

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	June 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	99.51	400kV THP - Siliguri Line - I	0.00		Unit-V on standby. 400kV THP-Siliguri Line I under maintenance
		Unit- II	139.50	400kV THP - Siliguri Line - II	187.79	+	
		Unit- III	120.57	400kV THP - Siliguri Line- IV	178.62	+	
		Unit- IV	100.69	400kV THP - Malbase Line - III	231.89	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	165.19	+	
		Unit- VI	150.50	-	-	-	
		Total	610.77	Error at Station/Auxiliary Consumption/Losses		2.042%	
2	720MW MHP	Unit-I	159.76	400kV MHP - Jigmeling Line - I	243.69	+	Unit-III on breakdown. 400kV MHP_JLG line II and IV on standby. 132kV MHP_Yurmo line I & II not in service. 400/220kV ICT at JLG opened.
		Unit-II	160.09	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	245.08	+	
		Unit-IV	170.34	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)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I	240.70	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	241.10	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	17.70	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	17.80	+	
		-	-	220kV Tsirang - Jigmeling Line	37.40	+	
		-	-	132kV Gelephu - Salakati Line	4.04	+	
Total	490.19	Error at Station/Auxiliary Consumption/Losses		0.290%			
3	336MW CHP	Unit- I	81.23	220kV CHP - Birpara Line- I	70.85	+	
		Unit- II	78.35	220kV CHP - Birpara Line- II	70.74	+	
		Unit- III	82.40	220kV CHP - Malbase Line- III	112.97	+	
		Unit- IV	78.35	220kV CHP - Semtokha Line- IV	52.99	+	
		-	-	220kV Malbase - Birpara Line	28.41	+	
		-	-	66kV CHP - Chumdo Line	8.01	+	
		-	-	66kV CHP - Gedu Line	2.13	+	
		-	-	3x3MVA, 66/11kV TFR	1.09	+	
Total	320.33	Error at Station/Auxiliary Consumption/Losses		0.484%			
4	24MW BHP (U/S)	Unit- I	3.70	220kV BHP - Semtokha Line	0.00		220kV BHP-SEM line under shutdown.
		Unit- II	3.70	66kV BHP - Lobeyasa Line	13.50	+	
		Total	7.40	220kV BHP - Tsirang Line	9.47	+	
	40MW BHP (L/S)	Unit- I	8.60	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	8.00	30MVA ICT, 220/66kV (HV)	-8.50	-	
Total	16.60	Error at Station/Auxiliary Consumption/Losses		0.625%			
5	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	31.24	+	Unit-I on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	31.46	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.90	+	
		-	-	5MVA, 220/33kV TFR	0.18	+	
		Total	31.46	Error at Station/Auxiliary Consumption/Losses		0.127%	
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Line	40.14	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	24.96	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.25	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	33.40	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses		0.985%	

Note: Generation-Load Summary (MW) for June 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)	Load Balance (MW)
1	Western Grid	986.56	247.56	235.25	701.60	12.31
2	Eastern Grid	556.19	74.35	72.28	519.24	2.07
Total		1,542.75	321.91	307.53	1,220.84	14.38

Note: Generation-Load Summary for June 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)	Load Balance (MW)
1	Western Grid	985.88	214.10	205.53	728.84	8.57
2	Eastern Grid	642.85	39.45	34.70	646.34	4.75
Total		1,628.73	253.55	240.23	1,375.18	13.32

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:	June 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	186.07	400kV THP - Siliguri Line - I	0.00		Unit-V on standby. 400kV THP-Siliguri Line I under maintenance.
		Unit- II	186.10	400kV THP - Siliguri Line - II	298.70	+	
		Unit- III	187.60	400kV THP - Siliguri Line- IV	284.41	+	
		Unit- IV	187.89	400kV THP - Malbase Line - III	336.94	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	268.39	+	
		Unit- VI	187.03	-	-	-	
		Total	934.69	Error at Station/Auxiliary Consumption/Losses		1.566%	
2	720MW MHP	Unit-I	197.95	400kV MHP - Jigmeling Line - I	293.75	+	Unit-III on breakdown 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400/220kV ICT at JLG opened.
		Unit-II	197.04	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.04	+	
		Unit-IV	197.46	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)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I	299.60	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	299.70	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	21.80	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.80	+	
		-	-	220kV Tsirang - Jigmeling Line	131.75	+	
		-	-	132kV Gelephu - Salakati Line	70.69	+	
Total	592.45	Error at Station/Auxiliary Consumption/Losses		0.618%			
3	336MW CHP	Unit- I	91.79	220kV CHP - Birpara Line- I	81.31	+	
		Unit- II	91.30	220kV CHP - Birpara Line- II	81.38	+	
		Unit- III	91.57	220kV CHP - Malbase Line- III	127.28	+	
		Unit- IV	92.06	220kV CHP - Semtokha Line- IV	64.08	+	
		-	-	220kV Malbase - Birpara Line	33.04	+	
		-	-	66kV CHP - Chumdo Line	7.05	+	
		-	-	66kV CHP - Gedu Line	2.12	+	
		-	-	3x3MVA, 66/11kV TFR	0.83	+	
Total	366.72	Error at Station/Auxiliary Consumption/Losses		0.728%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	0.00		220kV BHP_SEM line under shutdown. 66kV BHP_Lobeysa line, BHP(U/S) Unit I and 30MVA ICT tripped. (U/S) Unit II in Islanding mode.
		Unit- II	0.60	66kV BHP - Lobeysa Line	0.00		
		Total	0.60	220kV BHP - Tsirang Line	12.10	+	
	40MW BHP (L/S)	Unit- I	6.50	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	6.10	30MVA ICT, 220/66kV (HV)	0.00		
Total	12.60	Error at Station/Auxiliary Consumption/Losses		1.667%			
5	126MW DHP	Unit-I	61.40	220kV DHP - Tsirang Line	121.89	+	220kV DHP_Dagapela Line on standby.
		Unit-II	60.99	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.70	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	122.39	Error at Station/Auxiliary Consumption/Losses		0.163%	
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Line	39.81	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	25.55	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.24	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	49.24	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses		0.606%	

Note: Generation-Load Summary (MW) for June 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)	Load Balance (MW)
1	Western Grid	1,437.00	258.02	241.99	1,047.23	16.03
2	Eastern Grid	658.45	70.97	66.91	719.23	4.06
Total		2,095.45	328.99	308.90	1,766.46	20.09

Note: Generation-Load Summary for June 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)	Load Balance (MW)
1	Western Grid	1,092.02	201.51	187.33	848.98	14.18
2	Eastern Grid	643.08	28.61	23.68	656.00	4.93
Total		1,735.10	230.12	211.01	1,504.98	19.11

NOTE-BHP & MHP 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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