

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	January 5, 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	130.30	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	78.96	+	
		Unit- IV	119.53	400kV THP - Malbase Fdr- III	166.22	+	
		Unit- V	0.00	400kV Malbase - Siliguri	62.00	+	
		Unit- VI	0.00	-	-	-	
		Total	249.83	Error at Station/Auxiliary Consumption/Losses	1.861%		
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	115.10	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	115.41	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	115.41	Error at Station/Auxiliary Consumption/Losses	0.269%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	-4.04	-	Unit I & II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	-4.13	-	
		Unit- III	45.17	220kV CHP - Malbase Fdr- III	29.24	+	
		Unit- IV	56.73	220kV CHP - Semtokha Fdr- IV	56.37	+	
		-	-	220kV Malbase - Birpara Fdr.	-29.00	-	
		-	-	66kV CHP - Chumdo Fdr.	16.20	+	
		-	-	66kV CHP - Gedu Fdr.	3.30	+	
		-	-	3x3MVA, 66/11kV TFR	2.20	+	
		Total	101.90	Error at Station/Auxiliary Consumption/Losses	2.709%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	9.66	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	7.23	66kV BHP - Lobeysa Fdr.	15.68	+	
		Total	7.23	220kV BHP - Tsirang Fdr.	-4.09	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	1.10	+	
		Unit- II	15.05	30MVA ICT, 220/66kV			
		Total	15.05	Error at Station/Auxiliary Consumption/Losses	-0.314%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	24.29	+	Unit-I on standby.
		Unit-II	24.52	220kV Jigmeling - Dagapela Fdr.	2.70	+	
		-	-	5MVA, 220/33kV TFR			
		Total	24.52	Error at Station/Auxiliary Consumption/Losses	0.938%		
6	60MW KHP	Unit- I	10.07	132kV KHP - Nangkhon Fdr- I	6.05	+	Unit-III & Unit-IV on standby.
		Unit-II	10.05	132kV KHP - Kilihar Fdr- II	13.17	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.58	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-22.43	-	
		-	-	132kV Motanga - Rangia Fdr.	-2.11	-	
		-	-	220kV Tsirang - Jigmeling	16.87	+	
		Total	20.12	Error at Station/Auxiliary Consumption/Losses	1.590%		

Note: Generation-Load Summary for January 05, 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	398.53	277.87	273.00	103.79	4.87
2	Eastern Grid	135.53	61.84	61.21	90.56	0.63
	Total	534.06	339.71	334.21	194.35	5.50

Note: Generation-Load Summary for January 05, 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	432.43	303.11	290.00	118.02	13.11
2	Eastern Grid	160.77	57.73	54.22	114.34	3.51
	Total	593.20	360.84	344.22	232.36	16.62

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 6, 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	130.46	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	86.77	+	
		Unit- IV	119.88	400kV THP - Malbase Fdr- III	158.86	+	
		Unit- V	0.00	400kV Malbase - Siliguri	72.00	+	
		Unit- VI	0.00	-	-	-	
		Total	250.34	Error at Station/Auxiliary Consumption/Losses	1.881%		
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	119.10	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	119.51	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	119.51	Error at Station/Auxiliary Consumption/Losses	0.343%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	5.74	+	Unit-I & II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	5.69	+	
		Unit- III	44.06	220kV CHP - Malbase Fdr- III	43.39	+	
		Unit- IV	56.13	220kV CHP - Semtokha Fdr- IV	29.11	+	
		-	-	220kV Malbase - Birpara Fdr.	-23.00	-	
		-	-	66kV CHP - Chumdo Fdr.	10.30	+	
		-	-	66kV CHP - Gedu Fdr.	3.86	+	
		-	-	3x3MVA, 66/11kV TFR	1.40	+	
		Total	100.19	Error at Station/Auxiliary Consumption/Losses	0.699%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	15.99	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	7.12	66kV BHP - Lobeysa Fdr.	12.21	+	
	Total	7.12	220kV BHP - Tsirang Fdr.	-6.77	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.50	+	
Unit- II		14.75	30MVA ICT, 220/66kV				
		Total	14.75	Error at Station/Auxiliary Consumption/Losses	-0.274%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	23.99	+	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	0.868%		
6	60MW KHP	Unit- I	10.61	132kV KHP - Nangkhon Fdr- I	9.38	+	Unit-III & Unit-IV on standby.
		Unit-II	10.77	132kV KHP - Kilihar Fdr- II	11.06	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-13.04	-	
		-	-	132kV Motanga - Rangia Fdr.	-1.80	-	
		-	-	220kV Tsirang - Jigmeling	15.70	+	
		Total	21.38	Error at Station/Auxiliary Consumption/Losses	2.516%		

Note: Generation-Load summary for January 06, 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	396.60	233.70	229.74	147.20	3.96
2	Eastern Grid	140.89	52.33	51.38	104.26	0.95
	Total	537.49	286.03	281.12	251.46	4.91

Note: Generation-Load Summary for January 06, 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	282.74	252.57	247.87	17.07	4.70
2	Eastern Grid	132.44	45.29	38.11	100.25	7.18
	Total	415.18	297.86	285.98	117.32	11.88

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.