

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	November 27, 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	0.00		Unit-IV & 400kV THP-SIL Fdr I on Standby. Unit- I, II, 400kV Tala-Malbase & ICT under Shutdown.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	140.00	+	
		Unit- III	90.00	400kV THP - Siliguri Fdr- IV	134.00	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	0.00		
		Unit- V	70.00	400kV Malbase - Siliguri	0.00		
		Unit- VI	120.00	-	-	-	
		Total	280.00	Error at Station/Auxiliary Consumption/Losses	2.143%		
2	720MW MHP	Unit-I	168.11	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II under shutdown. Unit-III under breakdown. Unit-IV on standby. 400kV MHP-JLG Fdr I on Standby. 400kV MHP-JLG Fdr III under shutdown.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	83.39	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	83.76	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	168.11	Error at Station/Auxiliary Consumption/Losses	0.571%		
3	336MW CHP	Unit- I	70.00	220kV CHP - Birpara Fdr- I	-0.24	-	Unit II under Annual Maintenance. Unit-IV on standby.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	-0.19	-	
		Unit- III	71.00	220kV CHP - Malbase Fdr- III	71.14	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	46.86	+	
		-	-	220kV Malbase - Birpara Fdr.	-47.00	-	
		-	-	66kV CHP - Chumdo Fdr.	14.90	+	
		-	-	66kV CHP - Gedu Fdr.	3.90	+	
		-	-	3x3MVA, 66/11kV TFR	1.96	+	
		Total	141.00	Error at Station/Auxiliary Consumption/Losses	1.894%		
4	24MW BHP (U/S)	Unit- I	5.10	220kV BHP - Semtokha Fdr.	17.80	+	U/S Unit-II under annual maintenence
		Unit- II	5.50	66kV BHP - Lobeysa Fdr.	15.60	+	
	Total	10.60	220kV BHP - Tsirang Fdr.	-1.08	-		
	40MW BHP (L/S)	Unit- I	10.80	5MVA, 66/11kV TFR	0.89	+	
Unit- II		10.80	30MVA ICT, 220/66kV				
		Total	21.60	Error at Station/Auxiliary Consumption/Losses	-3.137%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	34.99	+	Unit I Standby
		Unit-II	35.20	220kV Jigmeling - Dagapela Fdr.	2.10	+	
		-	-	5MVA, 220/33kV TFR			
		Total	35.20	Error at Station/Auxiliary Consumption/Losses	0.597%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	15.37	+	Unit I under Annual Maintenance. Unit IV on Standby
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	16.04	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.50	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-9.85	-	
		-	-	132kV Motanga - Rangia Fdr.	11.19	+	
		-	-	220kV Tsirang - Jigmeling	28.20	+	
		Total	33.00	Error at Station/Auxiliary Consumption/Losses	3.306%		

Note: Generation-Load Summary for November 27, 2020 at 19:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Load Balance (MW)
1	Western Grid	488.40	233.63	227.86	226.57	5.77
2	Eastern Grid	201.11	60.82	58.77	168.49	2.05
	Total	689.51	294.45	286.63	395.06	7.82

Note: Generation-Load Summary for November 27, 2019 at 19:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Load Balance (MW)
1	Western Grid	550.66	276.02	268.94	251.48	7.08
2	Eastern Grid	190.90	63.84	59.42	150.22	4.42
	Total	741.56	339.86	328.36	401.70	11.50

NOTE: All 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:	November 28, 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	0.00		Unit-IV & 400kV THP-SIL Fdr I under Standby. Unit-V at breakdown. Unit- I, II, 4 00kV Tala-Malbase & ICT under Shutdown.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	140.00	+	
		Unit- III	139.70	400kV THP - Siliguri Fdr- IV	134.00	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	0.00		
		Unit- V	0.00	400kV Malbase - Siliguri	0.00		
		Unit- VI	140.10	-	-	-	
		Total	279.80	Error at Station/Auxiliary Consumption/Losses	2.073%		
2	720MW MHP	Unit-I	164.68	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II under shutdown. Unit-III under breakdown. Unit-IV on standby 400kV MHP-JLG Fdr I on standby 400kV MHP-JLG Fdr III under shutdown.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	81.70	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	82.02	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	164.68	Error at Station/Auxiliary Consumption/Losses	0.583%		
3	336MW CHP	Unit- I	70.35	220kV CHP - Birpara Fdr- I	9.70	+	Unit II under Annual Maintenance. Unit IV on Standby. 66kV CHP-Chumdo Fdr under shutdown.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	9.70	+	
		Unit- III	70.70	220kV CHP - Malbase Fdr- III	80.10	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	25.90	+	
		-	-	220kV Malbase - Birpara Fdr.	-39.17	-	
		-	-	66kV CHP - Chumdo Fdr.	11.50	+	
		-	-	66kV CHP - Gedu Fdr.	0.00		
		Total	141.05	Error at Station/Auxiliary Consumption/Losses	1.914%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	19.70	+	U/S Unit-I under shutdown.
		Unit- II	10.60	66kV BHP - Lobeysa Fdr.	13.40	+	
		Total	10.60	220kV BHP - Tsirang Fdr.	-3.40	-	
	40MW BHP (L/S)	Unit- I	10.60	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	9.80	30MVA ICT, 220/66kV			
		Total	20.40	Error at Station/Auxiliary Consumption/Losses	1.961%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	35.29	+	Unit-I Standby
		Unit-II	35.52	220kV Jigmeling - Dagapela Fdr.	1.20	+	
		-	-	5MVA, 220/33kV TFR			
		Total	35.52	Error at Station/Auxiliary Consumption/Losses	0.648%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	16.26	+	Unit I under Annual Maintenance. Unit-III standby
		Unit-II	15.54	132kV KHP - Kilihar Fdr- II	13.36	+	
		Unit- III	15.50	5MVA, 132/11kV TFR	0.29	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	2.40	+	
		-	-	132kV Motanga - Rangia Fdr.	11.99	+	
		-	-	220kV Tsirang - Jigmeling	26.60	+	
		Total	31.04	Error at Station/Auxiliary Consumption/Losses	3.640%		

Note: Generation-Load summary for November 28, 2020 at 09:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Load Balance (MW)
1	Western Grid	487.37	206.54	198.61	254.23	7.93
2	Eastern Grid	195.72	44.21	42.12	178.11	2.09
	Total	683.09	250.75	240.73	432.34	10.02

Note: Generation-Load Summary for November 28, 2019 at 09:00hrs

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Load Balance (MW)
1	Western Grid	439.05	270.58	262.16	157.18	8.42
2	Eastern Grid	191.76	47.17	44.76	155.88	2.41
	Total	630.81	317.75	306.92	313.06	10.83

NOTES: All 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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