

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	May 7, 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	120.42	400kV THP - Siliguri Line - I	150.27	+	Unit-III & IV under AMP. 400kV THP_SIL Line II & IV on Standby.
		Unit- II	81.30	400kV THP - Siliguri Line - II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	210.79	+	
		Unit- V	90.48	400kV Malbase - Siliguri Line	128.60	+	
		Unit- VI	79.78	-	-	-	
		Total	371.98	Error at Station/Auxiliary Consumption/Losses		2.936%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	+	Unit-I under AMP. Unit -III under breakdown. 400kV MHP-JLG Line I & III on standby. 132kV MHP_Yurmo line I & II not in service. 400/220kV ICT at JLG not in service. 400kV JLG_ALI line II on standby.
		Unit-II	80.17	400kV MHP - Jigmeling Line - II	102.54		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00		
		Unit-IV	130.38	400kV MHP - Jigmeling Line - IV	102.54	+	
		-	-	132kV MHP - Yurmo Line - I	0.00		
		-	-	132kV MHP - Yurmo Line - II	0.00		
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I	205.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	12.63	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	12.73	+	
		-	-	220kV Tsirang - Jigmeling Line	27.26	+	
		-	-	132kV Gelephu - Salakati Line	-14.97	-	
Total	210.55	Error at Station/Auxiliary Consumption/Losses		2.598%			
3	336MW CHP	Unit- I	54.72	220kV CHP - Birpara Line- I	26.57	+	Unit-IV under AMP.
		Unit- II	65.40	220kV CHP - Birpara Line- II	26.75	+	
		Unit- III	60.73	220kV CHP - Malbase Line- III	58.04	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	49.88	+	
		-	-	220kV Malbase - Birpara Line	-0.58	-	
		-	-	66kV CHP - Chumdo Line	11.90	+	
		-	-	66kV CHP - Gedu Line	4.43	+	
		-	-	3x3MVA, 66/11kV TFR	1.50	+	
Total	180.85	Error at Station/Auxiliary Consumption/Losses		0.984%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	3.06	+	Upper Stage Unit I and Lower Stage Unit I on standby.
		Unit- II	6.90	66kV BHP - Lobeysa Line	9.70	+	
		Total	6.90	220kV BHP - Tsirang Line	9.50	+	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	14.80	30MVA ICT, 220/66kV (HV)	5.02	+	
Total	14.80	Error at Station/Auxiliary Consumption/Losses		-6.728%			
5	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	19.96	+	Unit-I on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	20.47	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.91	+	
		-	-	5MVA, 220/33kV TFR	0.20	+	
		Total	20.47	Error at Station/Auxiliary Consumption/Losses		1.514%	
6	60MW KHP	Unit- I	10.10	132kV KHP - Nangkhor Line	20.62	+	
		Unit-II	10.13	132kV KHP - Kilikhar Line	18.59	+	
		Unit- III	10.01	5MVA, 132/11kV TFR	0.34	+	
		Unit- IV	10.06	132kV Motanga - Rangia Line	17.83	+	
		Total	40.30	Error at Station/Auxiliary Consumption/Losses		1.856%	

Note: Generation-Load Summary (MW) for May 07, 2021 at 19:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Load Balance (MW)
1	Western Grid	595.00	236.13	226.49	331.61	9.64
2	Eastern Grid	250.85	70.25	64.03	207.86	6.22
Total		845.85	306.38	290.52	539.47	15.86

Note: Generation-Load Summary for May 07, 2020 at 19:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Load Balance (MW)
1	Western Grid	562.22	170.54	160.53	359.49	10.01
2	Eastern Grid	295.00	65.38	59.70	261.81	5.68
Total		857.22	235.92	220.23	621.30	15.69

NOTE-BHP & MHP data collected 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:	May 8, 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	68.66	400kV THP - Siliguri Line - I	85.17	+	Unit-V on standby. Unit-III & IV under AMP. 400kV THP_SIL Line II & IV on Standby.
		Unit- II	78.58	400kV THP - Siliguri Line - II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	130.10	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	68.11	+	
		Unit- VI	71.19	-	-	-	
		Total	218.43	Error at Station/Auxiliary Consumption/Losses		1.447%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	+	Unit-I under AMP. Unit -III under breakdown. 400kV MHP-JLG Line I & III on standby. 132kV MHP_Yurmoo line I & II not in service. 400/220kV ICT at JLG not in service. 400kV JLG_ALI line II on standby.
		Unit-II	80.28	400kV MHP - Jigmeling Line - II	114.51		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00		
		Unit-IV	150.29	400kV MHP - Jigmeling Line - IV	114.49	+	
		-	-	132kV MHP - Yurmo Line - I	0.00		
		-	-	132kV MHP - Yurmo Line - II	0.00		
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I	226.48	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	4.06	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	4.09	+	
		-	-	220kV Tsirang - Jigmeling Line	9.67	+	
		-	-	132kV Gelephu - Salakati Line	-12.40	-	
Total	230.57	Error at Station/Auxiliary Consumption/Losses		0.681%			
3	336MW CHP	Unit- I	33.88	220kV CHP - Birpara Line- I	12.68	+	CHP Unit-IV under shutdown.
		Unit- II	43.69	220kV CHP - Birpara Line- II	12.84	+	
		Unit- III	45.27	220kV CHP - Malbase Line- III	58.44	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	23.24	+	
		-	-	220kV Malbase - Birpara Line	-23.92	+	
		-	-	66kV CHP - Chumdo Line	8.43	+	
		-	-	66kV CHP - Gedu Line	4.27	+	
		-	-	3x3MVA, 66/11kV TFR	1.00	+	
Total	122.84	Error at Station/Auxiliary Consumption/Losses		1.579%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	10.40	+	U/S Unit-I under standby. L/S Unit-I under standby.
		Unit- II	6.10	66kV BHP - Lobeysa Line	9.50	+	
		Total	6.10	220kV BHP - Tsirang Line	-1.60	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	13.10	30MVA ICT, 220/66kV (HV)	4.30	+	
Total	13.10	Error at Station/Auxiliary Consumption/Losses		0.052%			
5	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	18.16	+	Unit-I on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	18.35	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.27	+	
		-	-	5MVA, 220/33kV TFR	0.18	+	
		Total	18.35	Error at Station/Auxiliary Consumption/Losses		0.054%	
6	60MW KHP	Unit- I	12.10	132kV KHP - Nangkhor Line	29.27	+	
		Unit-II	12.09	132kV KHP - Kilikhar Line	16.21	+	
		Unit- III	11.08	5MVA, 132/11kV TFR	0.29	+	
		Unit- IV	11.11	132kV Motanga - Rangia Line	17.38	+	
		Total	46.38	Error at Station/Auxiliary Consumption/Losses		1.318%	

Note: Generation-Load Summary (MW) for May 08, 2021 at 09:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Load Balance (MW)
1	Western Grid	378.82	214.27	210.42	154.88	3.85
2	Eastern Grid	276.95	55.16	52.98	231.46	2.18
Total		655.77	269.43	263.40	386.34	6.03

Note: Generation-Load Summary for May 08, 2020 at 09:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Load Balance (MW)
1	Western Grid	590.58	199.77	191.96	385.72	7.81
2	Eastern Grid	423.93	49.29	45.98	379.73	3.31
Total		1,014.51	249.06	237.94	765.45	11.12

NOTE- BHP & MHP data collected 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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