BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date		
Date	**Time**	**Load(MW)**
27-Dec-18	18:18hrs	399.35MW

Date:	**February 23, 2021**
Hours:	**19:00 Hours**

Sl. No.	Hydropower Plant	Unit	MW	Name of Feeders	Load (MW)	Sign	Remarks
1	**1020MW THP**	Unit- I	138.32	400kV THP - Siliguri Fdr- I	100.31	+	Unit-III on standby. Unit-IV, V &VI under shutdown. 400kV THP-SIL Fdr II on standby. 400kV THP-SIL Fdr IV under AMP.
		Unit- II	140.40	400kV THP - Siliguri Fdr- II	0.00	+	
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	171.01	+	
		Unit- V	0.00	400kV Malbase - Siliguri	82.90	+	
		Unit- VI	0.00	-	-	-	
		Total	**278.72**	**Error at Station/Auxiliary Consumption/Losses**	**2.655%**		
2	**720MW MHP**	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00	+	Unit- I standby. Unit-II under maintenance. Unit-III under breakdown. 400kV MHP-JLG Fdr I ,II & III on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00	+	
		Unit-IV	92.40	400kV MHP - Jigmeling Fdr - IV	92.30	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	**92.40**	**Error at Station/Auxiliary Consumption/Losses**	**0.108%**		
3	**336MW CHP**	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.00	+	Unit-I & III under Annual Maintenance 220kV CHP-BIR I on Standby.
		Unit- II	37.18	220kV CHP - Birpara Fdr- II	-8.71	-	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	2.46	+	
		Unit- IV	38.14	220kV CHP - Semtokha Fdr- IV	57.88	+	
		-	-	220kV Malbase - Birpara Fdr.	-16.00	-	
		-	-	66kV CHP - Chumdo Fdr.	16.09	+	
		-	-	66kV CHP - Gedu Fdr.	2.75	+	
		-	-	3x3MVA, 66/11kV TFR	2.00	+	
		Total	**75.32**	**Error at Station/Auxiliary Consumption/Losses**	**3.784%**		
4	**24MW BHP (U/S)**	Unit- I	4.57	220kV BHP - Semtokha Fdr.	4.48	+	U/S Unit-II under AMP. L/S Unit-I on standby
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	14.47	+	
		Total	**4.57**	220kV BHP - Tsirang Fdr.	-5.00	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.70	+	
		Unit- II	10.11	30MVA ICT, 220/66kV			
		Total	**10.11**	**Error at Station/Auxiliary Consumption/Losses**	**0.204%**		
5	**126MW DHPC**	Unit-I	17.64	220kV DHPC - Tsirang Fdr.	17.42	+	Unit-II under AMP
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.	2.70	+	
		-	-	5MVA, 220/33kV TFR			
		Total	**17.64**	**Error at Station/Auxiliary Consumption/Losses**	**1.247%**		
6	**60MW KHP**	Unit- I	11.50	132kV KHP - Nangkhor Fdr- I	8.00	+	Unit-III on standby. Unit-IV under Annual Maintenance.
		Unit-II	12.00	132kV KHP - Kilikhar Fdr- II	15.00	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.19	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-31.77	-	
		-	-	132kV Motanga - Rangia Fdr.	-1.20	-	
		-	-	220kV Tsirang - Jigmeling	9.82	+	
		Total	**23.50**	**Error at Station/Auxiliary Consumption/Losses**	**1.319%**		

Note: Generation-Load Summary for February 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**	386.36	218.04	210.24	158.50	7.80
2	**Eastern Grid**	115.90	66.39	65.98	59.33	0.41
Total		**502.26**	**284.43**	**276.22**	**217.83**	**8.21**

Note: Generation-Load Summary for February 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**	337.79	272.42	265.39	**28.72**	7.03
2	**Eastern Grid**	110.29	83.33	80.65	**63.61**	2.68
Total		**448.08**	**355.75**	**346.04**	**92.33**	**9.71**

NOTE- MAL,KHP,MHP & Motanga data 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.

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date		
Date	**Time**	**Load(MW)**
27-Dec-18	18:18hrs	399.35MW

Date:	**February 24, 2021**
Hours:	**09:00 Hours**

Sl. No.	Hydropower Plant	Unit	MW	Name of Feeders	Load (MW)	Sign	Remarks
1	**1020MW THP**	Unit- I	157.85	400kV THP - Siliguri Fdr- I	117.02	+	Unit-III on standby. Unit-IV,V &VI under shutdown. 400kV THP-SIL Fdr II on standby. 400kV Tala-Sil IV under AMP.
		Unit- II	160.17	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	192.67	+	
		Unit- V	0.00	400kV Malbase - Siliguri	95.00	+	
		Unit- VI	0.00	-	-	-	
		Total	**318.02**	**Error at Station/Auxiliary Consumption/Losses**	**2.619%**		
2	**720MW MHP**	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	100.04	+	Unit I on Standby Unit-II under maintenance Unit-III under breakdown. 400kV MHP-JLG Fdr II,III & IV on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	100.84	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	**100.84**	**Error at Station/Auxiliary Consumption/Losses**	**0.793%**		
3	**336MW CHP**	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.00		Unit-I & III under AMP. 220kV CHP-BIR I on Standby
		Unit- II	36.76	220kV CHP - Birpara Fdr- II	4.38	+	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	11.83	+	
		Unit- IV	38.68	220kV CHP - Semtokha Fdr- IV	42.85	+	
		-	-	220kV Malbase - Birpara Fdr.	0.80	+	
		-	-	66kV CHP - Chumdo Fdr.	11.31	+	
		-	-	66kV CHP - Gedu Fdr.	2.92	+	
		-	-	3x3MVA, 66/11kV TFR	1.40	+	
		Total	**75.44**	**Error at Station/Auxiliary Consumption/Losses**	**0.994%**		
4	**24MW BHP (U/S)**	Unit- I	4.65	220kV BHP - Semtokha Fdr.	6.57	+	U/S Unit-II under AMP. L/S Unit-I on standby.
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	11.65	+	
		Total	**4.65**	220kV BHP - Tsirang Fdr.	-3.61	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.40	+	
		Unit- II	10.52	30MVA ICT, 220/66kV			
		Total	**10.52**	**Error at Station/Auxiliary Consumption/Losses**	**1.055%**		
5	**126MW DHPC**	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	17.15	+	Unit-I under AMP
		Unit-II	17.74	220kV Jigmeling - Dagapela Fdr.	1.30	+	
		-	-	5MVA, 220/33kV TFR			
		Total	**17.74**	**Error at Station/Auxiliary Consumption/Losses**	**3.326%**		
6	**60MW KHP**	Unit- I	0.00	132kV KHP - Nangkhor Fdr- I	3.46	+	Unit-I & II on standby. Unit-IV under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	11.86	+	
		Unit- III	16.10	5MVA, 132/11kV TFR	0.35	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-20.03	-	
		-	-	132kV Motanga - Rangia Fdr.	0.91	+	
		-	-	220kV Tsirang - Jigmeling	12.74	+	
		Total	**16.10**	**Error at Station/Auxiliary Consumption/Losses**	**2.696%**		

Note: Generation-Load summary for February 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**	426.37	196.43	187.90	217.20	8.53
2	**Eastern Grid**	116.94	48.76	47.53	80.92	1.23
Total		**543.31**	**245.19**	**235.43**	**298.12**	**9.76**

Note: Generation-Load Summary for February 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**	251.19	245.33	237.82	**-25.18**	7.51
2	**Eastern Grid**	109.63	74.12	73.40	**66.55**	0.72
Total		**360.82**	**319.45**	**311.22**	**41.37**	**8.23**

NOTE:Eastern load and MAL data 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.