

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	March 30, 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	69.46	400kV THP - Siliguri Line - I	28.50	+	Unit III Standby. Unit IV, V & VI AMP 400kV THP-SIL Line II AMP 400kV THP-SIL IV on Standby.
		Unit- II	70.34	400kV THP - Siliguri Line - II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Line - IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	108.08	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	8.89	+	
		Unit- VI	0.00	-	-	-	
		Total	139.80	Error at Station/Auxiliary Consumption/Losses		2.303%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00		Unit I & IV on Standby. Unit-III under breakdown. 400kV MHP-JLG Line I, II & III on standby. 400kV JLG_ALI line II on Standby. 132kV MHP_Yurmoo lines not in service.
		Unit-II	114.74	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	114.76	+	
		-	-	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	113.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	4.80	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	4.80	+	
		-	-	220kV Tsirang - Jigmeling Line	11.78	+	
		-	-	132kV Gelephu - Salakati Line	-36.79	-	
Total	114.74	Error at Station/Auxiliary Consumption/Losses		-0.017%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	-24.43	-	Unit-I on Standby. Unit IV under AMP. 220kV CHP-BIR line II on Standby.
		Unit- II	34.32	220kV CHP - Birpara Line- II	0.00		
		Unit- III	37.94	220kV CHP - Malbase Line- III	12.14	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	64.18	+	
		-	-	220kV Malbase - Birpara Line	-47.17	-	
		-	-	66kV CHP - Chumdo Line	15.68	+	
		-	-	66kV CHP - Gedu Line	3.52	+	
		-	-	3x3MVA, 66/11kV TFR	1.80	+	
Total	72.26	Error at Station/Auxiliary Consumption/Losses		-0.872%			
4	24MW BHP (U/S)	Unit- I	4.60	220kV BHP - Semtokha Line	1.62	+	U/S & L/S Unit-II on standby
		Unit- II	0.00	66kV BHP - Lobeyasa Line	14.60	+	
		Total	4.60	220kV BHP - Tsirang Line	-2.68	-	
	40MW BHP (L/S)	Unit- I	9.20	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	9.70		
Total	9.20	Error at Station/Auxiliary Consumption/Losses		-4.565%			
5	126MW DHP	Unit-I	15.46	220kV DHP - Tsirang Line	15.22	+	Unit-II AMP
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	2.40	+	
		-	-	5MVA, 220/33kV TFR	0.02		
		Total	15.46	Error at Station/Auxiliary Consumption/Losses		1.423%	
6	60MW KHP	Unit- I	11.09	132kV KHP - Nangkhor Line	5.56	+	Unit-IV standby. Unit-III under AMP.
		Unit-II	11.12	132kV KHP - Kilikhar Line	15.80	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.43	+	
		Unit- IV	0.00	132kV Motanga - Rangia Line	7.51	+	
		Total	22.21	Error at Station/Auxiliary Consumption/Losses		1.891%	

Note: Generation-Load Summary (MW) for March 30, 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	241.32	263.75	263.97	-34.21	-0.22
2	Eastern Grid	136.95	65.01	64.61	83.72	0.40
Total		378.27	328.76	328.58	49.51	0.18

Note: Generation-Load Summary for March 30, 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	433.07	246.85	240.11	166.84	6.74
2	Eastern Grid	162.00	58.42	55.75	122.96	2.67
Total		595.07	305.27	295.86	289.80	9.41

NOTE-MHP & BHP data collected from 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.
 - The clocks of all the locations are not synchronized.
- 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:	March 31, 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	69.53	400kV THP - Siliguri Line - I	35.90	+	Unit-III on standby. Unit-IV, V & VI under AMP 400kV THP-SIL Line II & 400kV THP-SIL Line IV on Standby.
		Unit- II	80.67	400kV THP - Siliguri Line - II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	109.24	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	18.30	+	
		Unit- VI	0.00	-	-	-	
		Total	150.20	Error at Station/Auxiliary Consumption/Losses		3.369%	
2	720MW MHP	Unit-I	105.16	400kV MHP - Jigmeling Line - I	0.00		Unit II under maintenance. Unit-IV on Standby. Unit-III under breakdown. 400kV MHP-JLG Line I, II & III on standby. 400kV JLG_ALI line II on Standby. 132kV MHP_Yurmoo lines not in service.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	105.09	+	
		-	-	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	103.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	1.90	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	1.90	+	
		-	-	220kV Tsirang - Jigmeling Line	5.95	+	
		-	-	132kV Gelephu - Salakati Line	-24.26	-	
Total	105.16	Error at Station/Auxiliary Consumption/Losses		0.067%			
3	336MW CHP	Unit- I	34.32	220kV CHP - Birpara Line- I	-11.95	-	Unit-III & 220kV CHP-BIR line II on Standby. Unit-IV under AMP.
		Unit- II	42.12	220kV CHP - Birpara Line- II	0.00		
		Unit- III	0.00	220kV CHP - Malbase Line- III	30.13	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	40.71	+	
		-	-	220kV Malbase - Birpara Line	-42.06	-	
		-	-	66kV CHP - Chumdo Line	11.66	+	
		-	-	66kV CHP - Gedu Line	3.83	+	
		-	-	3x3MVA, 66/11kV TFR	1.00	+	
Total	76.44	Error at Station/Auxiliary Consumption/Losses		1.387%			
4	24MW BHP (U/S)	Unit- I	5.00	220kV BHP - Semtokha Line	8.40	+	U/S & L/S Unit-II on standby
		Unit- II	0.00	66kV BHP - Lobeyasa Line	12.30	+	
		Total	5.00	220kV BHP - Tsirang Line	-6.38	-	
	40MW BHP (L/S)	Unit- I	10.40	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	9.90		
Total	10.40	Error at Station/Auxiliary Consumption/Losses		1.234%			
5	126MW DHP	Unit-I	16.31	220kV DHP - Tsirang Line	16.14	+	Unit-II under AMP
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.40	+	
		-	-	5MVA, 220/33kV TFR	0.04		
		Total	16.31	Error at Station/Auxiliary Consumption/Losses		0.809%	
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	5.76	+	Unit-I & IV standby. Unit-III under AMP.
		Unit-II	16.02	132kV KHP - Kilikhar Line	9.66	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.38	+	
		Unit- IV	0.00	132kV Motanga - Rangia Line	-6.08	-	
		Total	16.02	Error at Station/Auxiliary Consumption/Losses		1.373%	

Note: Generation-Load Summary (MW) for March 31, 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	258.35	252.21	247.17	0.19	5.04
2	Eastern Grid	121.18	54.47	54.18	72.66	0.29
Total		379.53	306.68	301.35	72.85	5.33

Note: Generation-Load Summary for March 31, 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	332.96	203.45	197.03	122.77	6.42
2	Eastern Grid	203.45	40.33	38.83	169.86	1.50
Total		536.41	243.78	235.86	292.63	7.92

NOTE- MHP & BHP data collected from 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.