

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date: **October 24, 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	184.54	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	183.77	400kV THP - Siliguri Line - II	357.89	+	
		Unit- III	186.25	400kV THP - Siliguri Line- IV	342.90	+	
		Unit- IV	185.62	400kV THP - Malbase Line - III	402.21	+	
		Unit- V	184.26	400kV Malbase - Siliguri Line	323.38	+	
		Unit- VI	185.77	-	-	-	
		Total	1,110.21	Auxiliary Consumption & Transformation Losses at Gen. end	0.649%		
2	720MW MHP	Unit-I	130.16	400kV MHP - Jigmeling Line - I	183.64	+	Unit IV under 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	120.11	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	120.79	400kV MHP - Jigmeling Line - III	184.68	+	
		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)	-34.20	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	98.17	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	149.82	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	149.82	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	27.03	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	27.49	+	
		-	-	220kV Tsirang - Jigmeling Line	92.96	+	
-	-	132kV Gelephu - Salakati Line	14.68	+			
Total	371.06	Auxiliary Consumption & Transformation Losses at Gen. end	0.738%				
3	336MW CHP	Unit- I	91.60	220kV CHP - Birpara Line- I	94.41	+	66kV CHP_Gedu line opened at 10:01hrs (08/10/2021) to regulate 66kV voltage.
		Unit- II	91.13	220kV CHP - Birpara Line- II	94.63	+	
		Unit- III	91.80	220kV CHP - Malbase Line- III	115.09	+	
		Unit- IV	91.61	220kV CHP - Semtokha Line- IV	31.34	+	
		-	-	220kV Malbase - Birpara Line	65.34	+	
		-	-	66kV CHP - Chumdo Line	28.45	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	1.85	+	
Total	366.14	Auxiliary Consumption & Transformation Losses at Gen. end	0.101%				
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	48.40	+	Lobeysa Line
		Unit- II	12.20	66kV BHP - Lobeysa Line	29.78	+	
		Total	24.50	220kV BHP - Tsirang Line	-13.14	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.77	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	6.59	+	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Gen. end	0.589%		
6	126MW DHP	Unit-I	56.38	220kV DHP - Tsirang Line	109.85	+	220kV DHP_Dagapela Line on standby.
		Unit-II	54.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	3.57	+	
		-	-	5MVA, 220/33kV TFR	0.52	+	
		Total	110.38	Auxiliary Consumption & Transformation Losses at Gen. end	0.009%		
7	60MW KHP	Unit- I	16.52	132kV KHP - Nangkhoh Line	39.26	+	
		Unit-II	16.64	132kV KHP - Kilikhar Line	26.00	+	
		Unit- III	16.54	5MVA, 132/11kV TFR	0.43	+	
		Unit- IV	16.65	132kV Motanga - Rangia Line	32.10	+	
		Total	66.35	Auxiliary Consumption & Transformation Losses at Gen. end	0.996%		

Note: Generation-Load Summary (MW) for October 24, 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	1,652.93	281.42	277.01	1,278.55	4.41
2	Eastern Grid	437.41	85.78	82.38	444.59	3.40
	Total	2,090.34	367.20	359.39	1,723.14	7.81

Note: Generation-Load Summary for October 24, 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	857.95	141.32	134.86	662.63	6.46
2	Eastern Grid	365.66	54.33	51.16	365.33	3.17
	Total	1,223.61	195.65	186.02	1,027.96	9.63

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 25, 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	185.61	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	185.52	400kV THP - Siliguri Line - II	365.08	+	
		Unit- III	184.86	400kV THP - Siliguri Line- IV	347.80	+	
		Unit- IV	185.11	400kV THP - Malbase Line - III	392.48	+	
		Unit- V	184.48	400kV Malbase - Siliguri Line	330.97	+	
		Unit- VI	186.39	-	-	-	
		Total	1,111.97	Auxiliary Consumption & Transformation Losses at Generator end	0.594%		
2	720MW MHP	Unit-I	130.10	400kV MHP - Jigmeling Line - I	178.99	+	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	115.12	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	115.76	400kV MHP - Jigmeling Line - III	180.04	+	
		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)	-57.52	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	101.81	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	155.29	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	155.29	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	19.04	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	19.20	+	
		-	-	220kV Tsirang - Jigmeling Line	99.44	+	
-	-	132kV Gelephu - Salakati Line	16.96	+			
Total	360.98	Auxiliary Consumption & Transformation Losses at Generator end	0.540%				
3	336MW CHP	Unit- I	91.49	220kV CHP - Birpara Line- I	92.42	+	66kV CHP_Gedu line opened at 10:01hrs (08/10/2021) to regulate 66kV voltage.
		Unit- II	91.50	220kV CHP - Birpara Line- II	92.43	+	
		Unit- III	91.05	220kV CHP - Malbase Line- III	125.97	+	
		Unit- IV	91.29	220kV CHP - Semtokha Line- IV	32.43	+	
		-	-	220kV Malbase - Birpara Line	53.89	+	
		-	-	66kV CHP - Chumdo Line	20.64	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	1.05	+	
Total	365.33	Auxiliary Consumption & Transformation Losses at Generator end	0.107%				
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	39.20	+	
		Unit- II	12.20	66kV BHP - Lobeysa Line	27.29	+	
		Total	24.50	220kV BHP - Tsirang Line	-1.52	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.33	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	3.96	+	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Generator end	1.360%		
6	126MW DHP	Unit-I	52.42	220kV DHP - Tsirang Line	104.00	+	220kV DHP_Dagapela Line on standby.
		Unit-II	52.02	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	2.76	+	
		-	-	5MVA, 220/33kV TFR	0.40	+	
		Total	104.44	Auxiliary Consumption & Transformation Losses at Generator end	0.038%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Line	43.25	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	22.21	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.29	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	28.06	+	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	0.379%		

Note: Generation-Load Summary (MW) for October 25, 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	1,647.94	265.91	260.73	1,282.59	5.18
2	Eastern Grid	426.98	69.01	66.81	457.41	2.20
	Total	2,074.92	334.92	327.54	1,740.00	7.38

Note: Generation-Load Summary for October 25, 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	832.32	174.65	166.31	612.50	8.34
2	Eastern Grid	364.98	38.31	38.39	371.84	-0.08
	Total	1,197.30	212.96	204.70	984.34	8.26

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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