

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	January 26, 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	66.90	+	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	138.60	+	
		Unit- V	139.24	400kV Malbase - Siliguri	47.46	+	
		Unit- VI	71.38	-	-	-	
		Total	210.62	Error at Station/Auxiliary Consumption/Losses	5.12		
2	720MW MHP	Unit-I	75.24	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II & III under maintenance. Unit-IV under 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	37.81	+	
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	37.81	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	75.24	Error at Station/Auxiliary Consumption/Losses	-0.38		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.00		Unit-I under shutdown. Unit II tripped at 8:53Hrs. 220kV CHP-BIR I standby
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	-5.71	-	
		Unit- III	36.30	220kV CHP - Malbase Fdr- III	27.57	+	
		Unit- IV	66.00	220kV CHP - Semtokha Fdr- IV	58.10	+	
		-	-	220kV Malbase - Birpara Fdr.	-30.35	-	
		-	-	66kV CHP - Chumdo Fdr.	15.48	+	
		-	-	66kV CHP - Gedu Fdr.	3.96	+	
		-	-	3x3MVA, 66/11kV TFR	1.95	+	
Total	102.30	Error at Station/Auxiliary Consumption/Losses	0.95				
4	24MW BHP (U/S)	Unit- I	6.20	220kV BHP - Semtokha Fdr.	1.56	+	U/S Unit-II & L/S Unit-I under maintenace.
		Unit- II	0.00	66kV BHP - Lobeyasa Fdr.	14.33	+	
		Total	6.20	220kV BHP - Tsirang Fdr.	-0.28	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	12.50	30MVA ICT, 220/66kV			
		Total	12.50	Error at Station/Auxiliary Consumption/Losses	2.20		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	18.92	+	Unit I under maintenance
		Unit-II	19.14	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		Total	19.14	Error at Station/Auxiliary Consumption/Losses	0.22		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Fdr- I	8.36	+	Unit-I Standby , Unit- III Annual Maintenance.
		Unit-II	11.02	132kV KHP - Kilikhar Fdr- II	12.37	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.53	+	
		Unit- IV	11.12	132kV Gelephu - Salakati Fdr.	-17.64	-	
		-	-	132kV Motanga - Rangia Fdr.	1.27	+	
		-	-	220kV Tsirang - Jigmeling	16.26	+	
		Total	22.14	Error at Station/Auxiliary Consumption/Losses	0.88		

Note: Load summary on January 26, 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	350.76	256.20	247.71	78.30	8.49
2	Eastern Grid	97.38	54.39	53.89	59.25	0.50
	Total	448.14	310.59	301.60	137.55	8.99

Note: Load Summary on January 26, 2019 at 19:00hrs

Sl. No	Region	19:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	268.97	272.63	308.60
2	Eastern Grid	55.73	55.73	65.91
	National	324.70	328.36	374.51

NOTES: SEM, BHP, DHP, CHP, MOT 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 27, 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	38.63	+	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	105.77	+	
		Unit- V	78.61	400kV Malbase - Siliguri	22.93	+	
		Unit- VI	70.92	-	-	-	
		Total	149.53	Error at Station/Auxiliary Consumption/Losses	5.13		
2	720MW MHP	Unit-I	93.70	400kV MHP - Jigmeling Fdr - I	0.00		Unit-III under maintenance. Unit-II & IV 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	44.40	+	
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	45.10	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	93.70	Error at Station/Auxiliary Consumption/Losses	4.20		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.00		Unit-I under shutdown. 220kV CHP-BIR I standby Unit II tripped at 08:53hrs
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	-12.53	-	
		Unit- III	36.13	220kV CHP - Malbase Fdr- III	15.96	+	
		Unit- IV	26.85	220kV CHP - Sementokha Fdr- IV	40.32	+	
		-	-	220kV Malbase - Birpara Fdr.	-32.41	-	
		-	-	66kV CHP - Chumdo Fdr.	12.72	+	
		-	-	66kV CHP - Gedu Fdr.	2.64	+	
		-	-	3x3MVA, 66/11kV TFR	1.45	+	
Total	62.98	Error at Station/Auxiliary Consumption/Losses	2.42				
4	24MW BHP (U/S)	Unit- I	6.10	220kV BHP - Sementokha Fdr.	8.48	+	U/S Unit-II & L/S Unit-I under maintenance.
		Unit- II	0.00	66kV BHP - Lobeyasa Fdr.	13.99	+	
		Total	6.10	220kV BHP - Tsirang Fdr.	-4.86	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.92	+	
		Unit- II	12.10	30MVA ICT, 220/66kV			
Total	12.10	Error at Station/Auxiliary Consumption/Losses	-0.33				
5	126MW DHPC	Unit-I	19.14	220kV DHPC - Tsirang Fdr.	18.93	+	Unit I under maintenance
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		Total	19.14	Error at Station/Auxiliary Consumption/Losses	0.21		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	5.78	+	Unit-II & III Annual Maintenance. KHP Unit-I standby
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	9.47	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.50	+	
		Unit- IV	16.00	132kV Gelephu - Salakati Fdr.	-18.68	-	
		-	-	132kV Motanga - Rangia Fdr.	-14.44	-	
		-	-	220kV Tsirang - Jigmeling	7.23	+	
		Total	16.00	Error at Station/Auxiliary Consumption/Losses	0.25		

Note: Load summary on January 27, 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	249.85	226.00	218.57	16.62	7.43
2	Eastern Grid	109.70	60.55	56.10	56.38	4.45
	Total	359.55	286.55	274.67	73.00	11.88

Note: Load Summary on January 27, 2019 at 09:00hrs

Sl. No	Region	09:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	237.58	263.76	308.60
2	Eastern Grid	42.16	53.49	65.91
	National	279.74	317.25	374.51

NOTES: SEM, BHP, DHP & MOT 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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