

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	May 19, 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	0.00	400kV THP - Siliguri Line - I	86.00	+	Unit-I,IV & V on standby. 400kV THP_SIL Line IV on Standby.
		Unit- II	100.00	400kV THP - Siliguri Line - II	85.00		
		Unit- III	130.00	400kV THP - Siliguri Line- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	150.00	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	68.26	+	
		Unit- VI	100.00	-	-	-	
		Total	330.00	Error at Station/Auxiliary Consumption/Losses		2.727%	
2	720MW MHP	Unit-I	169.91	400kV MHP - Jigmeling Line - I	0.00		Unit-II on standby 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	0.00	400kV MHP - Jigmeling Line - II	168.74	+	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00		
		Unit-IV	170.25	400kV MHP - Jigmeling Line - IV	169.15	+	
		-	-	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	335.20	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	7.70	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	7.70	+	
		-	-	220kV Tsirang - Jigmeling Line	17.27	+	
		-	-	132kV Gelephu - Salakati Line	-12.69	-	
Total	340.16	Error at Station/Auxiliary Consumption/Losses		0.667%			
3	336MW CHP	Unit- I	54.38	220kV CHP - Birpara Line- I	25.27	+	Unit-II on standby. 220kV CHP-MAL line under shutdown.
		Unit- II	0.00	220kV CHP - Birpara Line- II	25.14	+	
		Unit- III	54.05	220kV CHP - Malbase Line- III	51.23		
		Unit- IV	57.45	220kV CHP - Semtokha Line- IV	47.59	+	
		-	-	220kV Malbase - Birpara Line	1.54	-	
		-	-	66kV CHP - Chumdo Line	9.09	+	
		-	-	66kV CHP - Gedu Line	5.26	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
Total	165.88	Error at Station/Auxiliary Consumption/Losses		0.663%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	-10.72	-	U/S Unit-I & L/S Unit I on standby.
		Unit- II	4.90	66kV BHP - Lobeyasa Line	20.30	+	
		Total	4.90	220kV BHP - Tsirang Line	4.54	+	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	10.20	30MVA ICT, 220/66kV (HV)	16.14	+	
Total	10.20	Error at Station/Auxiliary Consumption/Losses		0.662%			
5	126MW DHP	Unit-I	15.22	220kV DHP - Tsirang Line	14.94	+	Unit-II on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.90	+	
		-	-	5MVA, 220/33kV TFR	0.09	+	
		Total	15.22	Error at Station/Auxiliary Consumption/Losses		1.248%	
6	60MW KHP	Unit- I	16.22	132kV KHP - Nangkhor Line	38.10	+	Unit-I on standby.
		Unit-II	16.15	132kV KHP - Kilikhar Line	25.29	+	
		Unit- III	15.59	5MVA, 132/11kV TFR	0.46	+	
		Unit- IV	16.45	132kV Motanga - Rangia Line	30.50	+	
		Total	64.41	Error at Station/Auxiliary Consumption/Losses		0.869%	

Note: Generation-Load Summary (MW) for May 19, 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	526.20	217.72	209.23	291.21	8.49
2	Eastern Grid	404.57	68.83	66.00	353.01	2.83
Total		930.77	286.55	275.23	644.22	11.32

Note: Generation-Load Summary for May 19, 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	700.26	240.63	229.33	429.40	11.30
2	Eastern Grid	415.60	54.73	52.67	391.10	2.06
Total		1,115.86	295.36	282.00	820.50	13.36

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 20, 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	0.00	400kV THP - Siliguri Line - I	192.00	+	Unit-I, IV & V on standby. 400kV THP_SIL Line II & IV on Standby.
		Unit- II	170.00	400kV THP - Siliguri Line - II	0.00		
		Unit- III	170.00	400kV THP - Siliguri Line- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	240.00	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	166.67	+	
		Unit- VI	100.00	-	-	-	
		Total	440.00	Error at Station/Auxiliary Consumption/Losses		1.818%	
2	720MW MHP	Unit-I	179.90	400kV MHP - Jigmeling Line - I	0.00		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	180.12	400kV MHP - Jigmeling Line - II	268.09	+	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00		
		Unit-IV	180.72	400kV MHP - Jigmeling Line - IV	268.69	+	
		-	-	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	530.90	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	6.60	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	6.60	+	
		-	-	220kV Tsirang - Jigmeling Line	14.10	+	
		-	-	132kV Gelephu - Salakati Line	-5.80	-	
Total	540.74	Error at Station/Auxiliary Consumption/Losses		0.732%			
3	336MW CHP	Unit- I	63.59	220kV CHP - Birpara Line- I	38.70	+	Unit- II on standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	38.67	+	
		Unit- III	70.98	220kV CHP - Malbase Line- III	76.92	+	
		Unit- IV	69.03	220kV CHP - Semtokha Line- IV	35.75	+	
		-	-	220kV Malbase - Birpara Line	3.32	+	
		-	-	66kV CHP - Chumdo Line	5.96	+	
		-	-	66kV CHP - Gedu Line	5.44	+	
		-	-	3x3MVA, 66/11kV TFR	0.70	+	
Total	203.60	Error at Station/Auxiliary Consumption/Losses		0.717%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	-9.03	-	U/S Unit-I & L/S Unit-I on standby.
		Unit- II	4.90	66kV BHP - Lobeyasa Line	21.09	+	
		Total	4.90	220kV BHP - Tsirang Line	0.38	+	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	8.70	30MVA ICT, 220/66kV (HV)	19.70	+	
Total	8.70	Error at Station/Auxiliary Consumption/Losses		2.059%			
5	126MW DHP	Unit-I	15.78	220kV DHP - Tsirang Line	15.51	+	Unit-II on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	0.90	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	15.78	Error at Station/Auxiliary Consumption/Losses		-0.190%	
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Line	42.31	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	22.79	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.36	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	32.21	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses		0.818%	

Note: Generation-Load Summary (MW) for May 20, 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	672.98	219.52	210.71	439.36	8.81
2	Eastern Grid	606.74	63.53	59.03	557.31	4.50
Total		1,279.72	283.05	269.74	996.67	13.31

Note: Generation-Load Summary for May 20, 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	702.88	218.67	206.57	467.34	12.10
2	Eastern Grid	446.63	39.92	37.35	423.58	2.57
Total		1,149.51	258.59	243.92	890.92	14.67

NOTE-BHP & MHP data collected 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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