

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	February 2, 2020
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	0.00	400kV THP - Siliguri Fdr- I	31.64	+	Unit-III & IV at standby. Unit-I and II under shutdown. 400kV THP_SILI-II under shutdown & 400kV THP_SILI-IV standby.
		Unit- II	0.00	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	104.07	+	
		Unit- V	69.29	400kV Malbase - Siliguri	14.62	+	
		Unit- VI	70.22	-	-	-	
		Total	139.51	Error at Station/Auxiliary Consumption/Losses	3.80		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-I,II & III standby. 400kV MHP-JLG I & II Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	41.50	+	
		Unit-IV	87.38	400kV MHP - Jigmeling Fdr - IV	42.20	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	87.38	Error at Station/Auxiliary Consumption/Losses	3.68		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.00		Unit-I under shutdown. Unit-IV & 220kV CHP-BIR I standby
		Unit- II	24.43	220kV CHP - Birpara Fdr- II	-16.93	-	
		Unit- III	29.42	220kV CHP - Malbase Fdr- III	16.28	+	
		Unit- IV	0.00	220kV CHP - Sementokha Fdr- IV	36.84	+	
		-	-	220kV Malbase - Birpara Fdr.	-39.50	-	
		-	-	66kV CHP - Chumdo Fdr.	12.46	+	
		-	-	66kV CHP - Gedu Fdr.	2.19	+	
		-	-	3x3MVA, 66/11kV TFR	1.50	+	
Total	53.85	Error at Station/Auxiliary Consumption/Losses	1.51				
4	24MW BHP (U/S)	Unit- I	5.55	220kV BHP - Sementokha Fdr.	12.83	+	U/S Unit-II & L/S Unit-I under maintenace.
		Unit- II	0.00	66kV BHP - Lobeyasa Fdr.	12.89	+	
		Total	5.55	220kV BHP - Tsirang Fdr.	-9.42	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.85	+	
		Unit- II	11.36	30MVA ICT, 220/66kV			
Total	11.36	Error at Station/Auxiliary Consumption/Losses	0.24				
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	17.98	+	Unit I under maintenance
		Unit-II	18.17	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		Total	18.17	Error at Station/Auxiliary Consumption/Losses	0.19		
6	60MW KHP	Unit- I	12.70	132kV KHP - Nangkhon Fdr- I	9.25	+	Unit- III & IV Annual Maintenance
		Unit-II	10.48	132kV KHP - Kilikhar Fdr- II	12.51	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-23.90	-	
		-	-	132kV Motanga - Rangia Fdr.	-3.76	-	
		-	-	220kV Tsirang - Jigmeling	6.12	+	
		Total	23.18	Error at Station/Auxiliary Consumption/Losses	1.02		

Note: Load summary on February 02, 2020 at 19:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	228.44	232.49	227.23	-10.17	5.26
2	Eastern Grid	110.56	60.64	55.94	56.04	4.70
	Total	339.00	293.13	283.17	45.87	9.96

Note: Load Summary on February 02, 2019 at 19:00hrs

Sl. No	Region	19:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	268.65	268.65	308.60
2	Eastern Grid	57.90	57.90	65.91
	National	326.55	326.55	374.51

NOTES: Motanga and KHP units data are 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:	February 3, 2020
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	0.00	400kV THP - Siliguri Fdr- I	26.44	+	Unit- III & IV at standby. Unit- I & II under shutdown. 400kV THP_SILI-II under shutdown & 400kV THP_SILI-IV standby.
		Unit- II	0.00	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	101.18	+	
		Unit- V	59.93	400kV Malbase - Siliguri	8.81	+	
		Unit- VI	70.41	-	-	-	
		Total	130.34	Error at Station/Auxiliary Consumption/Losses	2.72		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-I,II & III standby. 400kV MHP-JLG I & II standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	39.30	+	
		Unit-IV	81.90	400kV MHP - Jigmeling Fdr - IV	38.50	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	81.90	Error at Station/Auxiliary Consumption/Losses	4.10		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.00		Unit-I under shutdown. Unit IV & 220kV CHP-BIR I standby
		Unit- II	23.95	220kV CHP - Birpara Fdr- II	-23.10	-	
		Unit- III	33.60	220kV CHP - Malbase Fdr- III	19.06	+	
		Unit- IV	0.00	220kV CHP - Sementokha Fdr- IV	42.21	+	
		-	-	220kV Malbase - Birpara Fdr.	-52.40	-	
		-	-	66kV CHP - Chumdo Fdr.	13.58	+	
		-	-	66kV CHP - Gedu Fdr.	2.89	+	
		-	-	3x3MVA, 66/11kV TFR	1.41	+	
Total	57.55	Error at Station/Auxiliary Consumption/Losses	1.50				
4	24MW BHP (U/S)	Unit- I	5.47	220kV BHP - Sementokha Fdr.	16.18	+	U/S Unit-II & L/S Unit-I under maintenace.
		Unit- II	0.00	66kV BHP - Lobeyasa Fdr.	14.77	+	
		Total	5.47	220kV BHP - Tsirang Fdr.	-14.36	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.85	+	
		Unit- II	11.29	30MVA ICT, 220/66kV			
Total	11.29	Error at Station/Auxiliary Consumption/Losses	-0.68				
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	18.00	+	Unit I under maintenance
		Unit-II	18.90	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		Total	18.90	Error at Station/Auxiliary Consumption/Losses	0.90		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	6.91	+	Unit-III & IV Annual Maintenance. Unit-I standby
		Unit-II	15.45	132kV KHP - Kilikhar Fdr- II	7.46	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-23.24	-	
		-	-	132kV Motanga - Rangia Fdr.	-11.07	-	
		-	-	220kV Tsirang - Jigmeling	1.73	+	
		Total	15.45	Error at Station/Auxiliary Consumption/Losses	0.68		

Note: Load summary on February 03, 2020 at 09:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	223.55	262.07	257.63	-40.25	4.44
2	Eastern Grid	97.35	55.59	50.81	43.49	4.78
	Total	320.90	317.66	308.44	3.24	9.22

Note: Load Summary on February 03, 2019 at 09:00hrs

Sl. No	Region	09:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	240.50	271.64	285.13
2	Eastern Grid	42.99	54.93	66.55
	National	283.49	326.57	351.68

NOTES: 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.
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