

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	May 20, 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	59.75	400kV THP - Siliguri Line - I	0.00		Unit-IV & V on standby. 400kV THP_SIL Line I & IV on Standby.
		Unit- II	109.69	400kV THP - Siliguri Line - II	189.13	+	
		Unit- III	171.10	400kV THP - Siliguri Line- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	242.84	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	163.02	+	
		Unit- VI	99.77	-	-	-	
		Total	440.31	Error at Station/Auxiliary Consumption/Losses		1.894%	
2	720MW MHP	Unit-I	130.20	400kV MHP - Jigmeling Line - I	0.00		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	130.16	400kV MHP - Jigmeling Line - II	199.01	+	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00		
		Unit-IV	140.20	400kV MHP - Jigmeling Line - IV	199.34	+	
		-	-	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	394.50	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	8.20	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	8.20	+	
		-	-	220kV Tsirang - Jigmeling Line	18.36	+	
		-	-	132kV Gelephu - Salakati Line	-12.98	-	
Total	400.56	Error at Station/Auxiliary Consumption/Losses		0.552%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	35.46	+	Unit-I on standby.
		Unit- II	68.21	220kV CHP - Birpara Line- II	35.64	+	
		Unit- III	70.45	220kV CHP - Malbase Line- III	68.51	+	
		Unit- IV	71.85	220kV CHP - Semtokha Line- IV	52.57	+	
		-	-	220kV Malbase - Birpara Line	5.03	+	
		-	-	66kV CHP - Chumdo Line	9.66	+	
		-	-	66kV CHP - Gedu Line	5.73	+	
		-	-	3x3MVA, 66/11kV TFR	1.40	+	
Total	210.51	Error at Station/Auxiliary Consumption/Losses		0.733%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	-13.00	-	U/S Unit-I & L/S Unit I on standby.
		Unit- II	4.80	66kV BHP - Lobeyasa Line	22.90	+	
		Total	4.80	220kV BHP - Tsirang Line	5.00	+	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.39	+	
		Unit- II	10.00	30MVA ICT, 220/66kV (HV)	18.99	+	
Total	10.00	Error at Station/Auxiliary Consumption/Losses		-3.311%			
5	126MW DHP	Unit-I	16.58	220kV DHP - Tsirang Line	16.37	+	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	0.30	+	
		Total	16.58	Error at Station/Auxiliary Consumption/Losses		-0.543%	
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Line	39.65	+	
		Unit-II	16.62	132kV KHP - Kilikhar Line	25.61	+	
		Unit- III	16.64	5MVA, 132/11kV TFR	0.33	+	
		Unit- IV	16.52	132kV Motanga - Rangia Line	30.10	+	
		Total	66.28	Error at Station/Auxiliary Consumption/Losses		1.041%	

Note: Generation-Load Summary (MW) for May 20, 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	682.20	235.56	228.16	428.28	7.40
2	Eastern Grid	466.84	73.58	70.68	411.62	2.90
Total		1,149.04	309.14	298.84	839.90	10.30

Note: Generation-Load Summary for May 20, 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	664.34	245.41	236.44	392.06	8.97
2	Eastern Grid	503.92	55.12	52.19	475.67	2.93
Total		1,168.26	300.53	288.63	867.73	11.90

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 21, 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	138.17	400kV THP - Siliguri Line - I	0.00	+	Unit- IV , V & VI on standby. 400kV THP_SIL Line I & IV on Standby.
		Unit- II	139.43	400kV THP - Siliguri Line - II	189.01	+	
		Unit- III	150.09	400kV THP - Siliguri Line- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	229.42	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	167.17	+	
		Unit- VI	0.00	-	-	-	
		Total	427.69	Error at Station/Auxiliary Consumption/Losses		2.165%	
2	720MW MHP	Unit-I	145.32	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	145.18	400kV MHP - Jigmeling Line - II	214.34	+	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00		
		Unit-IV	140.58	400kV MHP - Jigmeling Line - IV	214.46	+	
		-	-	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	423.40	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	6.70	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	6.60	+	
		-	-	220kV Tsirang - Jigmeling Line	14.54	+	
		-	-	132kV Gelephu - Salakati Line	-3.56	-	
Total	431.08	Error at Station/Auxiliary Consumption/Losses		0.529%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	40.99	+	Unit- I on standby.
		Unit- II	70.20	220kV CHP - Birpara Line- II	41.05	+	
		Unit- III	71.82	220kV CHP - Malbase Line- III	80.37	+	
		Unit- IV	64.77	220kV CHP - Semtokha Line- IV	30.99	+	
		-	-	220kV Malbase - Birpara Line	5.67	+	
		-	-	66kV CHP - Chumdo Line	6.06	+	
		-	-	66kV CHP - Gedu Line	5.32	+	
		-	-	3x3MVA, 66/11kV TFR	0.70	+	
Total	206.79	Error at Station/Auxiliary Consumption/Losses		0.633%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	-3.94	-	U/S Unit-I & L/S Unit-I on standby.
		Unit- II	4.80	66kV BHP - Lobeyasa Line	16.63	+	
		Total	4.80	220kV BHP - Tsirang Line	0.56	+	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	9.70	30MVA ICT, 220/66kV (HV)	15.01	+	
Total	9.70	Error at Station/Auxiliary Consumption/Losses		2.552%			
5	126MW DHP	Unit-I	16.50	220kV DHP - Tsirang Line	16.23	+	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	0.14	+	
		Total	16.50	Error at Station/Auxiliary Consumption/Losses		0.788%	
6	60MW KHP	Unit- I	16.57	132kV KHP - Nangkhor Line	42.67	+	
		Unit-II	16.56	132kV KHP - Kilikhar Line	22.49	+	
		Unit- III	16.59	5MVA, 132/11kV TFR	0.36	+	
		Unit- IV	16.62	132kV Motanga - Rangia Line	29.36	+	
		Total	66.34	Error at Station/Auxiliary Consumption/Losses		1.236%	

Note: Generation-Load Summary (MW) for May 21, 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	665.48	207.05	196.88	443.89	10.17
2	Eastern Grid	497.42	62.76	59.66	449.20	3.10
Total		1,162.90	269.81	256.54	893.09	13.27

Note: Generation-Load Summary for May 21, 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	1,571.17	232.25	219.21	1,274.86	13.04
2	Eastern Grid	852.11	91.25	77.99	824.92	13.26
Total		2,423.28	323.50	297.20	2,099.78	26.30

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.