

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	June 6, 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	99.36	400kV THP - Siliguri Line - I	0.00		Unit-V on maintenance. 400kV THP-Siliguri Line I under maintenance
		Unit- II	169.18	400kV THP - Siliguri Line - II	210.36	+	
		Unit- III	128.99	400kV THP - Siliguri Line- IV	202.75	+	
		Unit- IV	138.45	400kV THP - Malbase Line - III	252.57	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	186.95	+	
		Unit- VI	139.61	-	-	-	
		Total	675.59	Error at Station/Auxiliary Consumption/Losses		1.467%	
2	720MW MHP	Unit-I	165.08	400kV MHP - Jigmeling Line - I	234.02	+	Unit-III on breakdown. 400kV MHP_JLG line II and IV on standby. 400/220kV ICT at JLG opened.
		Unit-II	140.19	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	235.09	+	
		Unit-IV	165.63	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	229.80	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	231.40	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	16.60	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	16.70	+	
		-	-	220kV Tsirang - Jigmeling Line	32.00	+	
		-	-	132kV Gelephu - Salakati Line	-1.80	-	
		Total	470.90	Error at Station/Auxiliary Consumption/Losses		0.380%	
3	336MW CHP	Unit- I	70.69	220kV CHP - Birpara Line- I	57.34	+	
		Unit- II	65.42	220kV CHP - Birpara Line- II	57.19	+	
		Unit- III	69.69	220kV CHP - Malbase Line- III	88.36	+	
		Unit- IV	61.27	220kV CHP - Semtokha Line- IV	50.33	+	
		-	-	220kV Malbase - Birpara Line	25.60	+	
		-	-	66kV CHP - Chumdo Line	8.84	+	
		-	-	66kV CHP - Gedu Line	1.68	+	
		-	-	3x3MVA, 66/11kV TFR	1.50	+	
Total	267.07	Error at Station/Auxiliary Consumption/Losses		0.685%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	-16.29	-	(U/S) Unit I and (L/S) Unit I on standby
		Unit- II	8.10	66kV BHP - Lobeyasa Line	31.44	+	
		Total	8.10	220kV BHP - Tsirang Line	8.00	+	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	16.20	30MVA ICT, 220/66kV (HV)	23.44	+	
		Total	16.20	Error at Station/Auxiliary Consumption/Losses		1.111%	
5	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	26.75	+	Unit-I on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	27.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.80	+	
		-	-	5MVA, 220/33kV TFR	0.08	+	
		Total	27.00	Error at Station/Auxiliary Consumption/Losses		0.630%	
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Line	0.00		132kV KHP-NKO line under shutdown.
		Unit-II	16.50	132kV KHP - Kilikhar Line	65.02	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.19	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	30.11	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses		1.197%	

Note: Generation-Load Summary (MW) for June 06, 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	993.96	221.77	211.39	740.19	10.38
2	Eastern Grid	536.90	79.39	76.81	489.51	2.58
Total		1,530.86	301.16	288.20	1,229.70	12.96

Note: Generation-Load Summary for June 06, 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	1,446.24	127.65	208.62	1,148.53	-80.97
2	Eastern Grid	659.56	43.80	40.31	690.31	3.49
Total		2,105.80	171.45	248.93	1,838.84	-77.48

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 7, 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	184.37	400kV THP - Siliguri Line - I	0.00		Unit-V on maintenance. 400kV THP-Siliguri Line I under maintenance.
		Unit- II	185.40	400kV THP - Siliguri Line - II	297.24	+	
		Unit- III	165.63	400kV THP - Siliguri Line- IV	283.90	+	
		Unit- IV	188.48	400kV THP - Malbase Line - III	313.87	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	273.04	+	
		Unit- VI	185.67	-	-	-	
		Total	909.55	Error at Station/Auxiliary Consumption/Losses	1.599%		
2	720MW MHP	Unit-I	197.72	400kV MHP - Jigmeling Line - I	294.49	+	Unit-III under restoration. 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	197.83	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	296.37	+	
		Unit-IV	198.32	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	290.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	291.45	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	25.89	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	25.89	+	
		-	-	220kV Tsirang - Jigmeling Line	46.82	+	
		-	-	132kV Gelephu - Salakati Line	20.40	+	
Total	593.87	Error at Station/Auxiliary Consumption/Losses	0.507%				
3	336MW CHP	Unit- I	84.64	220kV CHP - Birpara Line- I	94.39	+	
		Unit- II	82.61	220kV CHP - Birpara Line- II	94.59	+	
		Unit- III	84.47	220kV CHP - Malbase Line- III	146.47	+	
		Unit- IV	83.63	220kV CHP - Semtokha Line- IV	-9.92	-	
		-	-	220kV Malbase - Birpara Line	39.78	+	
		-	-	66kV CHP - Chumdo Line	4.61	+	
		-	-	66kV CHP - Gedu Line	3.53	+	
		-	-	3x3MVA, 66/11kV TFR	0.72	+	
Total	335.35	Error at Station/Auxiliary Consumption/Losses	0.286%				
4	24MW BHP (U/S)	Unit- I	9.70	220kV BHP - Semtokha Line	37.99	+	
		Unit- II	9.40	66kV BHP - Lobeyasa Line	3.72	+	
		Total	19.10	220kV BHP - Tsirang Line	9.46	+	
	40MW BHP (L/S)	Unit- I	17.70	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	17.10	30MVA ICT, 220/66kV (HV)	0.20	+	
		Total	34.80	Error at Station/Auxiliary Consumption/Losses	3.395%		
5	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	39.75	+	Unit-I under standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	39.97	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.30	+	
		-	-	5MVA, 220/33kV TFR	0.22	+	
		Total	39.97	Error at Station/Auxiliary Consumption/Losses	0.000%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Line	0.00		132kV KHP-NKO line under shutdown.
		Unit-II	16.50	132kV KHP - Kilikhar Line	64.91	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.22	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	35.36	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.318%		

Note: Generation-Load Summary (MW) for June 07, 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	1,338.77	209.01	192.98	1,082.94	16.03
2	Eastern Grid	659.87	69.48	65.60	637.21	3.88
Total		1,998.64	278.49	258.58	1,720.15	19.91

Note: Generation-Load Summary for June 07, 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	1,509.92	145.10	193.82	1,297.31	-48.72
2	Eastern Grid	657.70	35.39	26.24	622.31	9.15
Total		2,167.62	180.49	220.06	1,919.62	-39.57

NOTE-BHP & Eastern 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.