

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	January 4, 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	130.00	400kV THP - Siliguri Fdr- I	0.00		Unit-II, V & VI under shutdown. 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	93.00	+	
		Unit- IV	120.00	400kV THP - Malbase Fdr- III	153.00	+	
		Unit- V	0.00	400kV Malbase - Siliguri	40.00	+	
		Unit- VI	0.00	-	-	-	
		Total	250.00	Error at Station/Auxiliary Consumption/Losses	1.600%		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-I 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	115.39	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	115.40	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	115.40	Error at Station/Auxiliary Consumption/Losses	0.009%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	3.00	+	Unit I & II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	3.10	+	
		Unit- III	49.18	220kV CHP - Malbase Fdr- III	20.00	+	
		Unit- IV	55.50	220kV CHP - Semtokha Fdr- IV	56.97	+	
		-	-	220kV Malbase - Birpara Fdr.	-24.00	-	
		-	-	66kV CHP - Chumdo Fdr.	16.80	+	
		-	-	66kV CHP - Gedu Fdr.	2.70	+	
		-	-	3x3MVA, 66/11kV TFR	2.21	+	
		Total	104.68	Error at Station/Auxiliary Consumption/Losses	-0.096%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	8.90	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	7.50	66kV BHP - Lobeysa Fdr.	16.40	+	
	Total	7.50	220kV BHP - Tsirang Fdr.	-3.67	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.87	+	
Unit- II		15.80	30MVA ICT, 220/66kV				
		Total	15.80	Error at Station/Auxiliary Consumption/Losses	3.433%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	24.49	+	Unit-I on standby.
		Unit-II	24.72	220kV Jigmeling - Dagapela Fdr.	2.70	+	
		-	-	5MVA, 220/33kV TFR			
		Total	24.72	Error at Station/Auxiliary Consumption/Losses	0.930%		
6	60MW KHP	Unit- I	10.13	132kV KHP - Nangkhon Fdr- I	6.10	+	Unit-III & Unit-IV on standby.
		Unit-II	10.11	132kV KHP - Kilikhar Fdr- II	13.02	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.60	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-22.80	-	
		-	-	132kV Motanga - Rangia Fdr.	-2.27	-	
		-	-	220kV Tsirang - Jigmeling	17.70	+	
		Total	20.24	Error at Station/Auxiliary Consumption/Losses	2.569%		

Note: Generation-Load Summary for January 04, 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	402.70	269.90	267.67	115.10	2.23
2	Eastern Grid	135.64	63.02	62.49	90.32	0.53
	Total	538.34	332.92	330.16	205.42	2.76

Note: Generation-Load Summary for January 04, 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	448.81	305.64	296.29	124.57	9.35
2	Eastern Grid	140.74	52.78	51.43	106.56	1.35
	Total	589.55	358.42	347.72	231.13	10.70

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 5, 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	128.70	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	84.00	+	
		Unit- IV	120.40	400kV THP - Malbase Fdr- III	158.00	+	
		Unit- V	0.00	400kV Malbase - Siliguri	71.00	+	
		Unit- VI	0.00	-	-	-	
		Total	249.10	Error at Station/Auxiliary Consumption/Losses	2.850%		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-I 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	115.50	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	115.62	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	115.62	Error at Station/Auxiliary Consumption/Losses	0.104%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	4.99	+	Unit-I & II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	4.99	+	
		Unit- III	44.17	220kV CHP - Malbase Fdr- III	44.39	+	
		Unit- IV	55.60	220kV CHP - Semtokha Fdr- IV	27.95	+	
		-	-	220kV Malbase - Birpara Fdr.	-26.00	-	
		-	-	66kV CHP - Chumdo Fdr.	10.20	+	
		-	-	66kV CHP - Gedu Fdr.	3.20	+	
		-	-	3x3MVA, 66/11kV TFR	1.30	+	
		Total	99.77	Error at Station/Auxiliary Consumption/Losses	2.756%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	15.40	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	7.40	66kV BHP - Lobeysa Fdr.	11.10	+	
		Total	7.40	220kV BHP - Tsirang Fdr.	-7.39	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	13.50	30MVA ICT, 220/66kV			
		Total	13.50	Error at Station/Auxiliary Consumption/Losses	4.354%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	24.00	+	Unit-I on standby.
		Unit-II	24.21	220kV Jigmeling - Dagapela Fdr.	1.60	+	
		-	-	5MVA, 220/33kV TFR			
		Total	24.21	Error at Station/Auxiliary Consumption/Losses	0.867%		
6	60MW KHP	Unit- I	10.08	132kV KHP - Nangkhon Fdr- I	8.29	+	Unit-III & Unit-IV on standby.
		Unit-II	10.10	132kV KHP - Kilihar Fdr- II	10.59	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.42	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-13.40	-	
		-	-	132kV Motanga - Rangia Fdr.	-0.12	-	
		-	-	220kV Tsirang - Jigmeling	12.71	+	
		Total	20.18	Error at Station/Auxiliary Consumption/Losses	4.371%		

Note: Generation-Load summary for January 05, 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	393.98	242.29	232.92	138.98	9.37
2	Eastern Grid	135.80	46.53	45.53	101.98	1.00
	Total	529.78	288.82	278.45	240.96	10.37

Note: Generation-Load Summary for January 05, 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	356.89	264.10	256.39	75.56	7.71
2	Eastern Grid	140.21	53.44	50.94	104	2.50
	Total	497.10	317.54	307.33	179.56	10.21

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.