

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	July 11, 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	185.44	400kV THP - Siliguri Line - I			400kV THP-Siliguri Line I under breakdown.
		Unit- II	183.06	400kV THP - Siliguri Line - II	354.25	+	
		Unit- III	184.28	400kV THP - Siliguri Line- IV	339.53	+	
		Unit- IV	184.83	400kV THP - Malbase Line - III	412.50	+	
		Unit- V	185.46	400kV Malbase - Siliguri Line	314.61	+	
		Unit- VI	186.30	-	-	-	
		Total	1,109.37	Auxiliary Consumption & Transformation Losses at Gen. end	0.279%		
2	720MW MHP	Unit-I	197.86	400kV MHP - Jigmeling Line - I	293.64	+	Unit-III under Restoration 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II(Interim) under shutdown.
		Unit-II	197.54	400kV MHP - Jigmeling Line - II			
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.43	+	
		Unit-IV	197.58	400kV MHP - Jigmeling Line - IV			
		-	-	132kV MHP - Yurmo Line - I			
		-	-	132kV MHP - Yurmo Line - II			
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	-57.30	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	160.60	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)			
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	239.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	239.00	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	39.50	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	39.50	+	
		-	-	220kV Tsirang - Jigmeling Line	126.30	+	
-	-	132kV Gelephu - Salakati Line	22.57	+			
Total	592.98	Auxiliary Consumption & Transformation Losses at Gen. end	0.659%				
3	336MW CHP	Unit- I	92.00	220kV CHP - Birpara Line- I	100.44	+	
		Unit- II	91.21	220kV CHP - Birpara Line- II	100.51	+	
		Unit- III	91.80	220kV CHP - Malbase Line- III	129.22	+	
		Unit- IV	91.34	220kV CHP - Semtokha Line- IV	19.73	+	
		-	-	220kV Malbase - Birpara Line	63.99	+	
		-	-	66kV CHP - Chumdo Line	8.81	+	
		-	-	66kV CHP - Gedu Line	4.98	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
		Total	366.35	Auxiliary Consumption & Transformation Losses at Gen. end	0.399%		
4	24MW BHP (U/S)	Unit- I	12.20	220kV BHP - Semtokha Line	36.74	+	30MVA ICT(220/66kV) under shutdown.
		Unit- II	12.10	66kV BHP - Lobeysa Line	22.70	+	
		Total	24.30	220kV BHP - Tsirang Line	4.55	+	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.95	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)			
		Total	41.50	Auxiliary Consumption & Transformation Losses at Gen. end	1.307%		
6	126MW DHP	Unit-I	63.69	220kV DHP - Tsirang Line	126.41	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.22	220kV DHP - Dagapela Line			
		-	-	220kV Jigmeling - Dagapela Line	1.80	+	
		-	-	5MVA, 220/33kV TFR	0.33	+	
		Total	126.91	Auxiliary Consumption & Transformation Losses at Gen. end	0.134%		
7	60MW KHP	Unit- I	16.58	132kV KHP - Nangkhor Line	38.19	+	
		Unit-II	16.56	132kV KHP - Kilikhar Line	27.11	+	
		Unit- III	16.57	5MVA, 132/11kV TFR	0.34	+	
		Unit- IV	16.77	132kV Motanga - Rangia Line	44.86	+	
		Total	66.48	Auxiliary Consumption & Transformation Losses at Gen. end	1.264%		

Note: Generation-Load Summary (MW) for July 11, 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	1,668.43	268.80	265.02	1,273.33	3.78
2	Eastern Grid	659.46	79.73	74.98	706.03	4.75
	Total	2,327.89	348.53	340.00	1,979.36	8.53

Note: Generation-Load Summary for July 11, 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	1,678.25	216.20	200.89	1,369.35	15.31
2	Eastern Grid	850.52	63.17	58.34	880.05	4.83
	Total	2,528.77	279.37	259.23	2,249.40	20.14

NOTE-MAT,KHP ,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:	July 12, 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	185.56	400kV THP - Siliguri Line - I			400kV THP-Siliguri Line I under breakdown.
		Unit- II	183.99	400kV THP - Siliguri Line - II	360.44	+	
		Unit- III	185.41	400kV THP - Siliguri Line- IV	345.04	+	
		Unit- IV	184.03	400kV THP - Malbase Line - III	399.73	+	
		Unit- V	185.31	400kV Malbase - Siliguri Line	326.38	+	
		Unit- VI	186.67	-	-	-	
		Total	1,110.97	Auxiliary Consumption & Transformation Losses at Generator end	0.518%		
2	720MW MHP	Unit-I	197.91	400kV MHP - Jigmeling Line - I	294.24	+	Unit-III on Restoration. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line II (Interim) under standby.
		Unit-II	197.82	400kV MHP - Jigmeling Line - II			
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	296.98	+	
		Unit-IV	197.81	400kV MHP - Jigmeling Line - IV			
		-	-	132kV MHP - Yurmo Line - I			
		-	-	132kV MHP - Yurmo Line - II			
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	-63.40	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	162.05	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)			
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	243.63	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	242.47	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	30.10	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	30.10	+	
		-	-	220kV Tsirang - Jigmeling Line	124.50	+	
-	-	132kV Gelephu - Salakati Line	24.50	+			
Total	593.54	Auxiliary Consumption & Transformation Losses at Generator end	0.391%				
3	336MW CHP	Unit- I	91.40	220kV CHP - Birpara Line- I	104.78	+	
		Unit- II	91.26	220kV CHP - Birpara Line- II	104.96	+	
		Unit- III	91.39	220kV CHP - Malbase Line- III	141.05	+	
		Unit- IV	91.99	220kV CHP - Semtokha Line- IV	4.12	+	
		-	-	220kV Malbase - Birpara Line	62.20	+	
		-	-	66kV CHP - Chumdo Line	4.66	+	
		-	-	66kV CHP - Gedu Line	5.40	+	
		-	-	3x3MVA, 66/11kV TFR	0.70	+	
		Total	366.04	Auxiliary Consumption & Transformation Losses at Generator end	0.101%		
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	40.02	+	30MVA ICT(220/66kV) under shutdown
		Unit- II	12.10	66kV BHP - Lobeysa Line	22.70	+	
		Total	24.40	220kV BHP - Tsirang Line	1.12	+	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.91	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)			
		Total	41.50	Auxiliary Consumption & Transformation Losses at Generator end	1.745%		
6	126MW DHP	Unit-I	63.67	220kV DHP - Tsirang Line	126.45	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.17	220kV DHP - Dagapela Line			
		-	-	220kV Jigmeling - Dagapela Line	1.00	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	126.84	Auxiliary Consumption & Transformation Losses at Generator end	0.071%		
7	60MW KHP	Unit- I	16.52	132kV KHP - Nangkor Line	39.96	+	
		Unit-II	16.48	132kV KHP - Kilikhar Line	25.15	+	
		Unit- III	16.57	5MVA, 132/11kV TFR	0.32	+	
		Unit- IV	16.56	132kV Motanga - Rangia Line	43.70	+	
		Total	66.13	Auxiliary Consumption & Transformation Losses at Generator end	1.059%		

Note: Generation-Load Summary (MW) for July 12, 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	1,669.75	241.45	235.08	1,303.80	6.37
2	Eastern Grid	659.67	67.82	64.80	716.35	3.02
	Total	2,329.42	309.27	299.88	2,020.15	9.39

Note: Generation-Load Summary for July 12, 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	1,678.62	223.97	204.87	1,379.69	19.10
2	Eastern Grid	849.95	43.11	40.08	881.80	3.03
	Total	2,528.57	267.08	244.95	2,261.49	22.13

NOTE-KHP,BHP & MHEP 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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