

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date: September 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	136.95	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	138.47	400kV THP - Siliguri Line - II	254.34	+	
		Unit- III	138.97	400kV THP - Siliguri Line- IV	244.11	+	
		Unit- IV	138.38	400kV THP - Malbase Line - III	325.54	+	
		Unit- V	137.14	400kV Malbase - Siliguri Line	221.43	+	
		Unit- VI	140.08	-	-	-	
		Total	829.99	Auxiliary Consumption & Transformation Losses at Gen. end	0.723%		
2	720MW MHP	Unit-I	109.89	400kV MHP - Jigmeling Line - I	253.16	+	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. (There is MW power difference of 9.57 MW between Total MHP generation & outgoing feeder at JLG end)
		Unit-II	130.69	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	131.17	400kV MHP - Jigmeling Line - III	254.78	+	
		Unit-IV	140.46	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)	-0.40	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	125.08	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	188.98	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	188.98	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	32.20	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	32.20	+	
		-	-	220kV Tsirang - Jigmeling Line	67.69	+	
-	-	132kV Gelephu - Salakati Line	27.00	+			
Total	512.21	Auxiliary Consumption & Transformation Losses at Gen. end	0.834%				
3	336MW CHP	Unit- I	91.40	220kV CHP - Birpara Line- I	90.35	+	
		Unit- II	91.18	220kV CHP - Birpara Line- II	90.69	+	
		Unit- III	91.50	220kV CHP - Malbase Line- III	116.15	+	
		Unit- IV	91.26	220kV CHP - Semtokha Line- IV	49.38	+	
		-	-	220kV Malbase - Birpara Line	57.50	+	
		-	-	66kV CHP - Chumdo Line	10.65	+	
		-	-	66kV CHP - Gedu Line	5.91	+	
		-	-	3x3MVA, 66/11kV TFR	1.10	+	
		Total	365.34	Auxiliary Consumption & Transformation Losses at Gen. end	0.304%		
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	45.30	+	
		Unit- II	12.20	66kV BHP - Lobeyssa Line	28.50	+	
		Total	24.50	220kV BHP - Tsirang Line	-9.24	-	
5	40MW BHP (L/S)	Unit- I	21.10	5MVA, 66/11kV TFR	0.39	+	
		Unit- II	20.70	30MVA ICT, 220/66kV (HV)	5.62	+	
		Total	41.80	Auxiliary Consumption & Transformation Losses at Gen. end	2.036%		
6	126MW DHP	Unit-I	51.08	220kV DHP - Tsirang Line	80.58	+	220kV DHP_Dagapela Line on standby.
		Unit-II	29.99	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	2.20	+	
		-	-	5MVA, 220/33kV TFR	0.49	+	
		Total	81.07	Auxiliary Consumption & Transformation Losses at Gen. end	0.000%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	37.62	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	27.33	+	
		Unit- III	16.46	5MVA, 132/11kV TFR	0.39	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	42.06	+	
		Total	65.96	Auxiliary Consumption & Transformation Losses at Gen. end	0.934%		

Note: Generation-Load Summary (MW) for September 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	1,342.70	316.59	310.33	958.42	6.26
2	Eastern Grid	578.17	73.76	68.87	572.10	4.89
	Total	1,920.87	390.35	379.20	1,530.52	11.15

Note: Generation-Load Summary for September 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	1,678.02	214.21	201.27	1,386.09	12.94
2	Eastern Grid	658.53	53.73	49.88	682.52	3.85
	Total	2,336.55	267.94	251.15	2,068.61	16.79

NOTE-BHP, KHP, JLG and MHPA 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:	September 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	136.86	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	138.08	400kV THP - Siliguri Line - II	260.04	+	
		Unit- III	139.08	400kV THP - Siliguri Line- IV	248.23	+	
		Unit- IV	139.75	400kV THP - Malbase Line - III	317.15	+	
		Unit- V	137.23	400kV Malbase - Siliguri Line	228.65	+	
		Unit- VI	139.10	-	-	-	
		Total	830.10	Auxiliary Consumption & Transformation Losses at Generator end	0.564%		
2	720MW MHP	Unit-I	145.04	400kV MHP - Jigmeling Line - I	293.57	+	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. (There is MW power difference of 8.36 MW between Total MHP generation & outgoing feeder at JLG end)
		Unit-II	150.15	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	150.19	400kV MHP - Jigmeling Line - III	294.87	+	
		Unit-IV	144.00	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)	-17.62	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	147.62	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	225.51	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	225.51	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	25.21	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	25.63	+	
		-	-	220kV Tsirang - Jigmeling Line	70.85	+	
-	-	132kV Gelephu - Salakati Line	25.19	+			
Total	589.38	Auxiliary Consumption & Transformation Losses at Generator end	0.159%				
3	336MW CHP	Unit- I	92.20	220kV CHP - Birpara Line- I	96.58	+	
		Unit- II	91.13	220kV CHP - Birpara Line- II	95.84	+	
		Unit- III	91.49	220kV CHP - Malbase Line- III	122.93	+	
		Unit- IV	90.97	220kV CHP - Semtokha Line- IV	33.13	+	
		-	-	220kV Malbase - Birpara Line	48.43	+	
		-	-	66kV CHP - Chumdo Line	6.80	+	
		-	-	66kV CHP - Gedu Line	6.86	+	
		-	-	3x3MVA, 66/11kV TFR	0.66	+	
		Total	365.79	Auxiliary Consumption & Transformation Losses at Generator end	0.817%		
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	41.90	+	
		Unit- II	12.20	66kV BHP - Lobeysa Line	27.90	+	
		Total	24.50	220kV BHP - Tsirang Line	-4.50	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	4.18	+	
		Total	41.80	Auxiliary Consumption & Transformation Losses at Generator end	0.181%		
6	126MW DHP	Unit-I	53.39	220kV DHP - Tsirang Line	105.85	+	220kV DHP_Dagapela Line on standby.
		Unit-II	52.88	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.73	+	
		-	-	5MVA, 220/33kV TFR	0.40	+	
		Total	106.27	Auxiliary Consumption & Transformation Losses at Generator end	0.019%		
7	60MW KHP	Unit- I	16.47	132kV KHP - Nangkhon Line	39.92	+	
		Unit-II	16.54	132kV KHP - Kilikhar Line	24.85	+	
		Unit- III	16.02	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.56	132kV Motanga - Rangia Line	49.03	+	
		Total	65.59	Auxiliary Consumption & Transformation Losses at Generator end	0.797%		

Note: Generation-Load Summary (MW) for September 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	1,368.46	319.84	313.76	977.77	6.08
2	Eastern Grid	654.97	52.96	51.50	672.86	1.46
Total		2,023.43	372.80	365.26	1,650.63	7.54

Note: Generation-Load Summary for September 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	1,678.43	175.12	157.08	1,427.29	18.04
2	Eastern Grid	659.23	42.31	39.04	692.92	3.27
Total		2,337.66	217.43	196.12	2,120.21	21.31

NOTE-BHP & MHPA 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:
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