

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: November 22, 2021
Hours: 19:00 Hours

Date: 18-Nov-21 **Time:** 18:00hrs **Load(MW):** 456.37 MW

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	400kV THP-Siliguri line I under breakdown. 400kV THP-MAL line under Annual Maintenance .
		Unit- II	127.86	400kV THP - Siliguri Line - II	199.08	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	193.00	
		Unit- IV	128.53	400kV THP - Malbase Line - III	0.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-51.24	
		Unit- VI	139.23	-	-	
		Total	395.62	Auxiliary Consumption & Transformation Losses at Generator end	0.89%	
2	720MW MHP	Unit-I	75.64	400kV MHP - Jigmeling Line - I	101.00	Unit-III on Standby. Unit-IV under Annual Maintenance. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby. JLG_ALI Line II (Direct) opened (Both end).
		Unit-II	128.16	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	102.00	
		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)	61.50	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	54.82	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	82.87	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	21.00	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.30	
		-	-	220kV Tsirang - Jigmeling Line	-6.22	
-	-	132kV Gelephu - Salakati Line	-1.22			
Total	203.80	Auxiliary Consumption & Transformation Losses at Generator end	0.39%			
3	336MW CHP	Unit- I	61.73	220kV CHP - Birpara Line- I	22.09	Unit-IV under AMP.
		Unit- II	62.42	220kV CHP - Birpara Line- II	22.06	
		Unit- III	83.35	220kV CHP - Malbase Line- III	68.39	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	69.10	
		-	-	220kV Malbase - Birpara Line	-17.10	
		-	-	66kV CHP - Chumdo Line	19.87	
		-	-	66kV CHP - Gedu Line	3.21	
		-	-	3x3MVA, 66/11kV TFR	2.10	
Total	207.50	Auxiliary Consumption & Transformation Losses at Generator end	0.33%			
4	24MW BHP (U/S)	Unit- I	7.20	220kV BHP - Semtokha Line	62.60	
		Unit- II	7.00	66kV BHP - Lobeyssa Line	30.00	
		Total	14.20	220kV BHP - Tsirang Line	-51.86	
5	40MW BHP (L/S)	Unit- I	13.70	5MVA, 66/11kV TFR	0.67	
		Unit- II	13.70	30MVA ICT, 220/66kV (HV)	17.04	
		Total	27.40	Auxiliary Consumption & Transformation Losses at Generator end	0.46%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	49.54	Unit I on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	50.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	13.20	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	50.00	Auxiliary Consumption & Transformation Losses at Gen. end	0.52%			
7	60MW KHP	Unit- I	12.45	132kV KHP - Nangkhoh Line	17.58	Unit-IV under AMP.
		Unit-II	12.51	132kV KHP - Kilikhar Line	19.01	
		Unit- III	12.53	5MVA, 132/11kV TFR	0.57	
		Unit- IV	0.00	132kV Motanga - Rangia Line	7.64	
		Total	37.49	Auxiliary Consumption & Transformation Losses at Generator end	0.89%	

Note: Generation-Load Summary (MW) for November 22, 2021 at 19:00hrs.

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	694.72	346.25	341.58	367.89	4.67
2	Eastern Grid	241.29	77.76	76.63	144.11	1.13
Total		936.01	424.01	418.21	512.00	5.80

Note: Generation-Load Summary for November 22, 2020 at 19:00hrs.

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	536.70	223.90	219.72	280.46	4.18
2	Eastern Grid	212.47	52.37	49.04	192.44	3.33
Total		749.17	276.27	268.76	472.90	7.51

NOTE-BHP, DHP, MHPA and Rangia 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: November 23, 2021
Hours: 09:00 Hours

Date **Time** **Load(MW)**
 19-Nov-21 18:00hrs 456.37 MW

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 & III under AMP. Unit-V on standby. 400kV THP-Siliguri line I under breakdown. 400kV THP-MAL line under Annual Maintenance .
		Unit- II	128.41	400kV THP - Siliguri Line - II	205.60	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	198.73	
		Unit- IV	139.09	400kV THP - Malbase Line - III	0.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-53.24	
		Unit- VI	139.78	-	-	
		Total	407.28	Auxiliary Consumption & Transformation Losses at Generator end	0.72%	
2	720MW MHP	Unit-I	84.94	400kV MHP - Jigmeling Line - I	108.95	Unit-III on Standby. Unit IV under Annual Maintenance. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby. JLG_ALI Line II(Direct) opened (Both end).
		Unit-II	134.80	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	109.63	
		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)	43.46	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	68.79	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	103.71	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	19.68	
		-	-	80MVA, 220/132kV ICT - II (HV)	20.00	
		-	-	220kV Tsirang - Jigmeling Line	8.91	
-	-	132kV Gelephu - Salakati Line	3.85			
Total	219.74	Auxiliary Consumption & Transformation Losses at Generator end	0.53%			
3	336MW CHP	Unit- I	61.54	220kV CHP - Birpara Line- I	25.04	Unit-IV under AMP.
		Unit- II	62.43	220kV CHP - Birpara Line- II	25.12	
		Unit- III	83.30	220kV CHP - Malbase Line- III	89.88	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	47.97	
		-	-	220kV Malbase - Birpara Line	-28.11	
		-	-	66kV CHP - Chumdo Line	12.44	
		-	-	66kV CHP - Gedu Line	5.07	
		-	-	3x3MVA, 66/11kV TFR	1.29	
Total	207.27	Auxiliary Consumption & Transformation Losses at Generator end	0.22%			
4	24MW BHP (U/S)	Unit- I	7.10	220kV BHP - Semtokha Line	64.14	
		Unit- II	7.10	66kV BHP - Lobeyssa Line	27.63	
		Total	14.20	220kV BHP - Tsirang Line	-36.90	
5	40MW BHP (L/S)	Unit- I	20.30	5MVA, 66/11kV TFR	0.49	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	14.32	
		Total	41.30	Auxiliary Consumption & Transformation Losses at Generator end	0.25%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	55.28	Unit I on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	55.49	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	12.83	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	55.49	Auxiliary Consumption & Transformation Losses at Generator end	0.02%			
7	60MW KHP	Unit- I	12.60	132kV KHP - Nangkhoh Line	20.25	Unit-IV under AMP.
		Unit-II	12.58	132kV KHP - Kilikhar Line	17.00	
		Unit- III	12.58	5MVA, 132/11kV TFR	0.25	
		Unit- IV	0.00	132kV Motanga - Rangia Line	7.70	
		Total	37.76	Auxiliary Consumption & Transformation Losses at Generator end	0.69%	

Note: Generation-Load Summary (MW) for November 23, 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	725.54	356.32	352.76	373.14	3.56
2	Eastern Grid	257.50	69.53	68.11	184.05	1.42
Total		983.04	425.85	420.87	557.19	4.98

Note: Generation-Load Summary for November 23, 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	538.10	205.23	196.86	298.60	8.37
2	Eastern Grid	210.28	50.40	48.26	194.15	2.14
Total		748.38	255.63	245.12	492.75	10.51

NOTE-BHP, DHP, MHPA and Rangia 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.