

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	March 8, 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	149.55	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 IV under AMP.
		Unit- II	58.98	400kV THP - Siliguri Fdr- II	62.80	+	
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	135.55	+	
		Unit- V	0.00	400kV Malbase - Siliguri	53.00	+	
		Unit- VI	0.00	-	-	-	
		Total	208.53	Error at Station/Auxiliary Consumption/Losses	4.882%		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II under maintenance. Unit-III under breakdown. Unit- I on standby. 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	90.40	400kV MHP - Jigmeling Fdr - IV	89.71	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	90.40	Error at Station/Auxiliary Consumption/Losses	0.763%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	8.22	+	Unit-I on standby Unit-III on AMP 220kV CHP-BIR fdr II under AMP.
		Unit- II	64.00	220kV CHP - Birpara Fdr- II	0.00		
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	31.45	+	
		Unit- IV	66.00	220kV CHP - Semtokha Fdr- IV	61.32	+	
		-	-	220kV Malbase - Birpara Fdr.	-12.00	-	
		-	-	66kV CHP - Chumdo Fdr.	22.09	+	
		-	-	66kV CHP - Gedu Fdr.	3.77	+	
		-	-	3x3MVA, 66/11kV TFR	2.06	+	
		Total	130.00	Error at Station/Auxiliary Consumption/Losses	0.838%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	-2.27	-	U/S Unit-I on standby L/S Unit-I on standby
		Unit- II	5.09	66kV BHP - Lobeysa Fdr.	13.93	+	
		Total	5.09	220kV BHP - Tsirang Fdr.	3.29	+	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.75	+	
		Unit- II	10.73	30MVA ICT, 220/66kV			
		Total	10.73	Error at Station/Auxiliary Consumption/Losses	0.759%		
5	126MW DHPC	Unit-I	17.47	220kV DHPC - Tsirang Fdr.	17.26	+	Unit-II AMP
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.	2.70	+	
		-	-	5MVA, 220/33kV TFR			
		Total	17.47	Error at Station/Auxiliary Consumption/Losses	1.202%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	5.63	+	Unit-I on standby. Unit-IV under Annual Maintenance.
		Unit-II	10.09	132kV KHP - Kilihar Fdr- II	13.70	+	
		Unit- III	10.08	5MVA, 132/11kV TFR	0.62	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-33.66	-	
		-	-	132kV Motanga - Rangia Fdr.	-9.23	-	
		-	-	220kV Tsirang - Jigmeling	17.52	+	
		Total	20.17	Error at Station/Auxiliary Consumption/Losses	1.091%		

Note: Generation-Load Summary for March 08, 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	371.82	242.28	233.38	112.02	8.90
2	Eastern Grid	110.57	81.27	80.36	46.82	0.91
	Total	482.39	323.55	313.74	158.84	9.81

Note: Generation-Load Summary for March 08, 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	370.61	284.32	276.46	48.1	7.86
2	Eastern Grid	110.64	89.24	89.54	59.59	-0.30
	Total	481.25	373.56	366.00	107.69	7.56

NOTE- KHP,MHP & 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:	March 9, 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	79.85	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 Tala-SIL IV under AMP.
		Unit- II	59.36	400kV THP - Siliguri Fdr- II	37.26	+	
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	98.93	+	
		Unit- V	0.00	400kV Malbase - Siliguri	23.00	+	
		Unit- VI	0.00	-	-	-	
		Total	139.21	Error at Station/Auxiliary Consumption/Losses	2.169%		
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	150.18	400kV MHP - Jigmeling Fdr - IV	149.74	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	150.18	Error at Station/Auxiliary Consumption/Losses	0.293%		
3	336MW CHP	Unit- I	81.70	220kV CHP - Birpara Fdr- I	0.00	+	Unit- II & IV on standby. Unit-III under AMP 220kV CHP-BIR II under AMP.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	0.00	+	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	29.11	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	31.39	+	
		-	-	220kV Malbase - Birpara Fdr.	-22.00	-	
		-	-	66kV CHP - Chumdo Fdr.	15.03	+	
		-	-	66kV CHP - Gedu Fdr.	3.75	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
		Total	81.70	Error at Station/Auxiliary Consumption/Losses	1.493%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	13.59	+	U/S Unit-I on standby. L/S Unit-I on standby.
		Unit- II	5.27	66kV BHP - Lobeysa Fdr.	11.61	+	
		Total	5.27	220kV BHP - Tsirang Fdr.	-8.74	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.40	+	
		Unit- II	11.44	30MVA ICT, 220/66kV			
		Total	11.44	Error at Station/Auxiliary Consumption/Losses	-0.898%		
5	126MW DHPC	Unit-I	17.95	220kV DHPC - Tsirang Fdr.	17.75	+	Unit-II under AMP..
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.	1.31	+	
		-	-	5MVA, 220/33kV TFR			
		Total	17.95	Error at Station/Auxiliary Consumption/Losses	1.114%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Fdr- I	5.52	+	Unit- I & III on standby. Unit-IV under Annual Maintenance.
		Unit-II	16.00	132kV KHP - Kilikhar Fdr- II	9.88	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.35	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-26.20	-	
		-	-	132kV Motanga - Rangia Fdr.	-9.57	-	
		-	-	220kV Tsirang - Jigmeling	6.72	+	
		Total	16.00	Error at Station/Auxiliary Consumption/Losses	1.556%		

Note: Generation-Load summary for March 09, 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	255.57	210.59	207.61	38.26	2.98
2	Eastern Grid	166.18	58.93	58.24	113.97	0.69
	Total	421.75	269.52	265.85	152.23	3.67

Note: Generation-Load Summary for March 09, 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	223.88	246.66	241.52	-49.88	5.14
2	Eastern Grid	116.46	73.73	71.98	69.83	1.75
	Total	340.34	320.39	313.50	19.95	6.89

NOTE: KHP,MHP, Motanga & 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.