

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date: **October 27, 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	137.74	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	137.21	400kV THP - Siliguri Line - II	260.72	+	
		Unit- III	137.61	400kV THP - Siliguri Line- IV	249.26	+	
		Unit- IV	168.79	400kV THP - Malbase Line - III	303.99	+	
		Unit- V	137.43	400kV Malbase - Siliguri Line	232.31	+	
		Unit- VI	100.08	-	-	-	
		Total	818.86	Auxiliary Consumption & Transformation Losses at Gen. end	0.597%		
2	720MW MHP	Unit-I	105.46	400kV MHP - Jigmeling Line - I	158.38	+	Unit-IV on Standby. 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	99.93	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	115.75	400kV MHP - Jigmeling Line - III	159.30	+	
		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)	-11.76	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	79.26	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	123.32	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	123.32	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	26.05	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	26.46	+	
		-	-	220kV Tsirang - Jigmeling Line	69.47	+	
-	-	132kV Gelephu - Salakati Line	12.23	+			
Total	321.14	Auxiliary Consumption & Transformation Losses at Gen. end	1.077%				
3	336MW CHP	Unit- I	91.61	220kV CHP - Birpara Line- I	88.99	+	66kV CHP_Gedu line opened at 10:01hrs (08/10/2021) to regulate 66kV voltage.
		Unit- II	91.72	220kV CHP - Birpara Line- II	88.66	+	
		Unit- III	91.47	220kV CHP - Malbase Line- III	124.60	+	
		Unit- IV	91.35	220kV CHP - Semtokha Line- IV	45.51	+	
		-	-	220kV Malbase - Birpara Line	48.61	+	
		-	-	66kV CHP - Chumdo Line	15.63	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	1.60	+	
Total	366.15	Auxiliary Consumption & Transformation Losses at Gen. end	0.317%				
4	24MW BHP (U/S)	Unit- I	11.80	220kV BHP - Semtokha Line	54.60	+	Lobeysa Line
		Unit- II	11.70	66kV BHP - Lobeysa Line	28.90	+	
		Total	23.50	220kV BHP - Tsirang Line	-18.98	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.60	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	6.04	+	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Gen. end	0.123%		
6	126MW DHP	Unit-I	46.84	220kV DHP - Tsirang Line	92.89	+	220kV DHP_Dagapela Line on standby.
		Unit-II	46.46	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	4.60	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	93.30	Auxiliary Consumption & Transformation Losses at Gen. end	0.118%		
7	60MW KHP	Unit- I	15.03	132kV KHP - Nangkhon Line	35.25	+	
		Unit-II	15.05	132kV KHP - Kilikhar Line	23.99	+	
		Unit- III	15.05	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	15.14	132kV Motanga - Rangia Line	31.92	+	
		Total	60.27	Auxiliary Consumption & Transformation Losses at Gen. end	1.211%		

Note: Generation-Load Summary (MW) for October 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) at Generator end.
1	Western Grid	1,343.51	305.49	303.85	968.55	1.64
2	Eastern Grid	381.41	80.83	76.64	370.05	4.19
	Total	1,724.92	386.32	380.49	1,338.60	5.83

Note: Generation-Load Summary for October 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
1	Western Grid	955.28	203.54	195.93	688.85	7.61
2	Eastern Grid	386.09	46.93	44.03	402.05	2.90
	Total	1,341.37	250.47	239.96	1,090.90	10.51

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 28, 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	138.82	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	138.66	400kV THP - Siliguri Line - II	279.87	+	
		Unit- III	138.76	400kV THP - Siliguri Line- IV	266.40	+	
		Unit- IV	168.25	400kV THP - Malbase Line - III	307.67	+	
		Unit- V	137.67	400kV Malbase - Siliguri Line	253.90	+	
		Unit- VI	139.51	-	-	-	
		Total	861.67	Auxiliary Consumption & Transformation Losses at Generator end	0.897%		
2	720MW MHP	Unit-I	159.84	400kV MHP - Jigmeling Line - I	158.94	+	Unit II and 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	0.00	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	160.92	400kV MHP - Jigmeling Line - III	160.95	+	
		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)	-40.40	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	85.80	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	135.10	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	135.10	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	17.90	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	18.10	+	
		-	-	220kV Tsirang - Jigmeling Line	81.20	+	
-	-	132kV Gelephu - Salakati Line	13.40	+			
Total	320.76	Auxiliary Consumption & Transformation Losses at Generator end	0.271%				
3	336MW CHP	Unit- I	91.30	220kV CHP - Birpara Line- I	83.20	+	66kV CHP_Gedu line opened at 10:01hrs (08/10/2021) to regulate 66kV voltage.
		Unit- II	91.33	220kV CHP - Birpara Line- II	83.12	+	
		Unit- III	92.25	220kV CHP - Malbase Line- III	137.15	+	
		Unit- IV	91.38	220kV CHP - Semtokha Line- IV	46.77	+	
		-	-	220kV Malbase - Birpara Line	28.88	+	
		-	-	66kV CHP - Chumdo Line	12.59	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	1.10	+	
Total	366.26	Auxiliary Consumption & Transformation Losses at Generator end	0.636%				
4	24MW BHP (U/S)	Unit- I	11.60	220kV BHP - Semtokha Line	41.70	+	
		Unit- II	11.40	66kV BHP - Lobeysa Line	25.36	+	
		Total	23.00	220kV BHP - Tsirang Line	-3.74	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.33	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	3.82	+	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Generator end	1.623%		
6	126MW DHP	Unit-I	45.37	220kV DHP - Tsirang Line	89.97	+	220kV DHP_Dagapela Line on standby.
		Unit-II	45.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	4.00	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	90.37	Auxiliary Consumption & Transformation Losses at Generator end	0.111%		
7	60MW KHP	Unit- I	14.50	132kV KHP - Nangkhoh Line	37.12	+	
		Unit-II	14.50	132kV KHP - Kilikhar Line	20.45	+	
		Unit- III	14.50	5MVA, 132/11kV TFR	0.31	+	
		Unit- IV	14.50	132kV Motanga - Rangia Line	24.78	+	
		Total	58.00	Auxiliary Consumption & Transformation Losses at Generator end	0.207%		

Note: Generation-Load Summary (MW) for October 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) at Generator end.
1	Western Grid	1,383.00	306.43	299.22	995.37	7.21
2	Eastern Grid	378.76	65.78	64.79	394.18	0.99
	Total	1,761.76	372.21	364.01	1,389.55	8.20

Note: Generation-Load Summary for October 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
1	Western Grid	874.43	199.87	190.86	629.71	9.01
2	Eastern Grid	354.01	38.56	36.21	360.30	2.35
	Total	1,228.44	238.43	227.07	990.01	11.36

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

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 - 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.
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