

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date: **October 25, 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	137.39	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	187.28	400kV THP - Siliguri Line - II	325.93	+	
		Unit- III	185.73	400kV THP - Siliguri Line- IV	311.58	+	
		Unit- IV	185.97	400kV THP - Malbase Line - III	366.33	+	
		Unit- V	185.19	400kV Malbase - Siliguri Line	293.48	+	
		Unit- VI	128.85	-	-	-	
		Total	1,010.41	Auxiliary Consumption & Transformation Losses at Gen. end	0.650%		
2	720MW MHP	Unit-I	120.39	400kV MHP - Jigmeling Line - I	173.91	+	Unit IV under Standby. 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	130.94	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	100.17	400kV MHP - Jigmeling Line - III	174.89	+	
		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)	-26.89	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	91.63	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	140.79	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	138.79	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	26.95	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	27.42	+	
		-	-	220kV Tsirang - Jigmeling Line	85.64	+	
-	-	132kV Gelephu - Salakati Line	13.27	+			
Total	351.50	Auxiliary Consumption & Transformation Losses at Gen. end	0.768%				
3	336MW CHP	Unit- I	91.53	220kV CHP - Birpara Line- I	92.61	+	66kV CHP_Gedu line opened at 10:01hrs (08/10/2021) to regulate 66kV voltage.
		Unit- II	91.68	220kV CHP - Birpara Line- II	92.63	+	
		Unit- III	91.32	220kV CHP - Malbase Line- III	120.26	+	
		Unit- IV	91.63	220kV CHP - Semtokha Line- IV	27.36	+	
		-	-	220kV Malbase - Birpara Line	57.73	+	
		-	-	66kV CHP - Chumdo Line	31.15	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	1.61	+	
Total	366.16	Auxiliary Consumption & Transformation Losses at Gen. end	0.147%				
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	48.00	+	-
		Unit- II	12.20	66kV BHP - Lobeysa Line	29.82	+	
		Total	24.50	220kV BHP - Tsirang Line	-12.99	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.69	+	-
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	3.87	+	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Gen. end	1.027%		
6	126MW DHP	Unit-I	51.25	220kV DHP - Tsirang Line	101.80	+	220kV DHP_Dagapela Line on standby.
		Unit-II	50.99	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	3.70	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	102.24	Auxiliary Consumption & Transformation Losses at Gen. end	0.137%		
7	60MW KHP	Unit- I	16.11	132kV KHP - Nangkhoh Line	38.01	+	-
		Unit-II	16.08	132kV KHP - Kilikhar Line	25.21	+	
		Unit- III	16.10	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	16.06	132kV Motanga - Rangia Line	32.80	+	
		Total	64.35	Auxiliary Consumption & Transformation Losses at Gen. end	1.134%		

Note: Generation-Load Summary (MW) for October 25, 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	1,545.01	285.41	281.18	1,173.96	4.23
2	Eastern Grid	415.85	84.21	80.78	417.28	3.43
	Total	1,960.86	369.62	361.96	1,591.24	7.66

Note: Generation-Load Summary for October 25, 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	871.51	203.87	196.48	613.64	7.39
2	Eastern Grid	373.71	35.13	31.10	392.66	4.03
	Total	1,245.22	239.00	227.58	1,006.30	11.42

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 26, 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	166.02	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	183.62	400kV THP - Siliguri Line - II	351.50	+	
		Unit- III	185.39	400kV THP - Siliguri Line- IV	335.54	+	
		Unit- IV	184.17	400kV THP - Malbase Line - III	380.07	+	
		Unit- V	185.14	400kV Malbase - Siliguri Line	319.36	+	
		Unit- VI	168.55	-	-	-	
		Total	1,072.89	Auxiliary Consumption & Transformation Losses at Generator end	0.539%		
2	720MW MHP	Unit-I	130.59	400kV MHP - Jigmeling Line - I	184.01	+	Unit IV under Standby. 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	120.21	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	120.76	400kV MHP - Jigmeling Line - III	185.16	+	
		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)	-47.36	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	95.26	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	157.85	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	157.85	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.14	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	20.45	+	
		-	-	220kV Tsirang - Jigmeling Line	91.56	+	
-	-	132kV Gelephu - Salakati Line	20.22	+			
Total	371.56	Auxiliary Consumption & Transformation Losses at Generator end	0.643%				
3	336MW CHP	Unit- I	91.46	220kV CHP - Birpara Line- I	89.03	+	66kV CHP_Gedu line opened at 10:01hrs (08/10/2021) to regulate 66kV voltage.
		Unit- II	91.20	220kV CHP - Birpara Line- II	89.25	+	
		Unit- III	91.14	220kV CHP - Malbase Line- III	126.00	+	
		Unit- IV	91.41	220kV CHP - Semtokha Line- IV	37.30	+	
		-	-	220kV Malbase - Birpara Line	47.41	+	
		-	-	66kV CHP - Chumdo Line	22.45	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	0.92	+	
Total	365.21	Auxiliary Consumption & Transformation Losses at Generator end	0.071%				
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	40.80	+	
		Unit- II	12.20	66kV BHP - Lobeysa Line	28.21	+	
		Total	24.50	220kV BHP - Tsirang Line	-4.41	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.75	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	5.13	+	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Generator end	1.284%		
6	126MW DHP	Unit-I	49.85	220kV DHP - Tsirang Line	98.42	+	220kV DHP_Dagapela Line on standby.
		Unit-II	48.98	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	3.01	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	98.83	Auxiliary Consumption & Transformation Losses at Generator end	0.111%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Line	42.70	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	22.78	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	34.61	+	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	0.182%		

Note: Generation-Load Summary (MW) for October 26, 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	1,603.13	279.48	275.49	1,232.09	3.99
2	Eastern Grid	437.56	63.33	60.82	465.79	2.51
	Total	2,040.69	342.81	336.31	1,697.88	6.50

Note: Generation-Load Summary for October 26, 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	922.34	185.36	178.45	675.73	6.91
2	Eastern Grid	455.00	41.97	39.52	474.28	2.45
	Total	1,377.34	227.33	217.97	1,150.01	9.36

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

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