

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	January 30, 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	69.25	+	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	145.62	+	
		Unit- V	148.55	400kV Malbase - Siliguri	47.55	+	
		Unit- VI	70.51	-	-	-	
		Total	219.06	Error at Station/Auxiliary Consumption/Losses	4.19		
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	49.00	+	
		Unit-IV	102.56	400kV MHP - Jigmeling Fdr - IV	51.40	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	102.56	Error at Station/Auxiliary Consumption/Losses	2.16		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.00		Unit-I under shutdown. Unit-II under maintenance. 220kV CHP-BIR I standby
		Unit- II	69.66	220kV CHP - Birpara Fdr- II	-9.21	-	
		Unit- III	35.25	220kV CHP - Malbase Fdr- III	25.77	+	
		Unit- IV	0.00	220kV CHP - Sementokha Fdr- IV	65.53	+	
		-	-	220kV Malbase - Birpara Fdr.	-34.56	-	
		-	-	66kV CHP - Chumdo Fdr.	17.24	+	
		-	-	66kV CHP - Gedu Fdr.	2.60	+	
		-	-	3x3MVA, 66/11kV TFR	1.97	+	
Total	104.91	Error at Station/Auxiliary Consumption/Losses	1.01				
4	24MW BHP (U/S)	Unit- I	5.79	220kV BHP - Sementokha Fdr.	2.04	+	U/S Unit-II & L/S Unit-I under maintenace.
		Unit- II	0.00	66kV BHP - Lobeyasa Fdr.	16.73	+	
		Total	5.79	220kV BHP - Tsirang Fdr.	-2.25	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	11.82	30MVA ICT, 220/66kV			
Total	11.82	Error at Station/Auxiliary Consumption/Losses	0.20				
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	17.95	+	Unit I under maintenance
		Unit-II	18.18	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		Total	18.18	Error at Station/Auxiliary Consumption/Losses	0.23		
6	60MW KHP	Unit- I	12.30	132kV KHP - Nangkhon Fdr- I	9.67	+	Unit-II Standby Unit- III Annual Maintenance
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	12.20	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	11.10	132kV Gelephu - Salakati Fdr.	-22.14	-	
		-	-	132kV Motanga - Rangia Fdr.	-20.59	-	
		-	-	220kV Tsirang - Jigmeling	-1.36	-	
		Total	23.40	Error at Station/Auxiliary Consumption/Losses	1.23		

Note: Load summary on January 30, 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	359.76	288.09	282.46	73.03	5.63
2	Eastern Grid	125.96	66.93	63.54	57.67	3.39
	Total	485.72	355.02	346.00	130.70	9.02

Note: Load Summary on January 30, 2019 at 19:00hrs

Sl. No	Region	19:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	262.42	267.83	308.60
2	Eastern Grid	58.27	58.27	65.91
	National	320.69	326.10	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:	January 31, 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	29.26	+	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	107.84	+	
		Unit- V	70.04	400kV Malbase - Siliguri	9.78	+	
		Unit- VI	70.87	-	-	-	
		Total	140.91	Error at Station/Auxiliary Consumption/Losses	3.81		
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	49.40	+	
		Unit-IV	102.60	400kV MHP - Jigmeling Fdr - IV	48.70	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	102.60	Error at Station/Auxiliary Consumption/Losses	4.50		
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	25.28	220kV CHP - Birpara Fdr- II	-20.47	-	
		Unit- III	35.40	220kV CHP - Malbase Fdr- III	20.82	+	
		Unit- IV	0.00	220kV CHP - Sementokha Fdr- IV	41.70	+	
		-	-	220kV Malbase - Birpara Fdr.	-48.78	-	
		-	-	66kV CHP - Chumdo Fdr.	13.20	+	
		-	-	66kV CHP - Gedu Fdr.	2.67	+	
		-	-	3x3MVA, 66/11kV TFR	1.51	+	
Total	60.68	Error at Station/Auxiliary Consumption/Losses	1.25				
4	24MW BHP (U/S)	Unit- I	5.73	220kV BHP - Sementokha Fdr.	14.27	+	U/S Unit-II & L/S Unit-I under maintenance.
		Unit- II	0.00	66kV BHP - Lobeyasa Fdr.	14.25	+	
		Total	5.73	220kV BHP - Tsirang Fdr.	-11.80	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.71	+	
		Unit- II	11.57	30MVA ICT, 220/66kV			
		Total	11.57	Error at Station/Auxiliary Consumption/Losses	-0.13		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	18.47	+	Unit I under maintenance
		Unit-II	18.68	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		Total	18.68	Error at Station/Auxiliary Consumption/Losses	0.21		
6	60MW KHP	Unit- I	13.16	132kV KHP - Nangkhon Fdr- I	12.90	+	Unit-III & IV Annual Maintenance.
		Unit-II	10.38	132kV KHP - Kilikhar Fdr- II	10.10	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-18.44	-	
		-	-	132kV Motanga - Rangia Fdr.	-2.05	-	
		-	-	220kV Tsirang - Jigmeling	4.57	+	
		Total	23.54	Error at Station/Auxiliary Consumption/Losses	0.24		

Note: Load summary on January 31, 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	237.57	263.21	258.07	-30.21	5.14
2	Eastern Grid	126.14	53.10	48.36	77.61	4.74
	Total	363.71	316.31	306.43	47.40	9.88

Note: Load Summary on January 31, 2019 at 09:00hrs

Sl. No	Region	09:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	235.51	280.13	308.60
2	Eastern Grid	54.28	60.96	65.91
	National	289.79	341.09	374.51

NOTES: Motanga data were 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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