

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	March 10, 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	60.00	400kV THP - Siliguri Fdr- I	0.00		Unit-III on standby. Unit-IV, V & VI under shutdown. 400kV THP-SIL Fdr I on standby. 400kV THP-SIL Fdr IV under AMP.
		Unit- II	70.00	400kV THP - Siliguri Fdr- II	30.00	+	
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	95.00	+	
		Unit- V	0.00	400kV Malbase - Siliguri	16.50	+	
		Unit- VI	0.00	-	-	-	
		Total	130.00	Error at Station/Auxiliary Consumption/Losses	3.846%		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II under maintenance. Unit-III under breakdown. Unit- I on standby. 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	90.32	400kV MHP - Jigmeling Fdr - IV	89.45	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	90.32	Error at Station/Auxiliary Consumption/Losses	0.963%		
3	336MW CHP	Unit- I	64.40	220kV CHP - Birpara Fdr- I	1.00	+	Unit-III & IV on AMP 220kV CHP-BIR fdr II under AMP.
		Unit- II	59.08	220kV CHP - Birpara Fdr- II	0.00		
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	37.60	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	57.00	+	
		-	-	220kV Malbase - Birpara Fdr.	-28.18	-	
		-	-	66kV CHP - Chumdo Fdr.	21.60	+	
		-	-	66kV CHP - Gedu Fdr.	1.90	+	
		-	-	3x3MVA, 66/11kV TFR	1.99	+	
		Total	123.48	Error at Station/Auxiliary Consumption/Losses	1.936%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	6.02	+	U/S Unit-I on standby L/S Unit-II on standby
		Unit- II	5.30	66kV BHP - Lobeysa Fdr.	14.00	+	
		Total	5.30	220kV BHP - Tsirang Fdr.	-1.46	-	
	40MW BHP (L/S)	Unit- I	14.88	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	0.00	30MVA ICT, 220/66kV			
		Total	14.88	Error at Station/Auxiliary Consumption/Losses	3.667%		
5	126MW DHPC	Unit-I	17.16	220kV DHPC - Tsirang Fdr.	16.93	+	Unit-II AMP
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.	1.90	+	
		-	-	5MVA, 220/33kV TFR			
		Total	17.16	Error at Station/Auxiliary Consumption/Losses	1.340%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	2.82	+	Unit-I on standby. Unit-III & IV under Annual Maintenance.
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	13.02	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.51	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-31.18	-	
		-	-	132kV Motanga - Rangia Fdr.	-8.26	-	
		-	-	220kV Tsirang - Jigmeling	15.02	+	
		Total	16.50	Error at Station/Auxiliary Consumption/Losses	0.915%		

Note: Generation-Load Summary for March 10, 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	290.82	256.48	250.02	19.32	6.46
2	Eastern Grid	106.82	71.83	70.81	50.01	1.02
	Total	397.64	328.31	320.83	69.33	7.48

Note: Generation-Load Summary for March 10, 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	357.32	261.46	254.39	62.96	7.07
2	Eastern Grid	120.66	73.25	68.22	80.31	5.03
	Total	477.98	334.71	322.61	143.27	12.10

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 11, 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	59.82	400kV THP - Siliguri Fdr- I	0.00		Unit-III on standby. Unit-IV,V &VI under shutdown. 400kV THP-SIL Fdr I on standby. 400kV Tala-SIL IV under AMP.
		Unit- II	70.30	400kV THP - Siliguri Fdr- II	29.31	+	
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	96.79	+	
		Unit- V	0.00	400kV Malbase - Siliguri	13.30	+	
		Unit- VI	0.00	-	-	-	
		Total	130.12	Error at Station/Auxiliary Consumption/Losses	3.089%		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-I 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	125.45	400kV MHP - Jigmeling Fdr - IV	125.07	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	125.45	Error at Station/Auxiliary Consumption/Losses	0.303%		
3	336MW CHP	Unit- I	37.71	220kV CHP - Birpara Fdr- I	-12.40	-	Unit-III & IV under AMP 220kV CHP-BIR II under AMP.
		Unit- II	33.03	220kV CHP - Birpara Fdr- II	0.00	+	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	30.34	-	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	30.34	+	
		-	-	220kV Malbase - Birpara Fdr.	-44.97	-	
		-	-	66kV CHP - Chumdo Fdr.	14.78	+	
		-	-	66kV CHP - Gedu Fdr.	2.25	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
		Total	70.74	Error at Station/Auxiliary Consumption/Losses	5.980%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	12.99	+	U/S Unit-I on standby. L/S Unit-I on standby.
		Unit- II	5.50	66kV BHP - Lobeysa Fdr.	11.19	+	
		Total	5.50	220kV BHP - Tsirang Fdr.	-7.97	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.50	+	
		Unit- II	11.50	30MVA ICT, 220/66kV			
		Total	11.50	Error at Station/Auxiliary Consumption/Losses	1.706%		
5	126MW DHPC	Unit-I	17.37	220kV DHPC - Tsirang Fdr.	17.10	+	Unit-II under AMP..
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.	1.10	+	
		-	-	5MVA, 220/33kV TFR			
		Total	17.37	Error at Station/Auxiliary Consumption/Losses	1.554%		
6	60MW KHP	Unit- I	12.11	132kV KHP - Nangkhon Fdr- I	11.75	+	Unit- III on standby. Unit-IV under Annual Maintenance.
		Unit-II	12.11	132kV KHP - Kilihar Fdr- II	11.62	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.38	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-26.10	-	
		-	-	132kV Motanga - Rangia Fdr.	-5.83	-	
		-	-	220kV Tsirang - Jigmeling	7.31	+	
		Total	24.22	Error at Station/Auxiliary Consumption/Losses	1.941%		

Note: Generation-Load summary for March 11, 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	235.23	242.68	234.97	-14.76	7.71
2	Eastern Grid	149.67	63.84	62.99	93.14	0.85
	Total	384.90	306.52	297.96	78.38	8.56

Note: Generation-Load Summary for March 11, 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	227.68	230.47	224.03	-32.26	6.44
2	Eastern Grid	119.06	74.55	72.71	73.98	1.84
	Total	346.74	305.02	296.74	41.72	8.28

NOTE: KHP,MHP, Motanga & MAL 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.