

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	March 20, 2021
Hours:	19:00 Hours

Date	Time	Load(MW)
27-Dec-18	18:18hrs	399.35MW

Sl. No.	Hydropower Plant	Unit	MW	Name of Feeders	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	69.73	400kV THP - Siliguri Fdr- I	0.00		Unit-III on standby. Unit-IV, V & VI under shutdown. 400kV THP-SIL Fdr I & IV on standby.
		Unit- II	71.15	400kV THP - Siliguri Fdr- II	23.53	+	
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	112.07	+	
		Unit- V	0.00	400kV Malbase - Siliguri	1.36	+	
		Unit- VI	0.00	-	-	-	
		Total	140.88	Error at Station/Auxiliary Consumption/Losses	3.748%		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit- I on standby. Unit-II under maintenance. Unit-III under breakdown. 400kV MHP-JLG Fdr I, II & III on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	110.46	400kV MHP - Jigmeling Fdr - IV	110.33	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	110.46	Error at Station/Auxiliary Consumption/Losses	0.118%		
3	336MW CHP	Unit- I	45.99	220kV CHP - Birpara Fdr- I	0.00		Unit-III & IV under AMP. 220kV CHP-BIR I under AMP.
		Unit- II	45.02	220kV CHP - Birpara Fdr- II	-14.05	-	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	18.07	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	65.20	+	
		-	-	220kV Malbase - Birpara Fdr.	-36.29	-	
		-	-	66kV CHP - Chumdo Fdr.	14.40	+	
		-	-	66kV CHP - Gedu Fdr.	3.70	+	
		-	-	3x3MVA, 66/11kV TFR	1.50	+	
		Total	91.01	Error at Station/Auxiliary Consumption/Losses	2.406%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	-10.40	-	U/S Unit-I standby. L/S Unit-I standby
		Unit- II	4.88	66kV BHP - Lobeysa Fdr.	13.62	+	
	Total	4.88	220kV BHP - Tsirang Fdr.	10.98	+		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.70	+	
Unit- II		10.45	30MVA ICT, 220/66kV				
		Total	10.45	Error at Station/Auxiliary Consumption/Losses	2.805%		
5	126MW DHPC	Unit-I	16.64	220kV DHPC - Tsirang Fdr.	16.46	+	Unit-II AMP
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.	2.30	+	
		-	-	5MVA, 220/33kV TFR			
		Total	16.64	Error at Station/Auxiliary Consumption/Losses	1.082%		
6	60MW KHP	Unit- I	10.01	132kV KHP - Nangkhon Fdr- I	3.80	+	Unit- IV on standby. Unit-III under AMP.
		Unit-II	10.03	132kV KHP - Kilihar Fdr- II	15.90	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.43	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-36.20	-	
		-	-	132kV Motanga - Rangia Fdr.	10.31	+	
		-	-	220kV Tsirang - Jigmeling	24.82	+	
		Total	20.04	Error at Station/Auxiliary Consumption/Losses	-0.459%		

Note: Generation-Load Summary for March 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	263.86	264.49	258.71	-25.45	5.78
2	Eastern Grid	130.50	70.88	70.84	84.44	0.04
	Total	394.36	335.37	329.55	58.99	5.82

Note: Generation-Load Summary for March 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	336.56	264.32	255.75	39.82	8.57
2	Eastern Grid	125.89	89.49	86.74	68.82	2.75
	Total	462.45	353.81	342.49	108.64	11.32

NOTE- KHP, MHP & Motanga 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 21, 2021
Hours:	09:00 Hours

Date	Time	Load(MW)
27-Dec-18	18:18hrs	399.35MW

Sl. No.	Hydropower Plant	Unit	MW	Name of Feeders	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	68.60	400kV THP - Siliguri Fdr- I	0.00		Unit-III on standby. Unit-IV, V & VI under shutdown. 400kV THP-SIL Fdr I & IV on standby.
		Unit- II	70.92	400kV THP - Siliguri Fdr- II	26.53	+	
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	109.31	+	
		Unit- V	0.00	400kV Malbase - Siliguri	7.70	+	
		Unit- VI	0.00	-	-	-	
		Total	139.52	Error at Station/Auxiliary Consumption/Losses	2.638%		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit I on Standby. Unit-II under maintenance. Unit-III under breakdown. 400kV MHP-JLG Fdr I, II & III on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	160.47	400kV MHP - Jigmeling Fdr - IV	160.04	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	160.47	Error at Station/Auxiliary Consumption/Losses	0.268%		
3	336MW CHP	Unit- I	31.59	220kV CHP - Birpara Fdr- I	0.00		Unit-III & IV under AMP. 220kV CHP-BIR I under AMP.
		Unit- II	39.01	220kV CHP - Birpara Fdr- II	-7.48	-	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	25.37	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	36.60	+	
		-	-	220kV Malbase - Birpara Fdr.	-31.57	-	
		-	-	66kV CHP - Chumdo Fdr.	9.81	+	
		-	-	66kV CHP - Gedu Fdr.	3.18	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
		Total	70.60	Error at Station/Auxiliary Consumption/Losses	2.720%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	5.11	+	U/S Unit-I on standby. L/S Unit-I on standby.
		Unit- II	5.04	66kV BHP - Lobeysa Fdr.	10.70	+	
		Total	5.04	220kV BHP - Tsirang Fdr.	-0.44	+	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.40	+	
		Unit- II	10.76	30MVA ICT, 220/66kV			
		Total	10.76	Error at Station/Auxiliary Consumption/Losses	0.190%		
5	126MW DHPC	Unit-I	16.98	220kV DHPC - Tsirang Fdr.	16.77	+	Unit-II under AMP..
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.	1.18	+	
		-	-	5MVA, 220/33kV TFR			
		Total	16.98	Error at Station/Auxiliary Consumption/Losses	1.237%		
6	60MW KHP	Unit- I	10.18	132kV KHP - Nangkhon Fdr- I	25.19	+	Unit III under AMP.
		Unit-II	16.16	132kV KHP - Kilikhar Fdr- II	16.62	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.27	+	
		Unit- IV	16.25	132kV Gelephu - Salakati Fdr.	-20.55	-	
		-	-	132kV Motanga - Rangia Fdr.	11.26	+	
		-	-	220kV Tsirang - Jigmeling	14.67	+	
		Total	42.59	Error at Station/Auxiliary Consumption/Losses	1.197%		

Note: Generation-Load summary for March 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	242.90	233.05	228.39	-4.82	4.66
2	Eastern Grid	203.06	66.98	66.04	150.75	0.94
	Total	445.96	300.03	294.43	145.93	5.60

Note: Generation-Load Summary for March 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	305.53	246.67	238.45	35.12	8.22
2	Eastern Grid	119.45	64.14	62.37	79.05	1.77
	Total	424.98	310.81	300.82	114.17	9.99

NOTE: MHP & DHP 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.