

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	January 26, 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	69.00	400kV THP - Siliguri Fdr- I	0.00		Unit-III on standby. Unit-IV, V & VI under shutdown. 400kV THP-SIL Fdr I on Standby.400kV THP-SIL Fdr II under AMP.
		Unit- II	99.73	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	44.07	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	116.68	+	
		Unit- V	0.00	400kV Malbase - Siliguri	33.00	+	
		Unit- VI	0.00	-	-	-	
		Total	168.73	Error at Station/Auxiliary Consumption/Losses	4.729%		
2	720MW MHP	Unit-I	100.07	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II under maintenance. Unit-III under breakdown.Unit-IV on standby. 400kV MHP-JLG Fdr I,III & IV on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	98.33	+	
		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	100.07	Error at Station/Auxiliary Consumption/Losses	1.739%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.00		Unit-I under Annual Maintenance Unit-III on standby. 220kV CHP-BIR I on Standby
		Unit- II	39.76	220kV CHP - Birpara Fdr- II	-9.72	-	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	30.02	+	
		Unit- IV	47.45	220kV CHP - Semtokha Fdr- IV	41.22	+	
		-	-	220kV Malbase - Birpara Fdr.	-40.00	-	
		-	-	66kV CHP - Chumdo Fdr.	23.82	+	
		-	-	66kV CHP - Gedu Fdr.	-0.97	-	
		-	-	3x3MVA, 66/11kV TFR	0.40	+	
		Total	87.21	Error at Station/Auxiliary Consumption/Losses	2.798%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	20.60	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	6.34	66kV BHP - Lobeysa Fdr.	15.57	+	
	Total	6.34	220kV BHP - Tsirang Fdr.	-17.40	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.80	+	
Unit- II		13.08	30MVA ICT, 220/66kV				
		Total	13.08	Error at Station/Auxiliary Consumption/Losses	-0.772%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	20.97	+	Unit-I on standby.
		Unit-II	21.18	220kV Jigmeling - Dagapela Fdr.	2.86	+	
		-	-	5MVA, 220/33kV TFR			
		Total	21.18	Error at Station/Auxiliary Consumption/Losses	0.992%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	4.02	+	Unit-I & III on standby. Unit-II under Annual Maintenance. 220kV TSI-JLG under AMP
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	6.87	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.49	+	
		Unit- IV	16.03	132kV Gelephu - Salakati Fdr.	-35.20	-	
		-	-	132kV Motanga - Rangia Fdr.	-28.85	-	
		-	-	220kV Tsirang - Jigmeling	0.00		
		Total	16.03	Error at Station/Auxiliary Consumption/Losses	29.008%		

Note: Generation-Load Summary for January 26, 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	296.54	269.19	261.57	27.35	7.62
2	Eastern Grid	116.10	81.82	75.43	34.28	6.39
	Total	412.64	351.01	337.00	61.63	14.01

Note: Generation-Load Summary for January 26, 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	350.76	256.20	247.71	78.3	8.49
2	Eastern Grid	97.38	54.39	53.89	59.25	0.50
	Total	448.14	310.59	301.60	137.55	8.99

NOTE- KHP,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 27, 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	69.26	400kV THP - Siliguri Fdr- I	0.00		Unit-III on standby.Unit-IV, V & VI under shutdown. 400kV THP-SIL Fdr I on Standby.400kV THP-SIL Fdr II under AMP.
		Unit- II	96.44	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	42.75	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	118.47	+	
		Unit- V	0.00	400kV Malbase - Siliguri	31.00	+	
		Unit- VI	0.00	-	-	-	
		Total	165.70	Error at Station/Auxiliary Consumption/Losses	2.704%		
2	720MW MHP	Unit-I	110.12	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II under maintenance. Unit-III under breakdown.Unit IV on standby.400kV MHP-JLGFdr I,III & IV on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	109.90	+	
		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	110.12	Error at Station/Auxiliary Consumption/Losses	0.200%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.00	+	Unit-I under Annual Maintenance Unit-III on standby. 220kV CHP-BIR I on Standby
		Unit- II	36.60	220kV CHP - Birpara Fdr- II	4.25	+	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	32.18	+	
		Unit- IV	38.95	220kV CHP - Semtokha Fdr- IV	22.37	+	
		-	-	220kV Malbase - Birpara Fdr.	-19.00	-	
		-	-	66kV CHP - Chumdo Fdr.	9.97	+	
		-	-	66kV CHP - Gedu Fdr.	3.76	+	
		-	-	3x3MVA, 66/11kV TFR	1.71	+	
		Total	75.55	Error at Station/Auxiliary Consumption/Losses	1.734%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	24.31	+	U/S Unit-I & L/S Unit-I under AMP. L/S Unit-II tripped at 09:00 hours.
		Unit- II	6.20	66kV BHP - Lobeysa Fdr.	12.74	+	
	Total	6.20	220kV BHP - Tsirang Fdr.	-18.55	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.88	+	
Unit- II		12.80	30MVA ICT, 220/66kV				
		Total	12.80	Error at Station/Auxiliary Consumption/Losses	-2.000%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	20.99	+	Unit-I on standby.
		Unit-II	21.20	220kV Jigmeling - Dagapela Fdr.	0.92	+	
		-	-	5MVA, 220/33kV TFR			
		Total	21.20	Error at Station/Auxiliary Consumption/Losses	0.991%		
6	60MW KHP	Unit- I	10.06	132kV KHP - Nangkhon Fdr- I	8.10	+	Unit-IV on standby. Unit-II under Annual Maintenance. 220kV TSI-JLGFdr under AMP
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	11.11	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	10.01	132kV Gelephu - Salakati Fdr.	-29.80	-	
		-	-	132kV Motanga - Rangia Fdr.	-15.16	-	
		-	-	220kV Tsirang - Jigmeling	0.00	+	
		Total	20.07	Error at Station/Auxiliary Consumption/Losses	2.790%		

Note: Generation-Load summary for January 27, 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	281.45	222.45	217.75	59.00	4.70
2	Eastern Grid	130.19	65.25	64.47	64.94	0.78
	Total	411.64	287.70	282.22	123.94	5.48

Note: Generation-Load Summary for January 27, 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	249.85	226.00	218.57	16.62	7.43
2	Eastern Grid	109.70	60.55	56.10	56.38	4.45
	Total	359.55	286.55	274.67	73.00	11.88

NOTE: MAL & all eastern loads collected from site.

1. 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:

- i) 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.
- ii) The clocks of all the locations are not synchronized.

2. This report is generated to give an idea of the generation & load flow for the system at a particular instant.