

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	January 29, 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	71.26	+	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	145.58	+	
		Unit- V	69.35	400kV Malbase - Siliguri	49.63	+	
		Unit- VI	150.45	-	-	-	
		Total	219.80	Error at Station/Auxiliary Consumption/Losses		2.96	
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	48.00	+	
		Unit-IV	100.50	400kV MHP - Jigmeling Fdr - IV	48.70	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	100.50	Error at Station/Auxiliary Consumption/Losses		3.80	
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	65.57	220kV CHP - Birpara Fdr- II	-9.30	-	
		Unit- III	35.93	220kV CHP - Malbase Fdr- III	29.04	+	
		Unit- IV	0.00	220kV CHP - Sementokha Fdr- IV	61.89	+	
		-	-	220kV Malbase - Birpara Fdr.	-36.79	-	
		-	-	66kV CHP - Chumdo Fdr.	16.52	+	
		-	-	66kV CHP - Gedu Fdr.	3.48	+	
		-	-	3x3MVA, 66/11kV TFR	1.97	+	
Total	101.50	Error at Station/Auxiliary Consumption/Losses		-2.10			
4	24MW BHP (U/S)	Unit- I	5.80	220kV BHP - Sementokha Fdr.	6.09	+	U/S Unit-II & L/S Unit-I under maintenance.
		Unit- II	0.00	66kV BHP - Lobeyasa Fdr.	16.80	+	
		Total	5.80	220kV BHP - Tsirang Fdr.	-6.00	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.95	+	
		Unit- II	11.84	30MVA ICT, 220/66kV			
Total	11.84	Error at Station/Auxiliary Consumption/Losses		0.20			
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	18.46	+	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		0.22	
6	60MW KHP	Unit- I	12.30	132kV KHP - Nangkhon Fdr- I	-1.14	+	Unit-II Standby Unit- III Annual Maintenance
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	23.88	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	11.10	132kV Gelephu - Salakati Fdr.	-19.86	-	
		-	-	132kV Motanga - Rangia Fdr.	-20.59	-	
		-	-	220kV Tsirang - Jigmeling	7.32	+	
		Total	23.40	Error at Station/Auxiliary Consumption/Losses		0.36	

Note: Load summary on January 29, 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	357.62	275.50	274.62	74.80	0.88
2	Eastern Grid	123.90	74.97	70.81	56.25	4.16
	Total	481.52	350.47	345.43	131.05	5.04

Note: Load Summary on January 29, 2019 at 19:00hrs

Sl. No	Region	19:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	266.80	266.80	308.60
2	Eastern Grid	51.91	58.22	65.91
	National	318.71	325.02	374.51

Motanga data are 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:	January 30, 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	29.16	+	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	107.13	+	
		Unit- V	69.46	400kV Malbase - Siliguri	10.12	+	
		Unit- VI	70.47	-	-	-	
		Total	139.93	Error at Station/Auxiliary Consumption/Losses	3.64		
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	102.22	400kV MHP - Jigmeling Fdr - IV	49.40	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	102.22	Error at Station/Auxiliary Consumption/Losses	3.42		
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	27.78	220kV CHP - Birpara Fdr- II	-18.88	-	
		Unit- III	35.47	220kV CHP - Malbase Fdr- III	21.56	+	
		Unit- IV	0.00	220kV CHP - Sementokha Fdr- IV	42.00	+	
		-	-	220kV Malbase - Birpara Fdr.	-45.98	-	
		-	-	66kV CHP - Chumdo Fdr.	12.45	+	
		-	-	66kV CHP - Gedu Fdr.	3.69	+	
		-	-	3x3MVA, 66/11kV TFR	1.37	+	
Total	63.25	Error at Station/Auxiliary Consumption/Losses	1.06				
4	24MW BHP (U/S)	Unit- I	5.73	220kV BHP - Sementokha Fdr.	13.29	+	U/S Unit-II & L/S Unit-I under maintenance.
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	14.37	+	
		Total	5.73	220kV BHP - Tsirang Fdr.	-10.88	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.73	+	
		Unit- II	11.76	30MVA ICT, 220/66kV			
Total	11.76	Error at Station/Auxiliary Consumption/Losses	-0.02				
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	18.24	+	Unit I under maintenance
		Unit-II	18.46	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		Total	18.46	Error at Station/Auxiliary Consumption/Losses	0.22		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	-3.50	-	Unit-III Annual Maintenance. Unit-II & I Standby
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	18.93	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	15.63	132kV Gelephu - Salakati Fdr.	-17.64	-	
		-	-	132kV Motanga - Rangia Fdr.	-18.54	-	
		-	-	220kV Tsirang - Jigmeling	5.52	+	
		Total	15.63	Error at Station/Auxiliary Consumption/Losses	-0.20		

Note: Load summary on January 30, 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	239.13	259.19	254.29	-25.58	4.90
2	Eastern Grid	117.85	60.75	57.53	62.62	3.22
	Total	356.98	319.94	311.82	37.04	8.12

Note: Load Summary on January 30, 2019 at 09:00hrs

Sl. No	Region	09:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	248.57	267.83	308.60
2	Eastern Grid	48.84	58.27	65.91
	National	297.41	326.10	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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