

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	May 21, 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	138.75	400kV THP - Siliguri Line - I	0.00		Unit-IV , V & VI on standby. 400kV THP_SIL Line I & IV on Standby.
		Unit- II	97.76	400kV THP - Siliguri Line - II	148.21	+	
		Unit- III	130.66	400kV THP - Siliguri Line- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	214.29	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	122.52	+	
		Unit- VI	0.00	-	-	-	
		Total	367.17	Error at Station/Auxiliary Consumption/Losses	1.272%		
2	720MW MHP	Unit-I	129.86	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	129.90	400kV MHP - Jigmeling Line - II	174.54	+	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00		
		Unit-IV	90.46	400kV MHP - Jigmeling Line - IV	174.53	+	
		-	-	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	345.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	9.41	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	11.00	+	
		-	-	220kV Tsirang - Jigmeling Line	20.70	+	
		-	-	132kV Gelephu - Salakati Line	-9.60	-	
Total	350.22	Error at Station/Auxiliary Consumption/Losses	0.328%				
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	33.24	+	Unit-I on standby.
		Unit- II	61.40	220kV CHP - Birpara Line- II	33.08	+	
		Unit- III	60.30	220kV CHP - Malbase Line- III	53.79	+	
		Unit- IV	60.98	220kV CHP - Semtokha Line- IV	46.08	+	
		-	-	220kV Malbase - Birpara Line	9.93	+	
		-	-	66kV CHP - Chumdo Line	8.50	+	
		-	-	66kV CHP - Gedu Line	5.10	+	
		-	-	3x3MVA, 66/11kV TFR	1.50	+	
Total	182.68	Error at Station/Auxiliary Consumption/Losses	0.761%				
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	-13.60	-	U/S Unit-I & L/S Unit I on standby.
		Unit- II	4.70	66kV BHP - Lobeyasa Line	19.50	+	
		Total	4.70	220kV BHP - Tsirang Line	7.80	+	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	9.90	30MVA ICT, 220/66kV (HV)	12.30	+	
Total	9.90	Error at Station/Auxiliary Consumption/Losses	0.068%				
5	126MW DHP	Unit-I	15.46	220kV DHP - Tsirang Line	15.24	+	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	0.20	+	
		Total	15.46	Error at Station/Auxiliary Consumption/Losses	0.129%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Line	38.40	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	26.65	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	34.72	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	0.985%		

Note: Generation-Load Summary (MW) for May 21, 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	579.91	212.23	208.04	346.98	4.19
2	Eastern Grid	416.22	66.80	65.00	370.12	1.80
Total		996.13	279.03	273.04	717.10	5.99

Note: Generation-Load Summary for May 21, 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	1,581.63	247.46	228.52	1,265.17	18.94
2	Eastern Grid	783.28	54.77	51.90	797.51	2.87
Total		2,364.91	302.23	280.42	2,062.68	21.81

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 22, 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	118.99	400kV THP - Siliguri Line - I	0.00	+	Unit- IV , V & VI on standby. 400kV THP_SIL Line I & IV on Standby.
		Unit- II	69.10	400kV THP - Siliguri Line - II	132.94	+	
		Unit- III	130.65	400kV THP - Siliguri Line- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	178.26	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	113.08	+	
		Unit- VI	0.00	-	-	-	
		Total	318.74	Error at Station/Auxiliary Consumption/Losses		2.366%	
2	720MW MHP	Unit-I	130.02	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	130.23	400kV MHP - Jigmeling Line - II	184.37	+	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00		
		Unit-IV	110.52	400kV MHP - Jigmeling Line - IV	184.85	+	
		-	-	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	182.49	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	182.07	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	4.55	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	4.53	+	
		-	-	220kV Tsirang - Jigmeling Line	10.15	+	
		-	-	132kV Gelephu - Salakati Line	-6.40	-	
Total	370.77	Error at Station/Auxiliary Consumption/Losses		0.418%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	28.74	+	Unit- I on standby.
		Unit- II	55.82	220kV CHP - Birpara Line- II	28.83	+	
		Unit- III	55.61	220kV CHP - Malbase Line- III	60.90	+	
		Unit- IV	53.79	220kV CHP - Semtokha Line- IV	33.24	+	
		-	-	220kV Malbase - Birpara Line	0.40	+	
		-	-	66kV CHP - Chumdo Line	6.32	+	
		-	-	66kV CHP - Gedu Line	4.82	+	
		-	-	3x3MVA, 66/11kV TFR	0.90	+	
Total	165.22	Error at Station/Auxiliary Consumption/Losses		0.890%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	-5.58	-	U/S Unit-I & L/S Unit-I on standby.
		Unit- II	4.60	66kV BHP - Lobeyasa Line	22.80	+	
		Total	4.60	220kV BHP - Tsirang Line	-4.13	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	9.60	30MVA ICT, 220/66kV (HV)	19.20	+	
Total	9.60	Error at Station/Auxiliary Consumption/Losses		1.620%			
5	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	14.10	+	Unit-I on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	14.45	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	0.86	+	
		-	-	5MVA, 220/33kV TFR	0.28	+	
		Total	14.45	Error at Station/Auxiliary Consumption/Losses		0.484%	
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Line	42.78	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	22.35	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.38	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	33.67	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses		0.742%	

Note: Generation-Load Summary (MW) for May 22, 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	512.61	198.47	190.02	303.99	8.45
2	Eastern Grid	436.77	55.09	53.05	391.83	2.04
Total		949.38	253.56	243.07	695.82	10.49

Note: Generation-Load Summary for May 22, 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	1,589.75	232.50	214.54	1,293.19	17.96
2	Eastern Grid	782.43	50.17	35.05	796.32	15.12
Total		2,372.18	282.67	249.59	2,089.51	33.08

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.