

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	January 23, 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	68.99	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	99.70	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	42.66	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	122.39	+	
		Unit- V	0.00	400kV Malbase - Siliguri	28.00	+	
		Unit- VI	0.00	-	-	-	
		Total	168.69	Error at Station/Auxiliary Consumption/Losses	2.158%		
2	720MW MHP	Unit-I	110.30	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	107.60	+	
		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	110.30	Error at Station/Auxiliary Consumption/Losses	2.448%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	-10.10	-	Unit-I under Annual Maintenance Unit-III on standby.
		Unit- II	36.32	220kV CHP - Birpara Fdr- II	-9.94	-	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	27.07	+	
		Unit- IV	50.65	220kV CHP - Semtokha Fdr- IV	51.07	+	
		-	-	220kV Malbase - Birpara Fdr.	-38.00	-	
		-	-	66kV CHP - Chumdo Fdr.	23.82	+	
		-	-	66kV CHP - Gedu Fdr.	1.86	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
		Total	86.97	Error at Station/Auxiliary Consumption/Losses	2.288%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	11.39	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	6.51	66kV BHP - Lobeysa Fdr.	15.08	+	
	Total	6.51	220kV BHP - Tsirang Fdr.	-6.89	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.80	+	
Unit- II		13.82	30MVA ICT, 220/66kV				
		Total	13.82	Error at Station/Auxiliary Consumption/Losses	-0.246%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	21.58	+	Unit-I on standby.
		Unit-II	21.80	220kV Jigmeling - Dagapela Fdr.	2.60	+	
		-	-	5MVA, 220/33kV TFR			
		Total	21.80	Error at Station/Auxiliary Consumption/Losses	1.009%		
6	60MW KHP	Unit- I	10.52	132kV KHP - Nangkhon Fdr- I	8.28	+	Unit-IV on standby. Unit-II under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilihar Fdr- II	12.16	+	
		Unit- III	10.53	5MVA, 132/11kV TFR	0.18	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-27.73	-	
		-	-	132kV Motanga - Rangia Fdr.	-12.43	-	
		-	-	220kV Tsirang - Jigmeling	11.97	+	
		Total	21.05	Error at Station/Auxiliary Consumption/Losses	2.052%		

Note: Generation-Load Summary for January 23, 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	297.79	273.20	270.00	12.62	3.20
2	Eastern Grid	131.35	75.88	72.75	67.44	3.13
	Total	429.14	349.08	342.75	80.06	6.33

Note: Generation-Load Summary for January 23, 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	357.93	270.43	264.98	73.28	5.45
2	Eastern Grid	119.97	65.37	60.90	68.82	4.47
	Total	477.90	335.80	325.88	142.10	9.92

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 24, 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	70.00	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	100.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	53.25	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	118.00	+	
		Unit- V	0.00	400kV Malbase - Siliguri	30.00	+	
		Unit- VI	0.00	-	-	-	
		Total	170.00	Error at Station/Auxiliary Consumption/Losses	-0.732%		
2	720MW MHP	Unit-I	110.26	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	109.82	+	
		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	110.26	Error at Station/Auxiliary Consumption/Losses	0.399%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.49	+	Unit-I under Annual Maintenance Unit-III on standby.
		Unit- II	38.91	220kV CHP - Birpara Fdr- II	0.46	+	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	36.79	+	
		Unit- IV	45.76	220kV CHP - Semtokha Fdr- IV	25.00	+	
		-	-	220kV Malbase - Birpara Fdr.	-27.00	-	
		-	-	66kV CHP - Chumdo Fdr.	17.05	+	
		-	-	66kV CHP - Gedu Fdr.	2.53	+	
		-	-	3x3MVA, 66/11kV TFR	1.46	+	
		Total	84.67	Error at Station/Auxiliary Consumption/Losses	1.051%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	13.90	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	6.70	66kV BHP - Lobeysa Fdr.	10.50	+	
		Total	6.70	220kV BHP - Tsirang Fdr.	-5.30	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	13.90	30MVA ICT, 220/66kV			
Total	13.90	Error at Station/Auxiliary Consumption/Losses	2.913%				
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	23.48	+	Unit-I on standby.
		Unit-II	23.69	220kV Jigmeling - Dagapela Fdr.	1.70	+	
		-	-	5MVA, 220/33kV TFR			
		Total	23.69	Error at Station/Auxiliary Consumption/Losses	0.886%		
6	60MW KHP	Unit- I	10.54	132kV KHP - Nangkhon Fdr- I	10.01	+	Unit-IV on standby. Unit-II under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	10.36	+	
		Unit- III	10.55	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-17.99	-	
		-	-	132kV Motanga - Rangia Fdr.	-11.20	-	
		-	-	220kV Tsirang - Jigmeling	12.14	+	
		Total	21.09	Error at Station/Auxiliary Consumption/Losses	1.991%		

Note: Generation-Load summary for January 24, 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	298.96	229.62	230.87	57.20	-1.25
2	Eastern Grid	131.35	62.86	62.00	80.63	0.86
Total		430.31	292.48	292.87	137.83	-0.39

Note: Generation-Load Summary for January 24, 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	252.73	242.00	236.39	0.84	5.61
2	Eastern Grid	122.59	52.59	49.35	79.89	3.24
Total		375.32	294.59	285.74	80.73	8.85

NOTE: MAL & Eastern loads 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.
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