

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	March 19, 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	51.77		Unit- V at standby. Unit-II under shutdown. Unit-I & IV under AMP. 400kV THP_SILI II & IV Standby
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	149.02	400kV THP - Siliguri Fdr- IV	0.00	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	153.91	+	
		Unit- V	0.00	400kV Malbase - Siliguri	27.38	+	
		Unit- VI	60.73	-	-	-	
		Total	209.75	Error at Station/Auxiliary Consumption/Losses	4.07		
2	720MW MHP	Unit-I	98.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit II, III & IV Under Standby 400kV MHP-JLG I,II & III Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	96.00	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	98.00	Error at Station/Auxiliary Consumption/Losses	2.00		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	-0.50	-	Unit-I & III under shutdown. 220kV CHP-Malbase Fdr III under AMP.
		Unit- II	52.32	220kV CHP - Birpara Fdr- II	-0.40	-	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	0.00	+	
		Unit- IV	51.53	220kV CHP - Semtokha Fdr- IV	83.00	+	
		-	-	220kV Malbase - Birpara Fdr.	-19.14	-	
		-	-	66kV CHP - Chumdo Fdr.	14.92	+	
		-	-	66kV CHP - Gedu Fdr.	4.15	+	
		-	-	3x3MVA, 66/11kV TFR	1.87	+	
		Total	103.85	Error at Station/Auxiliary Consumption/Losses	0.81		
4	24MW BHP (U/S)	Unit- I	4.65	220kV BHP - Semtokha Fdr.	-24.54	-	U/S Unit-II and LS Unit II under shutdown.
		Unit- II	0.00	66kV BHP - Lobeyasa Fdr.	13.07	+	
		Total	4.65	220kV BHP - Tsirang Fdr.	24.67	+	
	40MW BHP (L/S)	Unit- I	9.94	5MVA, 66/11kV TFR	0.77	+	
		Unit- II	0.00	30MVA ICT, 220/66kV			
Total	9.94	Error at Station/Auxiliary Consumption/Losses	0.62				
5	126MW DHPC	Unit-I	15.93	220kV DHPC - Tsirang Fdr.	15.70	+	Unit-II under maintenance
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		Total	15.93	Error at Station/Auxiliary Consumption/Losses	0.23		
6	60MW KHP	Unit- I	10.85	132kV KHP - Nangkhon Fdr- I	8.48	+	Unit- III & IV Annual Maintenance
		Unit-II	10.08	132kV KHP - Kilikhar Fdr- II	12.35	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.28	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-15.89	-	
		-	-	132kV Motanga - Rangia Fdr.	-12.37	-	
		-	-	220kV Tsirang - Jigmeling	37.00	+	
		Total	20.93	Error at Station/Auxiliary Consumption/Losses	-0.18		

Note: Load summary on March 19, 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	344.12	248.01	242.28	59.11	5.73
2	Eastern Grid	118.93	88.19	86.37	67.74	1.82
	Total	463.05	336.20	328.65	126.85	7.55

Note: Load Summary on March 19, 2019 at 19:00hrs

Sl. No	Region	19:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	265.90	265.90	286.38
2	Eastern Grid	56.39	56.39	62.64
	National	322.29	322.29	349.02

NOTES:KHP loads 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:	March 20, 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	14.39	+	Unit-V standby. Unit-II under shutdown. Unit-I & IV under shutdown. 400kV THP-SIL II & IV in Standby
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	69.10	400kV THP - Siliguri Fdr- IV	0.00	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	113.78	+	
		Unit- V	0.00	400kV Malbase - Siliguri	-6.71	-	
		Unit- VI	60.77	-	-	-	
		Total	129.87	Error at Station/Auxiliary Consumption/Losses	1.70		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-I standby, Unit III & IV Under in Standby 400kV MHP-JLG I,II & III in Standby.
		Unit-II	98.78	400kV MHP - Jigmeling Fdr - II	0.00	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	97.40	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	98.78	Error at Station/Auxiliary Consumption/Losses	1.38		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	-1.46	-	Unit-I & III under shutdown. 220kV CHP-Malbase Fdr III under AMP.
		Unit- II	29.79	220kV CHP - Birpara Fdr- II	-1.44	-	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	0.00		
		Unit- IV	30.29	220kV CHP - Sementokha Fdr- IV	50.02	+	
		-	-	220kV Malbase - Birpara Fdr.	-43.32	-	
		-	-	66kV CHP - Chumdo Fdr.	9.24	+	
		-	-	66kV CHP - Gedu Fdr.	4.64	+	
		-	-	3x3MVA, 66/11kV TFR	1.47	+	
Total	60.08	Error at Station/Auxiliary Consumption/Losses	-2.39				
4	24MW BHP (U/S)	Unit- I	5.29	220kV BHP - Sementokha Fdr.	-7.87	-	U/S Unit-II and LS Unit II under shutdown.
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	10.75	+	
		Total	5.29	220kV BHP - Tsirang Fdr.	13.40	+	
	40MW BHP (L/S)	Unit- I	11.47	5MVA, 66/11kV TFR	0.44	+	
		Unit- II	0.00	30MVA ICT, 220/66kV			
Total	11.47	Error at Station/Auxiliary Consumption/Losses	0.04				
5	126MW DHPC	Unit-I	15.79	220kV DHPC - Tsirang Fdr.	15.57	+	Unit II under maintenance
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		Total	15.79	Error at Station/Auxiliary Consumption/Losses	0.22		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	7.66	+	Unit I under standby. Unit-III & IV AMP
		Unit-II	16.00	132kV KHP - Kilikhar Fdr- II	8.18	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.10	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-13.21	-	
		-	-	132kV Motanga - Rangia Fdr.	-17.18	-	
		-	-	220kV Tsirang - Jigmeling	28.66	+	
		Total	16.00	Error at Station/Auxiliary Consumption/Losses	0.06		

Note: Load summary on March 20, 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	222.50	232.38	232.81	-38.54	-0.43
2	Eastern Grid	114.78	76.43	74.99	67.01	1.44
	Total	337.28	308.81	307.80	28.47	1.01

Note: Load Summary on March 20, 2019 at 09:00hrs

Sl. No	Region	09:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	233.52	278.02	286.38
2	Eastern Grid	33.30	49.17	62.64
	National	266.82	327.19	349.02

NOTES: KHP load 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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