

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	January 18, 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	76.00	+	Unit- III & V AND 400kV THP_SIL IV standby. Unit-I & II under AMP. 400kV THP_SILI-II under shutdown.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	70.00	400kV THP - Malbase Fdr- III	149.00	+	
		Unit- V	0.00	400kV Malbase - Siliguri	51.00	+	
		Unit- VI	160.00	-	-	-	
		Total	230.00	Error at Station/Auxiliary Consumption/Losses	5.00		
2	720MW MHP	Unit-I	104.91	400kV MHP - Jigmeling Fdr - I	0.00		Unit-III under maintenance. Unit-II & IV standby. 400kV MHP-JLG I & II under shutdown. 400kV MHP-JLG IV standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	104.00	+	
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	104.91	Error at Station/Auxiliary Consumption/Losses	0.91		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.00		220kV CHP-BIR I standby Unit-I & II under AMP. Unit III tripped at 18:17Hrs
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	-7.80	-	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	21.78	+	
		Unit- IV	87.70	220kV CHP - Semtokha Fdr- IV	52.29	+	
		-	-	220kV Malbase - Birpara Fdr.	-32.00	-	
		-	-	66kV CHP - Chumdo Fdr.	14.90	+	
		-	-	66kV CHP - Gedu Fdr.	3.10	+	
		-	-	3x3MVA, 66/11kV TFR	1.94	+	
Total	87.70	Error at Station/Auxiliary Consumption/Losses	1.49				
4	24MW BHP (U/S)	Unit- I	6.70	220kV BHP - Semtokha Fdr.	7.19	+	U/S Unit-II & L/S Unit I under AMP
		Unit- II	0.00	66kV BHP - Lobeyasa Fdr.	16.41	+	
		Total	6.70	220kV BHP - Tsirang Fdr.	-4.54	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	13.40	30MVA ICT, 220/66kV			
Total	13.40	Error at Station/Auxiliary Consumption/Losses	0.14				
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	19.92	+	Unit I under AMP
		Unit-II	20.14	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		Total	20.14	Error at Station/Auxiliary Consumption/Losses	0.22		
6	60MW KHP	Unit- I	12.41	132kV KHP - Nangkhon Fdr- I	10.47	+	Unit-II & III AMP
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	10.87	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.70	+	
		Unit- IV	10.21	132kV Gelephu - Salakati Fdr.	-18.40	-	
		-	-	132kV Motanga - Rangia Fdr.	0.00		
		-	-	220kV Tsirang - Jigmeling	9.99	+	
		Total	22.62	Error at Station/Auxiliary Consumption/Losses	0.58		

Note: Load summary on January 18, 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	357.94	260.75	253.90	87.20	6.85
2	Eastern Grid	127.53	51.92	50.43	85.60	1.49
	Total	485.47	312.67	304.33	172.80	8.34

Note: Load Summary on January 18, 2019 at 19:00hrs

Sl. No	Region	19:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	270.42	270.42	308.60
2	Eastern Grid	58.03	58.37	65.91
	National	328.45	328.79	374.51

NOTES: Eastern & Western 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:	January 19, 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	56.00	+	Unit- III & V AND 400kV THP_SIL IV standby. Unit-I & II under AMP. 400kV THP_SILI-II under shutdown.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	70.00	400kV THP - Malbase Fdr- III	120.00	+	
		Unit- V	0.00	400kV Malbase - Siliguri	40.00	+	
		Unit- VI	110.00	-	-	-	
		Total	180.00	Error at Station/Auxiliary Consumption/Losses	4.00		
2	720MW MHP	Unit-I	102.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-III under maintenance. Unit-II & IV standby. 400kV MHP-JLG I & II under shutdown. 400kV MHP-JLG IV standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	101.80	+	
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	102.00	Error at Station/Auxiliary Consumption/Losses	0.20		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.00		Unit-I & II under shutdownn. 220kV CHP-BIR I Standby
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	-2.10	-	
		Unit- III	20.00	220kV CHP - Malbase Fdr- III	35.50	+	
		Unit- IV	63.00	220kV CHP - Sementokha Fdr- IV	32.40	+	
		-	-	220kV Malbase - Birpara Fdr.	-32.00	-	
		-	-	66kV CHP - Chumdo Fdr.	10.90	+	
		-	-	66kV CHP - Gedu Fdr.	3.20	+	
		-	-	3x3MVA, 66/11kV TFR	1.70	+	
Total	83.00	Error at Station/Auxiliary Consumption/Losses	1.40				
4	24MW BHP (U/S)	Unit- I	6.50	220kV BHP - Sementokha Fdr.	9.66	+	U/S Unit-II & L/S Unit I under maintenace.
		Unit- II	0.00	66kV BHP - Lobeyasa Fdr.	11.41	+	
		Total	6.50	220kV BHP - Tsirang Fdr.	-4.14	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	12.90	30MVA ICT, 220/66kV			
Total	12.90	Error at Station/Auxiliary Consumption/Losses	1.57				
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	19.92	+	Unit I under shutdown
		Unit-II	20.14	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		Total	20.14	Error at Station/Auxiliary Consumption/Losses	0.22		
6	60MW KHP	Unit- I	12.07	132kV KHP - Nangkhor Fdr- I	11.70	+	Unit-II & III Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	9.10	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.45	+	
		Unit- IV	10.30	132kV Gelephu - Salakati Fdr.	-12.64	-	
		-	-	132kV Motanga - Rangia Fdr.	-8.65	-	
		-	-	220kV Tsirang - Jigmeling	9.99	+	
		Total	22.37	Error at Station/Auxiliary Consumption/Losses	1.12		

Note: Load summary on January 19, 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	302.54	230.65	223.46	61.90	7.19
2	Eastern Grid	124.37	53.85	52.53	80.51	1.32
	Total	426.91	284.50	275.99	142.41	8.51

Note: Load Summary on January 19, 2019 at 09:00hrs

Sl. No	Region	09:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	267.57	267.57	308.60
2	Eastern Grid	42.45	62.88	65.91
	National	310.02	330.45	374.51

NOTES:Eastern and Western 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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