

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	January 17, 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	69.49	400kV THP - Siliguri Fdr- I	0.00		Unit-V & VI under maintenance. Unit-III & IV on standby. 400kV THP-SIL Fdr I on Standby. 400kV THP-SIL Fdr II under AMP.
		Unit- II	110.79	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	50.63	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	125.22	+	
		Unit- V	0.00	400kV Malbase - Siliguri	37.00	+	
		Unit- VI	0.00	-	-	-	
		Total	180.28	Error at Station/Auxiliary Consumption/Losses	2.457%		
2	720MW MHP	Unit-I	109.95	400kV MHP - Jigmeling Fdr - I	0.00		Unit-IV on standby. Unit-II under maintenance. Unit-III under breakdown. 400kV MHP-JLG Fdr I,III & IV on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	109.45	+	
		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	109.95	Error at Station/Auxiliary Consumption/Losses	0.455%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	-7.70	-	Unit-I under Annual Maintenance Unit-IV under standby.
		Unit- II	48.09	220kV CHP - Birpara Fdr- II	-7.70	-	
		Unit- III	44.96	220kV CHP - Malbase Fdr- III	26.47	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	58.60	+	
		-	-	220kV Malbase - Birpara Fdr.	-33.00	-	
		-	-	66kV CHP - Chumdo Fdr.	16.11	+	
		-	-	66kV CHP - Gedu Fdr.	3.40	+	
		-	-	3x3MVA, 66/11kV TFR	2.20	+	
		Total	93.05	Error at Station/Auxiliary Consumption/Losses	1.795%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	5.16	+	U/S Unit-I & L/S Unit-I under AMP. 220kV BHP-TSI under shutdown
		Unit- II	6.75	66kV BHP - Lobeysa Fdr.	14.73	+	
		Total	6.75	220kV BHP - Tsirang Fdr.	0.00	+	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	13.86	30MVA ICT, 220/66kV			
		Total	13.86	Error at Station/Auxiliary Consumption/Losses	-0.873%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	22.20	+	Unit-I on standby.
		Unit-II	22.38	220kV Jigmeling - Dagapela Fdr.	2.70	+	
		-	-	5MVA, 220/33kV TFR			
		Total	22.38	Error at Station/Auxiliary Consumption/Losses	0.804%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	8.08	+	Unit-I on standby. Unit-II under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	13.16	+	
		Unit- III	11.13	5MVA, 132/11kV TFR	0.32	+	
		Unit- IV	11.11	132kV Gelephu - Salakati Fdr.	-25.23	-	
		-	-	132kV Motanga - Rangia Fdr.	-9.03	-	
		-	-	220kV Tsirang - Jigmeling	18.98	+	
		Total	22.24	Error at Station/Auxiliary Consumption/Losses	3.058%		

Note: Generation-Load Summary for January 17, 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	316.32	258.11	254.71	39.23	3.40
2	Eastern Grid	132.19	75.98	74.80	75.19	1.18
Total		448.51	334.09	329.51	114.42	4.58

Note: Generation-Load Summary for January 17, 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	388.95	248.38	241.66	125.3	6.72
2	Eastern Grid	126.46	72.58	70.00	69.15	2.58
Total		515.41	320.96	311.66	194.45	9.30

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.

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	January 18, 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	70.17	400kV THP - Siliguri Fdr- I	0.00		Unit-V & VI under maintenance. Unit-III & IV on standby. 400kV THP-SIL Fdr I on Standby. 400kV THP-SIL Fdr II under AMP.
		Unit- II	109.10	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	49.60	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	122.99	+	
		Unit- V	0.00	400kV Malbase - Siliguri	47.00	+	
		Unit- VI	0.00	-	-	-	
		Total	179.27	Error at Station/Auxiliary Consumption/Losses	3.726%		
2	720MW MHP	Unit-I	115.08	400kV MHP - Jigmeling Fdr - I	0.00		Unit-IV on standby. Unit-II under maintenance. Unit-III under breakdown. 400kV MHP-JLG Fdr I,III & IV on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	113.36	+	
		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	115.08	Error at Station/Auxiliary Consumption/Losses	1.495%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	-2.03	+	Unit-I under Annual Maintenance Unit-IV under standby.
		Unit- II	42.63	220kV CHP - Birpara Fdr- II	-2.06	+	
		Unit- III	43.43	220kV CHP - Malbase Fdr- III	38.73	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	34.93	+	
		-	-	220kV Malbase - Birpara Fdr.	-32.00	-	
		-	-	66kV CHP - Chumdo Fdr.	10.86	+	
		-	-	66kV CHP - Gedu Fdr.	3.45	+	
		-	-	3x3MVA, 66/11kV TFR	1.40	+	
		Total	86.06	Error at Station/Auxiliary Consumption/Losses	0.906%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	8.74	+	U/S Unit-I & L/S Unit-I under AMP. 220kV BHP-TSI under shutdown
		Unit- II	6.70	66kV BHP - Lobeysa Fdr.	11.52	+	
		Total	6.70	220kV BHP - Tsirang Fdr.	0.00	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	13.84	30MVA ICT, 220/66kV			
Total	13.84	Error at Station/Auxiliary Consumption/Losses	-2.970%				
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	22.19	+	Unit-I on standby.
		Unit-II	22.40	220kV Jigmeling - Dagapela Fdr.	1.40	+	
		-	-	5MVA, 220/33kV TFR			
		Total	22.40	Error at Station/Auxiliary Consumption/Losses	0.937%		
6	60MW KHP	Unit- I	11.11	132kV KHP - Nangkhon Fdr- I	10.57	+	Unit-IV on standby. Unit-II under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	10.88	+	
		Unit- III	11.17	5MVA, 132/11kV TFR	0.15	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-12.98	-	
		-	-	132kV Motanga - Rangia Fdr.	-6.86	-	
		-	-	220kV Tsirang - Jigmeling	20.22	+	
		Total	22.28	Error at Station/Auxiliary Consumption/Losses	3.052%		

Note: Generation-Load summary for January 18, 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	308.27	227.54	221.88	60.51	5.66
2	Eastern Grid	137.36	64.06	61.66	93.52	2.40
Total		445.63	291.60	283.54	154.03	8.06

Note: Generation-Load Summary for January 18, 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	266.35	230.45	226.29	28.9	4.16
2	Eastern Grid	125.43	47.08	44.68	85.35	2.40
Total		391.78	277.53	270.97	114.25	6.56

NOTE: EKHP,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.
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