

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: November 27, 2021
Hours: 19:00 Hours

Date **Time** **Load(MW)**
 26-Nov-21 19:00hrs 459.39 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 Annual Maintenance. Unit-II on standby. 400kV THP-Siliguri line I under breakdown. 400kV THP-MAL line under Annual Maintenance . 400kV MAL_ Siliguri Line opened at 13.56 hrs to regulate voltage.
		Unit- II	0.00	400kV THP - Siliguri Line - II	189.53	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	182.79	
		Unit- IV	138.51	400kV THP - Malbase Line - III	0.00	
		Unit- V	98.68	400kV Malbase - Siliguri Line	0.00	
		Unit- VI	139.62	-	-	
		Total	376.81	Auxiliary Consumption & Transformation Losses at Generator end	1.19%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	92.22	Unit-I 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 I (Direct) opened (Both end).
		Unit-II	118.14	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	70.51	400kV MHP - Jigmeling Line - III	93.78	
		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)	19.90	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	65.37	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	99.05	
		-	-	80MVA, 220/132kV ICT - I (HV)	22.90	
		-	-	80MVA, 220/132kV ICT - II (HV)	23.19	
		-	-	220kV Tsirang - Jigmeling Line	40.15	
-	-	132kV Gelephu - Salakati Line	4.16			
Total	188.65	Auxiliary Consumption & Transformation Losses at Generator end	1.40%			
3	336MW CHP	Unit- I	59.80	220kV CHP - Birpara Line- I	-11.44	CHP Unit IV under Annual Maintenance.
		Unit- II	59.54	220kV CHP - Birpara Line- II	-11.57	
		Unit- III	68.77	220kV CHP - Malbase Line- III	85.41	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	102.03	
		-	-	220kV Malbase - Birpara Line	-82.79	
		-	-	66kV CHP - Chumdo Line	19.34	
		-	-	66kV CHP - Gedu Line	3.94	
		-	-	3x3MVA, 66/11kV TFR	2.00	
Total	188.12	Auxiliary Consumption & Transformation Losses at Generator end	-0.85%			
4	24MW BHP (U/S)	Unit- I	6.80	220kV BHP - Semtokha Line	0.00	220kV BHP_Semtokha Line under Maintenance.
		Unit- II	6.40	66kV BHP - Lobeyesa Line	39.41	
		Total	13.20	220kV BHP - Tsirang Line	-1.54	
5	40MW BHP (L/S)	Unit- I	12.80	5MVA, 66/11kV TFR	0.75	220kV BHP_Semtokha Line under Maintenance.
		Unit- II	13.00	30MVA ICT, 220/66kV (HV)	27.29	
		Total	25.80	Auxiliary Consumption & Transformation Losses at Generator end	0.97%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	45.21	Unit-I on standby. 220kV DHP-Dagapela Line on standby.
		Unit-II	45.45	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	13.61	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	45.45	Auxiliary Consumption & Transformation Losses at Gen. end	0.10%			
7	60MW KHP	Unit- I	11.08	132kV KHP - Nangkhoh Line	13.64	Unit-IV under Annual Maintenance.
		Unit-II	11.09	132kV KHP - Kilikhar Line	18.78	
		Unit- III	11.11	5MVA, 132/11kV TFR	0.40	
		Unit- IV	0.00	132kV Motanga - Rangia Line	10.36	
		Total	33.28	Auxiliary Consumption & Transformation Losses at Generator end	1.40%	

Note: Generation-Load Summary (MW) for November 27, 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	649.37	342.70	339.39	266.52	3.31
2	Eastern Grid	221.93	83.15	80.03	178.94	3.12
Total		871.30	425.84	419.42	445.46	6.43

Note: Generation-Load Summary for November 27, 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	488.40	233.63	227.86	226.57	5.77
2	Eastern Grid	201.11	60.82	58.77	168.49	2.05
Total		689.51	294.45	286.63	395.06	7.82

NOTE-BHP, 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 28, 2021
Hours: 09:00 Hours

Date	Time	Load(MW)
26-Nov-21	19:00hrs	459.39 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 Annual Maintenance. Unit-II on standby. 400kV THP-Siliguri line I under breakdown. 400kV THP-MAL line under Annual Maintenance. 400kV MAL_Siliguri Line open 400kV MAL_Siliguri Line opened at 13.56 hrs to regulate voltage.
		Unit- II	0.00	400kV THP - Siliguri Line - II	189.21	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	183.75	
		Unit- IV	139.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	97.15	400kV Malbase - Siliguri Line	0.00	
		Unit- VI	138.50	-	-	
		Total	374.64	Auxiliary Consumption & Transformation Losses at Generator end	0.45%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	93.34	Unit-I 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 I(Direct) opened (Both end).
		Unit-II	118.20	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	70.41	400kV MHP - Jigmeling Line - III	93.94	
		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)	63.19	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	47.25	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	75.01	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.68	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.05	
		-	-	220kV Tsirang - Jigmeling Line	-7.77	
-	-	132kV Gelephu - Salakati Line	3.35			
Total	188.61	Auxiliary Consumption & Transformation Losses at Generator end	0.71%			
3	336MW CHP	Unit- I	55.87	220kV CHP - Birpara Line- I	4.64	Unit-IV under Annual Maintenance.
		Unit- II	59.56	220kV CHP - Birpara Line- II	4.74	
		Unit- III	69.28	220kV CHP - Malbase Line- III	98.40	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	55.30	
		-	-	220kV Malbase - Birpara Line	-68.39	
		-	-	66kV CHP - Chumdo Line	15.71	
		-	-	66kV CHP - Gedu Line	4.36	
		-	-	3x3MVA, 66/11kV TFR	1.36	
Total	184.71	Auxiliary Consumption & Transformation Losses at Generator end	0.11%			
4	24MW BHP (U/S)	Unit- I	6.70	220kV BHP - Semtokha Line	60.10	
		Unit- II	6.30	66kV BHP - Lobeyasa Line	27.16	
		Total	13.00	220kV BHP - Tsirang Line	-49.03	
5	40MW BHP (L/S)	Unit- I	12.90	5MVA, 66/11kV TFR	0.50	
		Unit- II	12.80	30MVA ICT, 220/66kV (HV)	14.99	
		Total	25.70	Auxiliary Consumption & Transformation Losses at Generator end	-0.08%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	44.77	Unit-I on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	45.02	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	12.94	
		-	-	5MVA, 220/33kV TFR	0.24	
Total	45.02	Auxiliary Consumption & Transformation Losses at Generator end	0.02%			
7	60MW KHP	Unit- I	11.06	132kV KHP - Nangkhoh Line	16.15	Unit-IV under Annual Maintenance.
		Unit-II	11.09	132kV KHP - Kilikhar Line	16.41	
		Unit- III	11.03	5MVA, 132/11kV TFR	0.24	
		Unit- IV	0.00	132kV Motanga - Rangia Line	11.89	
		Total	33.18	Auxiliary Consumption & Transformation Losses at Generator end	1.15%	

Note: Generation-Load Summary (MW) for November 28, 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	643.07	336.90	335.03	313.94	1.87
2	Eastern Grid	221.79	76.52	74.81	137.50	1.71
Total		864.87	413.42	409.84	451.45	3.58

Note: Generation-Load Summary for November 28, 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	487.37	206.54	198.61	254.23	7.93
2	Eastern Grid	195.72	44.21	42.12	178.11	2.09
Total		683.09	250.75	240.73	432.34	10.02

NOTE-BHP, 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.