

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date: **October 21, 2021**
Hours: **19:00 Hours**

Date	Time	Load(MW)
27-Dec-18	18:18hrs	399.35MW

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	184.05	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	183.96	400kV THP - Siliguri Line - II	350.64	+	
		Unit- III	184.40	400kV THP - Siliguri Line- IV	335.66	+	
		Unit- IV	182.39	400kV THP - Malbase Line - III	414.18	+	
		Unit- V	185.99	400kV Malbase - Siliguri Line	310.43	+	
		Unit- VI	186.74	-	-	-	
		Total	1,107.53	Auxiliary Consumption & Transformation Losses at Gen. end	0.637%		
2	720MW MHP	Unit-I	130.25	400kV MHP - Jigmeling Line - I	228.76	+	400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line I (Interim) on standby.
		Unit-II	100.11	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	130.72	400kV MHP - Jigmeling Line - III	230.41	+	
		Unit-IV	100.47	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)	-37.10	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	120.72	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	184.70	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	184.70	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	30.90	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	31.30	+	
		-	-	220kV Tsirang - Jigmeling Line	104.03	+	
-	-	132kV Gelephu - Salakati Line	23.24	+			
Total	461.55	Auxiliary Consumption & Transformation Losses at Gen. end	0.516%				
3	336MW CHP	Unit- I	92.27	220kV CHP - Birpara Line- I	93.61	+	66kV CHP_Gedu line opened at 10:01hrs (08/10/2021) to regulate 66kV voltage.
		Unit- II	91.17	220kV CHP - Birpara Line- II	93.59	+	
		Unit- III	90.29	220kV CHP - Malbase Line- III	111.10	+	
		Unit- IV	91.67	220kV CHP - Semtokha Line- IV	37.44	+	
		-	-	220kV Malbase - Birpara Line	66.14	+	
		-	-	66kV CHP - Chumdo Line	26.62	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	1.45	+	
Total	365.40	Auxiliary Consumption & Transformation Losses at Gen. end	0.435%				
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	51.40	+	
		Unit- II	12.20	66kV BHP - Lobeysa Line	31.57	+	
		Total	24.50	220kV BHP - Tsirang Line	-18.05	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.60	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	8.26	-	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Gen. end	1.027%		
6	126MW DHP	Unit-I	63.67	220kV DHP - Tsirang Line	126.22	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.16	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	3.90	+	
		-	-	5MVA, 220/33kV TFR	0.27	+	
		Total	126.83	Auxiliary Consumption & Transformation Losses at Gen. end	0.268%		
7	60MW KHP	Unit- I	16.56	132kV KHP - Nangkhoh Line	39.10	+	
		Unit-II	16.60	132kV KHP - Kilikhar Line	26.09	+	
		Unit- III	16.59	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	16.61	132kV Motanga - Rangia Line	38.79	+	
		Total	66.36	Auxiliary Consumption & Transformation Losses at Gen. end	1.160%		

Note: Generation-Load Summary (MW) for October 21, 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) at Generator end.
1	Western Grid	1,665.96	311.86	306.10	1,250.07	5.76
2	Eastern Grid	527.91	79.79	76.64	552.15	3.15
	Total	2,193.87	391.65	382.74	1,802.22	8.91

Note: Generation-Load Summary for October 21, 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
1	Western Grid	931.73	204.09	195.89	660.48	8.20
2	Eastern Grid	375.06	57.63	55.01	384.59	2.62
	Total	1,306.79	261.72	250.90	1,045.07	10.82

NOTE-BHP, MHPA and Rangia data collected from site

1. The Instantaneous load balance is 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

Maximum Load/Demand till Date

Date:	October 22, 2021
Hours:	09:00 Hours

Date	Time	Load(MW)
27-Dec-18	18:18hrs	399.35MW

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	184.84	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	183.50	400kV THP - Siliguri Line - II	362.10	+	
		Unit- III	184.89	400kV THP - Siliguri Line- IV	344.48	+	
		Unit- IV	185.82	400kV THP - Malbase Line - III	398.97	+	
		Unit- V	185.73	400kV Malbase - Siliguri Line	327.41	+	
		Unit- VI	185.89	-	-	-	
		Total	1,110.67	Auxiliary Consumption & Transformation Losses at Generator end	0.461%		
2	720MW MHP	Unit-I	130.02	400kV MHP - Jigmeling Line - I	224.37	+	400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line I (Interim) on standby.
		Unit-II	109.78	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	115.54	400kV MHP - Jigmeling Line - III	226.00	+	
		Unit-IV	95.39	400kV MHP - Jigmeling Line - IV	0.00		
		-	-	132kV MHP - Yurmoo Line - I	0.00		
		-	-	132kV MHP - Yurmoo Line - II	0.00		
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	-56.50	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	123.62		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	188.60	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	188.60	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.71	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.05	+	
		-	-	220kV Tsirang - Jigmeling Line	102.76	+	
-	-	132kV Gelephu - Salakati Line	21.80	+			
Total	450.73	Auxiliary Consumption & Transformation Losses at Generator end	0.080%				
3	336MW CHP	Unit- I	91.48	220kV CHP - Birpara Line- I	96.10	+	66kV CHP_Gedu line opened at 10:01hrs (08/10/2021) to regulate 66kV voltage.
		Unit- II	90.96	220kV CHP - Birpara Line- II	95.70	+	
		Unit- III	91.37	220kV CHP - Malbase Line- III	130.07	+	
		Unit- IV	91.39	220kV CHP - Semtokha Line- IV	22.86	-	
		-	-	220kV Malbase - Birpara Line	55.77	+	
		-	-	66kV CHP - Chumdo Line	19.40	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	0.96	+	
Total	365.20	Auxiliary Consumption & Transformation Losses at Generator end	0.030%				
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	56.00	+	66kV BHP_Lobeysa Line under Shutdown.
		Unit- II	12.20	66kV BHP - Lobeysa Line	29.54	+	
		Total	24.50	220kV BHP - Tsirang Line	-20.35	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.35	+	66kV BHP_Lobeysa Line under Shutdown.
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	3.81	-	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Generator end	0.997%		
6	126MW DHP	Unit-I	63.58	220kV DHP - Tsirang Line	126.23	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.05	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	3.21	+	
		-	-	5MVA, 220/33kV TFR		+	
		Total	126.63	Auxiliary Consumption & Transformation Losses at Generator end	0.316%		
7	60MW KHP	Unit- I	16.60	132kV KHP - Nangkhoh Line	42.69	+	
		Unit-II	16.53	132kV KHP - Kilikhar Line	22.83	+	
		Unit- III	16.61	5MVA, 132/11kV TFR	0.31	+	
		Unit- IV	16.57	132kV Motanga - Rangia Line	30.77	+	
		Total	66.31	Auxiliary Consumption & Transformation Losses at Generator end	0.727%		

Note: Generation-Load Summary (MW) for October 22, 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) at Generator end.
1	Western Grid	1,668.70	284.38	281.30	1,281.56	3.08
2	Eastern Grid	517.04	66.41	65.57	553.39	0.84
	Total	2,185.74	350.79	346.87	1,834.95	3.92

Note: Generation-Load Summary for October 22, 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
1	Western Grid	895.75	181.12	171.99	660.63	9.13
2	Eastern Grid	386.31	31.82	28.43	408.49	3.39
	Total	1,282.06	212.94	200.42	1,069.12	12.52

NOTE-BHP, MHPA & Rangia data collected from site.

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