

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	January 7, 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	100.21	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	48.27	+	
		Unit- IV	81.26	400kV THP - Malbase Fdr- III	129.05	+	
		Unit- V	0.00	400kV Malbase - Siliguri	31.00	+	
		Unit- VI	0.00	-	-	-	
		Total	181.47	Error at Station/Auxiliary Consumption/Losses	2.287%		
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	115.45	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	115.34	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	115.34	Error at Station/Auxiliary Consumption/Losses	-0.095%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	-9.02	-	Unit I & II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	-8.89	-	
		Unit- III	34.76	220kV CHP - Malbase Fdr- III	25.38	+	
		Unit- IV	49.22	220kV CHP - Semtokha Fdr- IV	56.40	+	
		-	-	220kV Malbase - Birpara Fdr.	-35.00	-	
		-	-	66kV CHP - Chumdo Fdr.	16.11	+	
		-	-	66kV CHP - Gedu Fdr.	3.10	+	
		-	-	3x3MVA, 66/11kV TFR	2.34	+	
		Total	83.98	Error at Station/Auxiliary Consumption/Losses	-1.715%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	13.82	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	6.92	66kV BHP - Lobeysa Fdr.	16.03	+	
	Total	6.92	220kV BHP - Tsirang Fdr.	-9.15	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.90	+	
Unit- II		14.51	30MVA ICT, 220/66kV				
		Total	14.51	Error at Station/Auxiliary Consumption/Losses	-0.793%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	23.98	+	Unit-I on standby.
		Unit-II	24.21	220kV Jigmeling - Dagapela Fdr.	2.60	+	
		-	-	5MVA, 220/33kV TFR			
		Total	24.21	Error at Station/Auxiliary Consumption/Losses	0.950%		
6	60MW KHP	Unit- I	10.50	132kV KHP - Nangkhon Fdr- I	6.22	+	Unit-III & Unit-IV on standby.
		Unit-II	10.50	132kV KHP - Kilikhar Fdr- II	13.77	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.51	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-23.89	-	
		-	-	132kV Motanga - Rangia Fdr.	0.00	+	
		-	-	220kV Tsirang - Jigmeling	11.94	+	
		Total	21.00	Error at Station/Auxiliary Consumption/Losses	2.381%		

Note: Generation-Load Summary for January 07, 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	311.09	272.79	272.62	26.36	0.17
2	Eastern Grid	136.34	56.72	56.33	91.56	0.39
	Total	447.43	329.51	328.95	117.92	0.56

Note: Generation-Load Summary for January 07, 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	412.23	296.55	287.83	91.78	8.72
2	Eastern Grid	131.88	59.83	59.09	95.95	0.74
	Total	544.11	356.38	346.92	187.73	9.46

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 8, 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	78.38	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	59.60	+	
		Unit- IV	120.87	400kV THP - Malbase Fdr- III	127.44	+	
		Unit- V	0.00	400kV Malbase - Siliguri	45.00	+	
		Unit- VI	0.00	-	-	-	
		Total	199.25	Error at Station/Auxiliary Consumption/Losses	6.128%		
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	115.41	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	115.44	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	115.44	Error at Station/Auxiliary Consumption/Losses	0.026%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	1.79	+	Unit-I & II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	1.90	+	
		Unit- III	33.92	220kV CHP - Malbase Fdr- III	45.18	+	
		Unit- IV	55.83	220kV CHP - Semtokha Fdr- IV	24.09	+	
		-	-	220kV Malbase - Birpara Fdr.	-32.00	-	
		-	-	66kV CHP - Chumdo Fdr.	10.22	+	
		-	-	66kV CHP - Gedu Fdr.	3.80	+	
		-	-	3x3MVA, 66/11kV TFR	1.60	+	
		Total	89.75	Error at Station/Auxiliary Consumption/Losses	1.304%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	21.52	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	7.01	66kV BHP - Lobeysa Fdr.	12.56	+	
	Total	7.01	220kV BHP - Tsirang Fdr.	-13.13	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.60	+	
Unit- II		14.54	30MVA ICT, 220/66kV				
		Total	14.54	Error at Station/Auxiliary Consumption/Losses	0.000%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	24.00	+	Unit-I on standby.
		Unit-II	24.20	220kV Jigmeling - Dagapela Fdr.	1.60	+	
		-	-	5MVA, 220/33kV TFR			
		Total	24.20	Error at Station/Auxiliary Consumption/Losses	0.826%		
6	60MW KHP	Unit- I	10.50	132kV KHP - Nangkhon Fdr- I	8.68	+	Unit-III & Unit-IV on standby.
		Unit-II	10.50	132kV KHP - Kilihar Fdr- II	10.97	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.39	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-15.63	-	
		-	-	132kV Motanga - Rangia Fdr.	1.17	+	
		-	-	220kV Tsirang - Jigmeling	8.76	+	
		Total	21.00	Error at Station/Auxiliary Consumption/Losses	4.571%		

Note: Generation-Load summary for January 08, 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	334.75	249.70	237.72	76.29	11.98
2	Eastern Grid	136.44	44.25	43.26	100.95	0.99
	Total	471.19	293.95	280.98	177.24	12.97

Note: Generation-Load Summary for January 08, 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	293.44	259.74	256.38	14.46	3.36
2	Eastern Grid	134.92	44.53	43.30	109.63	1.23
	Total	428.36	304.27	299.68	124.09	4.59

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.