

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	January 2, 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	70.89	400kV THP - Siliguri Fdr- I	0.00		Unit-II & V under shutdown. Unit-VI under maintenance Unit-III on standby. 400kV THP-SIL Fdr I on Standby. 400kV THP-SIL Fdr II under AMP.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	59.50	+	
		Unit- IV	120.19	400kV THP - Malbase Fdr- III	127.27	+	
		Unit- V	0.00	400kV Malbase - Siliguri	48.00	+	
		Unit- VI	0.00	-	-	-	
		Total	191.08	Error at Station/Auxiliary Consumption/Losses	2.256%		
2	720MW MHP	Unit-I	115.25	400kV MHP - Jigmeling Fdr - I	0.00		Unit-IV on standby. Unit-II under shutdown. Unit-III under breakdown. 400kV MHP-JLG Fdr I,III & IV on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	114.68	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	115.25	Error at Station/Auxiliary Consumption/Losses	0.495%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	-2.89	-	Unit I & II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	-2.75	-	
		Unit- III	46.90	220kV CHP - Malbase Fdr- III	27.75	+	
		Unit- IV	55.11	220kV CHP - Semtokha Fdr- IV	54.78	+	
		-	-	220kV Malbase - Birpara Fdr.	-26.00	-	
		-	-	66kV CHP - Chumdo Fdr.	16.66	+	
		-	-	66kV CHP - Gedu Fdr.	3.23	+	
		-	-	3x3MVA, 66/11kV TFR	2.20	+	
		Total	102.01	Error at Station/Auxiliary Consumption/Losses	2.970%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	11.78	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	6.65	66kV BHP - Lobeysa Fdr.	15.52	+	
	Total	6.65	220kV BHP - Tsirang Fdr.	-7.27	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	1.10	+	
Unit- II		14.38	30MVA ICT, 220/66kV				
		Total	14.38	Error at Station/Auxiliary Consumption/Losses	-0.476%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	24.49	+	Unit-I on standby.
		Unit-II	24.74	220kV Jigmeling - Dagapela Fdr.	2.60	+	
		-	-	5MVA, 220/33kV TFR			
		Total	24.74	Error at Station/Auxiliary Consumption/Losses	1.011%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	8.09	+	Unit-I under Annual Maintenance. Unit-IV on standby.
		Unit-II	11.00	132kV KHP - Kilihar Fdr- II	13.36	+	
		Unit- III	11.00	5MVA, 132/11kV TFR	0.35	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-24.01	-	
		-	-	132kV Motanga - Rangia Fdr.	-2.68	-	
		-	-	220kV Tsirang - Jigmeling	14.62	+	
		Total	22.00	Error at Station/Auxiliary Consumption/Losses	0.909%		

Note: Generation-Load Summary for January 02, 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	338.86	248.38	243.49	75.86	4.89
2	Eastern Grid	137.25	63.88	63.11	87.99	0.77
	Total	476.11	312.26	306.60	163.85	5.66

Note: Generation-Load Summary for January 02, 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	316.66	290.78	284.79	9.48	5.99
2	Eastern Grid	131.52	60.34	52.46	87.58	7.88
	Total	448.18	351.12	337.25	97.06	13.87

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:	January 3, 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	70.00	400kV THP - Siliguri Fdr- I	0.00		Unit-II & V under shutdown. Unit-VI under maintenance Unit-III on standby. 400kV THP-SIL Fdr I on Standby. 400kV THP-SIL Fdr II under AMP.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	63.00	+	
		Unit- IV	120.00	400kV THP - Malbase Fdr- III	123.00	+	
		Unit- V	0.00	400kV Malbase - Siliguri	52.00	+	
		Unit- VI	0.00	-	-	-	
		Total	190.00	Error at Station/Auxiliary Consumption/Losses	2.105%		
2	720MW MHP	Unit-I	119.82	400kV MHP - Jigmeling Fdr - I	0.00		Unit-IV on standby. Unit-II under shutdown. Unit-III under breakdown. 400kV MHP-JLG Fdr I,III & IV on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	119.42	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	119.82	Error at Station/Auxiliary Consumption/Losses	0.334%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	4.64	+	Unit-I & II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	4.65	+	
		Unit- III	40.45	220kV CHP - Malbase Fdr- III	39.66	+	
		Unit- IV	55.70	220kV CHP - Semtokha Fdr- IV	29.75	+	
		-	-	220kV Malbase - Birpara Fdr.	-22.00	-	
		-	-	66kV CHP - Chumdo Fdr.	10.50	+	
		-	-	66kV CHP - Gedu Fdr.	3.30	+	
		-	-	3x3MVA, 66/11kV TFR	1.60	+	
		Total	96.15	Error at Station/Auxiliary Consumption/Losses	2.132%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	17.86	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	6.65	66kV BHP - Lobeysa Fdr.	10.46	+	
	Total	6.65	220kV BHP - Tsirang Fdr.	-7.80	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.85	+	
Unit- II		14.10	30MVA ICT, 220/66kV				
		Total	14.10	Error at Station/Auxiliary Consumption/Losses	-2.988%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	24.51	+	Unit-I on standby.
		Unit-II	24.71	220kV Jigmeling - Dagapela Fdr.	1.10	+	
		-	-	5MVA, 220/33kV TFR			
		Total	24.71	Error at Station/Auxiliary Consumption/Losses	0.809%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	9.35	+	Unit-I under Annual Maintenance. Unit-IV on standby.
		Unit-II	10.12	132kV KHP - Kilikhar Fdr- II	10.02	+	
		Unit- III	10.08	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-15.10	-	
		-	-	132kV Motanga - Rangia Fdr.	-2.38	-	
		-	-	220kV Tsirang - Jigmeling	13.10	+	
		Total	20.20	Error at Station/Auxiliary Consumption/Losses	2.129%		

Note: Generation-Load summary for January 03, 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	331.61	216.22	211.69	102.29	4.53
2	Eastern Grid	140.02	51.18	50.35	101.94	0.83
	Total	471.63	267.40	262.04	204.23	5.36

Note: Generation-Load Summary for January 03, 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	277.44	267.67	261.45	-5.62	6.22
2	Eastern Grid	138.46	62.97	55.93	90.88	7.04
	Total	415.90	330.64	317.38	85.26	13.26

NOTE: MHP,KHP & 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.