

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date: **August 30, 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	185.64	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	184.59	400kV THP - Siliguri Line - II	354.21	+	
		Unit- III	185.91	400kV THP - Siliguri Line- IV	337.67	+	
		Unit- IV	185.36	400kV THP - Malbase Line - III	412.97	+	
		Unit- V	185.98	400kV Malbase - Siliguri Line	314.95	+	
		Unit- VI	185.58	-	-	-	
		Total	1,113.06	Auxiliary Consumption & Transformation Losses at Gen. end	0.738%		
2	720MW MHP	Unit-I	197.84	400kV MHP - Jigmeling Line - I	391.91	+	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	197.21	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	197.75	400kV MHP - Jigmeling Line - III	393.60	+	
		Unit-IV	197.39	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)	-19.30	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	196.34	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	298.33	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	298.33	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	35.60	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	35.70	+	
		-	-	220kV Tsirang - Jigmeling Line	92.66	+	
-	-	132kV Gelephu - Salakati Line	29.31	+			
Total	790.19	Auxiliary Consumption & Transformation Losses at Gen. end	0.592%				
3	336MW CHP	Unit- I	91.55	220kV CHP - Birpara Line- I	101.28	+	
		Unit- II	91.15	220kV CHP - Birpara Line- II	101.02	+	
		Unit- III	91.01	220kV CHP - Malbase Line- III	131.14	+	
		Unit- IV	91.51	220kV CHP - Semtokha Line- IV	13.52	+	
		-	-	220kV Malbase - Birpara Line	63.25	+	
		-	-	66kV CHP - Chumdo Line	10.03	+	
		-	-	66kV CHP - Gedu Line	6.25	+	
		-	-	3x3MVA, 66/11kV TFR	1.31	+	
		Total	365.22	Auxiliary Consumption & Transformation Losses at Gen. end	0.183%		
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	66.60	+	
		Unit- II	12.20	66kV BHP - Lobeyssa Line	26.72	+	
		Total	24.50	220kV BHP - Tsirang Line	-28.40	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.93	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	3.77	+	
		Total	41.80	Auxiliary Consumption & Transformation Losses at Gen. end	0.679%		
6	126MW DHP	Unit-I	63.58	220kV DHP - Tsirang Line	126.22	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.22	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	2.00	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	126.80	Auxiliary Consumption & Transformation Losses at Gen. end	0.221%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Line	38.33	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	25.66	+	
		Unit- III	15.50	5MVA, 132/11kV TFR	0.35	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	44.01	+	
		Total	65.00	Auxiliary Consumption & Transformation Losses at Gen. end	1.010%		

Note: Generation-Load Summary (MW) for August 30, 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	1,671.38	306.34	298.73	1,272.38	7.61
2	Eastern Grid	855.19	81.53	76.19	866.32	5.34
Total		2,526.57	387.87	374.92	2,138.70	12.95

Note: Generation-Load Summary for August 30, 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	1,658.67	192.05	176.00	1,390.77	16.05
2	Eastern Grid	667.60	87.47	60.85	655.98	26.62
Total		2,326.27	279.52	236.85	2,046.75	42.67

NOTE-BHP and MHP 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:	August 31, 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	185.37	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	184.62	400kV THP - Siliguri Line - II	364.84	+	
		Unit- III	185.34	400kV THP - Siliguri Line- IV	348.43	+	
		Unit- IV	185.45	400kV THP - Malbase Line - III	391.12	+	
		Unit- V	186.08	400kV Malbase - Siliguri Line	332.38	+	
		Unit- VI	185.55	-	-	-	
		Total	1,112.41	Auxiliary Consumption & Transformation Losses at Generator end	0.721%		
2	720MW MHP	Unit-I	197.71	400kV MHP - Jigmeling Line - I	390.30	+	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	194.71	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	197.65	400kV MHP - Jigmeling Line - III	392.30	+	
		Unit-IV	197.09	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)	-60.10	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	206.50	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	313.68	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	313.68	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	27.00	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	27.00	+	
		-	-	220kV Tsirang - Jigmeling Line	116.81	+	
-	-	132kV Gelephu - Salakati Line	26.78	+			
Total	787.16	Auxiliary Consumption & Transformation Losses at Generator end	0.579%				
3	336MW CHP	Unit- I	91.20	220kV CHP - Birpara Line- I	106.62	+	
		Unit- II	91.48	220kV CHP - Birpara Line- II	107.12	+	
		Unit- III	91.14	220kV CHP - Malbase Line- III	155.45	+	
		Unit- IV	91.45	220kV CHP - Semtokha Line- IV	-23.28	-	
		-	-	220kV Malbase - Birpara Line	54.52	+	
		-	-	66kV CHP - Chumdo Line	5.07	+	
		-	-	66kV CHP - Gedu Line	6.75	+	
		-	-	3x3MVA, 66/11kV TFR	0.79	+	
		Total	365.27	Auxiliary Consumption & Transformation Losses at Generator end	1.848%		
4	24MW BHP (U/S)	Unit- I	12.40	220kV BHP - Semtokha Line	57.20	+	
		Unit- II	12.20	66kV BHP - Lobeysa Line	12.81	+	
		Total	24.60	220kV BHP - Tsirang Line	-6.49	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.91	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	6.84	+	
		Total	41.80	Auxiliary Consumption & Transformation Losses at Generator end	2.967%		
6	126MW DHP	Unit-I	63.64	220kV DHP - Tsirang Line	126.26	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.20	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.10	+	
		-	-	5MVA, 220/33kV TFR	0.57	+	
		Total	126.84	Auxiliary Consumption & Transformation Losses at Generator end	0.008%		
7	60MW KHP	Unit- I	16.57	132kV KHP - Nangkhoh Line	41.45	+	
		Unit-II	16.61	132kV KHP - Kilikhar Line	23.32	+	
		Unit- III	16.02	5MVA, 132/11kV TFR	0.27	+	
		Unit- IV	16.63	132kV Motanga - Rangia Line	35.50	+	
		Total	65.83	Auxiliary Consumption & Transformation Losses at Generator end	1.200%		

Note: Generation-Load Summary (MW) for August 31, 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	1,670.92	240.20	224.55	1,313.91	15.65
2	Eastern Grid	852.99	73.66	68.31	896.14	5.35
Total		2,523.91	313.86	292.86	2,210.05	21.00

Note: Generation-Load Summary for August 31, 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	1,560.93	205.03	185.43	1,282.00	19.60
2	Eastern Grid	608.89	69.45	42.91	613.34	26.54
Total		2,169.82	274.48	228.34	1,895.34	46.14

NOTE-BHP data collected from site

- 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:
 - 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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