161.08	61.62	59.87	118.46	1.75
Total		566.78	317.32	305.48	249.46	11.84

NOTE- BHP,MHP and KHP 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: December 18, 2021
Hours: 09:00 Hours

Date	Time	Load(MW)
12-Dec-21	18:00hrs	472.23

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	Unit-I, II & III under Annual Maintenance & Unit-V on standby. 400kV THP-Siliguri line I under breakdown. 400kV THP-Siliguri line II under Standby
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	81.64	
		Unit- IV	117.63	400kV THP - Malbase Line - III	171.98	
		Unit- V	0.00	400kV Malbase - Siliguri Line	63.00	
		Unit- VI	139.33	-	-	
		Total	256.96	Auxiliary Consumption & Transformation Losses at Generator end	1.30%	
2	720MW MHP	Unit-I	144.95	400kV MHP - Jigmeling Line - I	143.61	Unit-II & III on Standby. Unit-IV under Annual Maintenance. 400kV MHP-JLG Line II & III on standby. 400kV MHP-JLG Line IV under Annual Maintenance. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby. JLG_ALI Line I (Direct) under 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	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)	77.26	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	25.55	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	38.93	
		-	-	80MVA, 220/132kV ICT - I (HV)	18.68	
		-	-	80MVA, 220/132kV ICT - II (HV)	18.95	
		-	-	220kV Tsirang - Jigmeling Line	-25.24	
-	-	132kV Gelephu - Salakati Line	3.80			
Total	144.95	Auxiliary Consumption & Transformation Losses at Generator end	0.92%			
3	336MW CHP	Unit- I	68.16	220kV CHP - Birpara Line- I	0.00	Unit-II on Standby. Unit-IV under Annual Maintenance. 220kV CHP_Birpara Line-I on standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	6.79	
		Unit- III	69.83	220kV CHP - Malbase Line- III	41.89	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	67.00	
		-	-	220kV Malbase - Birpara Line	-21.82	
		-	-	66kV CHP - Chumdo Line	17.79	
		-	-	66kV CHP - Gedu Line	2.91	
		-	-	3x3MVA, 66/11kV TFR	1.58	
Total	137.99	Auxiliary Consumption & Transformation Losses at Generator end	0.02%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	56.00	U/S Unit-I on standby. L/S Unit-I on standby
		Unit- II	9.90	66kV BHP - Lobeyasa Line	27.36	
		Total	9.90	220kV BHP - Tsirang Line	-54.50	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.55	
		Unit- II	19.60	30MVA ICT, 220/66kV (HV)	18.32	
		Total	19.60	Auxiliary Consumption & Transformation Losses at Generator end	0.31%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	33.33	Unit-II on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	33.50	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	15.16	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	33.50	Auxiliary Consumption & Transformation Losses at Generator end	-0.09%			
7	60MW KHP	Unit- I	12.57	132kV KHP - Nangkhoh Line	10.57	Unit-II on Standby. Unit-IV under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Line	13.86	
		Unit- III	12.63	5MVA, 132/11kV TFR	0.80	
		Unit- IV	0.00	132kV Motanga - Rangia Line	8.08	
		Total	25.20	Auxiliary Consumption & Transformation Losses at Generator end	-0.12%	

Note: Generation-Load Summary (MW) for December 18, 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	457.95	353.58	350.15	129.61	3.43
2	Eastern Grid	170.15	68.55	67.24	76.36	1.31
Total		628.10	422.13	417.39	205.97	4.74

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1	Western Grid	381.70	233.87	231.38	136.03	2.49
2	Eastern Grid	159.39	43.60	40.96	127.59	2.64
Total		541.09	277.47	272.34	263.62	5.13

NOTE- BHP data collected from site.

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