

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date: **October 23, 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	185.20	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	184.51	400kV THP - Siliguri Line - II	355.80	+	
		Unit- III	185.85	400kV THP - Siliguri Line- IV	341.04	+	
		Unit- IV	183.79	400kV THP - Malbase Line - III	404.09	+	
		Unit- V	186.51	400kV Malbase - Siliguri Line	320.41	+	
		Unit- VI	184.08	-	-	-	
		Total	1,109.94	Auxiliary Consumption & Transformation Losses at Gen. end	0.812%		
2	720MW MHP	Unit-I	130.39	400kV MHP - Jigmeling Line - I	198.51	+	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	140.30	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	130.73	400kV MHP - Jigmeling Line - III	199.85	+	
		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)	-34.87	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	106.17	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	162.15	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	162.15	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	29.62	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	30.12	+	
		-	-	220kV Tsirang - Jigmeling Line	99.59	+	
-	-	132kV Gelephu - Salakati Line	19.41	+			
Total	401.42	Auxiliary Consumption & Transformation Losses at Gen. end	0.762%				
3	336MW CHP	Unit- I	91.78	220kV CHP - Birpara Line- I	95.59	+	66kV CHP_Gedu line opened at 10:01hrs (08/10/2021) to regulate 66kV voltage.
		Unit- II	91.06	220kV CHP - Birpara Line- II	95.69	+	
		Unit- III	91.70	220kV CHP - Malbase Line- III	117.92	+	
		Unit- IV	91.52	220kV CHP - Semtokha Line- IV	28.30	+	
		-	-	220kV Malbase - Birpara Line	64.57	+	
		-	-	66kV CHP - Chumdo Line	26.17	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	1.45	+	
Total	366.06	Auxiliary Consumption & Transformation Losses at Gen. end	0.257%				
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	53.10	+	Lobeysa Line
		Unit- II	12.20	66kV BHP - Lobeysa Line	30.26	+	
		Total	24.50	220kV BHP - Tsirang Line	-18.45	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.59	+	66kV BHP - Tsirang Line
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	6.95	+	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Gen. end	1.057%		
6	126MW DHP	Unit-I	61.38	220kV DHP - Tsirang Line	121.81	+	220kV DHP_Dagapela Line on standby.
		Unit-II	60.95	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	4.12	+	
		-	-	5MVA, 220/33kV TFR	0.27	+	
		Total	122.33	Auxiliary Consumption & Transformation Losses at Gen. end	0.204%		
7	60MW KHP	Unit- I	16.53	132kV KHP - Nangkhoh Line	39.32	+	Kilikhar Line
		Unit-II	16.51	132kV KHP - Kilikhar Line	25.77	+	
		Unit- III	16.63	5MVA, 132/11kV TFR	0.35	+	
		Unit- IV	16.57	132kV Motanga - Rangia Line	32.42	+	
		Total	66.24	Auxiliary Consumption & Transformation Losses at Gen. end	1.208%		

Note: Generation-Load Summary (MW) for October 23, 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	1,664.53	291.84	285.06	1,273.10	6.78
2	Eastern Grid	467.66	84.95	81.09	482.30	3.86
	Total	2,132.19	376.79	366.15	1,755.40	10.64

Note: Generation-Load Summary for October 23, 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	890.85	201.75	193.74	635.10	8.01
2	Eastern Grid	354.31	49.95	46.28	358.36	3.67
	Total	1,245.16	251.70	240.02	993.46	11.68

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 24, 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	186.27	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	184.59	400kV THP - Siliguri Line - II	362.75	+	
		Unit- III	185.24	400kV THP - Siliguri Line- IV	347.27	+	
		Unit- IV	184.96	400kV THP - Malbase Line - III	391.54	+	
		Unit- V	183.70	400kV Malbase - Siliguri Line	331.18	+	
		Unit- VI	185.03	-	-	-	
		Total	1,109.79	Auxiliary Consumption & Transformation Losses at Generator end	0.742%		
2	720MW MHP	Unit-I	129.89	400kV MHP - Jigmeling Line - I	189.36	+	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	120.16	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	130.89	400kV MHP - Jigmeling Line - III	190.48	+	
		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)	-59.06	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	106.17	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	161.99	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	163.12	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	19.87	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	20.16	+	
		-	-	220kV Tsirang - Jigmeling Line	103.19	+	
-	-	132kV Gelephu - Salakati Line	18.42	+			
Total	380.94	Auxiliary Consumption & Transformation Losses at Generator end	0.289%				
3	336MW CHP	Unit- I	91.27	220kV CHP - Birpara Line- I	91.95	+	66kV CHP_Gedu line opened at 10:01hrs (08/10/2021) to regulate 66kV voltage.
		Unit- II	90.96	220kV CHP - Birpara Line- II	91.71	+	
		Unit- III	91.57	220kV CHP - Malbase Line- III	128.37	+	
		Unit- IV	91.56	220kV CHP - Semtokha Line- IV	31.14	+	
		-	-	220kV Malbase - Birpara Line	49.89	+	
		-	-	66kV CHP - Chumdo Line	19.76	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	1.21	+	
Total	365.36	Auxiliary Consumption & Transformation Losses at Generator end	0.334%				
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	43.20	+	
		Unit- II	12.20	66kV BHP - Lobeysa Line	27.81	+	
		Total	24.50	220kV BHP - Tsirang Line	-6.12	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.56	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	4.50	+	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Generator end	1.133%		
6	126MW DHP	Unit-I	57.37	220kV DHP - Tsirang Line	111.85	+	220kV DHP_Dagapela Line on standby.
		Unit-II	54.93	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	3.26	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	112.30	Auxiliary Consumption & Transformation Losses at Generator end	0.134%		
7	60MW KHP	Unit- I	16.54	132kV KHP - Nangkhon Line	43.16	+	
		Unit-II	16.67	132kV KHP - Kilikhar Line	22.10	+	
		Unit- III	16.47	5MVA, 132/11kV TFR	0.28	+	
		Unit- IV	16.54	132kV Motanga - Rangia Line	27.80	+	
		Total	66.22	Auxiliary Consumption & Transformation Losses at Generator end	1.027%		

Note: Generation-Load Summary (MW) for October 24, 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	1,653.65	275.71	268.62	1,274.75	7.09
2	Eastern Grid	447.16	72.85	71.07	477.50	1.78
	Total	2,100.81	348.56	339.69	1,752.25	8.87

Note: Generation-Load Summary for October 24, 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	858.04	151.22	143.77	662.63	7.45
2	Eastern Grid	363.94	37.31	35.06	370.82	2.25
	Total	1,221.98	188.53	178.83	1,033.45	9.70

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

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- 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.
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