

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	August 28, 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	185.63	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	174.99	400kV THP - Siliguri Line - II	346.61	+	
		Unit- III	185.06	400kV THP - Siliguri Line- IV	329.64	+	
		Unit- IV	186.70	400kV THP - Malbase Line - III	416.13	+	
		Unit- V	179.14	400kV Malbase - Siliguri Line	304.35	+	
		Unit- VI	185.58	-	-	-	
		Total	1,097.10	Auxiliary Consumption & Transformation Losses at Gen. end	0.430%		
2	720MW MHP	Unit-I	197.71	400kV MHP - Jigmeling Line - I	387.60	+	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	194.71	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	197.65	400kV MHP - Jigmeling Line - III	386.10	+	
		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)	-17.10	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	196.34	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	297.90	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	297.90	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	39.30	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	39.30	+	
		-	-	220kV Tsirang - Jigmeling Line	98.68	+	
-	-	132kV Gelephu - Salakati Line	31.87	+			
Total	787.16	Auxiliary Consumption & Transformation Losses at Gen. end	1.710%				
3	336MW CHP	Unit- I	91.53	220kV CHP - Birpara Line- I	101.00	+	
		Unit- II	91.10	220kV CHP - Birpara Line- II	100.93	+	
		Unit- III	91.74	220kV CHP - Malbase Line- III	124.05	+	
		Unit- IV	91.65	220kV CHP - Semtokha Line- IV	56.69	+	
		-	-	220kV Malbase - Birpara Line	68.79	+	
		-	-	66kV CHP - Chumdo Line	10.05	+	
		-	-	66kV CHP - Gedu Line	5.52	+	
		-	-	3x3MVA, 66/11kV TFR	1.40	+	
Total	366.02	Auxiliary Consumption & Transformation Losses at Gen. end	-9.185%				
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	61.00	+	
		Unit- II	12.30	66kV BHP - Lobeysa Line	27.70	+	
		Total	24.60	220kV BHP - Tsirang Line	-23.02	-	
5	40MW BHP (L/S)	Unit- I	20.80	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	21.20	30MVA ICT, 220/66kV (HV)	3.91	+	
		Total	42.00	Auxiliary Consumption & Transformation Losses at Gen. end	0.060%		
6	126MW DHP	Unit-I	63.57	220kV DHP - Tsirang Line	126.13	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.13	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.90	+	
		-	-	5MVA, 220/33kV TFR	0.54	+	
		Total	126.70	Auxiliary Consumption & Transformation Losses at Gen. end	0.024%		
7	60MW KHP	Unit- I	16.58	132kV KHP - Nangkhon Line	36.70	+	
		Unit-II	16.66	132kV KHP - Kilikhar Line	28.39	+	
		Unit- III	16.61	5MVA, 132/11kV TFR	0.35	+	
		Unit- IV	16.58	132kV Motanga - Rangia Line	49.00	+	
		Total	66.43	Auxiliary Consumption & Transformation Losses at Gen. end	1.490%		

Note: Generation-Load Summary (MW) for August 28, 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	1,656.42	306.42	337.15	1,251.32	-30.73
2	Eastern Grid	853.59	79.26	64.81	873.01	14.45
Total		2,510.01	385.68	401.96	2,124.33	-16.28

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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	1,660.96	201.45	182.98	1,347.95	18.47
2	Eastern Grid	660.55	111.55	89.31	660.56	22.24
Total		2,321.51	313.00	272.29	2,008.51	40.71

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.
 - The clocks of all the locations are not synchronized.
- 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 29, 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	184.65	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	188.63	400kV THP - Siliguri Line - II	358.73	+	
		Unit- III	185.72	400kV THP - Siliguri Line- IV	340.74	+	
		Unit- IV	185.36	400kV THP - Malbase Line - III	407.01	+	
		Unit- V	185.94	400kV Malbase - Siliguri Line	319.96	+	
		Unit- VI	185.32	-	-	-	
		Total	1,115.62	Auxiliary Consumption & Transformation Losses at Generator end	0.819%		
2	720MW MHP	Unit-I	197.92	400kV MHP - Jigmeling Line - I	391.36	+	400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALLI Line I(Interim) on standby.
		Unit-II	196.01	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	197.66	400kV MHP - Jigmeling Line - III	393.73	+	
		Unit-IV	196.87	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)	-57.00	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	206.52	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	311.70	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	311.70	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	25.80	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	25.90	+	
		-	-	220kV Tsirang - Jigmeling Line	109.51	+	
-	-	132kV Gelephu - Salakati Line	26.70	+			
Total	788.46	Auxiliary Consumption & Transformation Losses at Generator end	0.427%				
3	336MW CHP	Unit- I	91.48	220kV CHP - Birpara Line- I	94.76	+	
		Unit- II	90.92	220kV CHP - Birpara Line- II	94.47	+	
		Unit- III	91.67	220kV CHP - Malbase Line- III	137.70	+	
		Unit- IV	91.49	220kV CHP - Semtokha Line- IV	56.69	+	
		-	-	220kV Malbase - Birpara Line	47.51	+	
		-	-	66kV CHP - Chumdo Line	6.86	+	
		-	-	66kV CHP - Gedu Line	5.77	+	
		-	-	3x3MVA, 66/11kV TFR	0.89	+	
		Total	365.56	Auxiliary Consumption & Transformation Losses at Generator end	-8.639%		
4	24MW BHP (U/S)	Unit- I	12.40	220kV BHP - Semtokha Line	76.30	+	
		Unit- II	12.30	66kV BHP - Lobeyasa Line	2.74	+	
		Total	24.70	220kV BHP - Tsirang Line	-13.62	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	21.20	30MVA ICT, 220/66kV (HV)	-20.88	-	
		Total	41.90	Auxiliary Consumption & Transformation Losses at Generator end	0.435%		
6	126MW DHP	Unit-I	63.64	220kV DHP - Tsirang Line	126.35	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.19	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.30	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	126.83	Auxiliary Consumption & Transformation Losses at Generator end	0.142%		
7	60MW KHP	Unit- I	16.66	132kV KHP - Nangkhon Line	41.46	+	
		Unit-II	16.64	132kV KHP - Kilikhar Line	23.95	+	
		Unit- III	16.53	5MVA, 132/11kV TFR	0.27	+	
		Unit- IV	16.76	132kV Motanga - Rangia Line	31.70	+	
		Total	66.59	Auxiliary Consumption & Transformation Losses at Generator end	1.361%		

Note: Generation-Load Summary (MW) for August 29, 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	1,674.61	308.93	332.20	1,256.17	-23.27
2	Eastern Grid	855.05	76.24	71.97	888.32	4.27
	Total	2,529.66	385.17	404.17	2,144.49	-19.00

Note: Generation-Load Summary for August 29, 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	1,351.15	197.25	180.07	1,391.55	17.18
2	Eastern Grid	668.35	56.75	43.93	681.98	12.82
	Total	2,019.50	254.00	224.00	2,073.53	30.00

NOTE-BHP & 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.
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