

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	November 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	0.00		Unit-IV & 400kV THP-SIL Fdr I under Standby Unit- I,II,400kV Tala-Malbase & ICT under Shutdown.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	156.60	+	
		Unit- III	99.96	400kV THP - Siliguri Fdr- IV	150.43	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	0.00		
		Unit- V	89.90	400kV Malbase - Siliguri	0.00		
		Unit- VI	120.27	-	-	-	
		Total	310.13	Error at Station/Auxiliary Consumption/Losses	1.000%		
2	720MW MHP	Unit-I	160.10	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II under shutdown. Unit-III under breakdown. Unit-IV on standby 400kV MHP-JLG Fdr III under shutdown. 400kV MHP-Jigmeling Fdr I under Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	79.29	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	79.70	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	160.10	Error at Station/Auxiliary Consumption/Losses	0.693%		
3	336MW CHP	Unit- I	76.08	220kV CHP - Birpara Fdr- I	2.98	+	Unit II under Annual Maintenance. Unit-IV on standby.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	3.06	+	
		Unit- III	75.39	220kV CHP - Malbase Fdr- III	74.41	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	48.58	+	
		-	-	220kV Malbase - Birpara Fdr.	-47.00	-	
		-	-	66kV CHP - Chumdo Fdr.	15.64	+	
		-	-	66kV CHP - Gedu Fdr.	4.37	+	
		Total	151.47	Error at Station/Auxiliary Consumption/Losses	0.244%		
4	24MW BHP (U/S)	Unit- I	10.56	220kV BHP - Semtokha Fdr.	16.89	+	U/S Unit-II under annual maintenance
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	17.88	+	
		Total	10.56	220kV BHP - Tsirang Fdr.	-3.29	-	
	40MW BHP (L/S)	Unit- I	10.90	5MVA, 66/11kV TFR	0.82	+	
		Unit- II	10.89	30MVA ICT, 220/66kV			
Total	21.79	Error at Station/Auxiliary Consumption/Losses	0.155%				
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	36.80	+	Unit I Standby
		Unit-II	37.04	220kV Jigmeling - Dagapela Fdr.	2.10	+	
		-	-	5MVA, 220/33kV TFR			
		Total	37.04	Error at Station/Auxiliary Consumption/Losses	0.648%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	14.28	+	Unit I under Annual Maintenance. Unit IV Standby
		Unit-II	16.10	132kV KHP - Kilikhar Fdr- II	16.24	+	
		Unit- III	16.09	5MVA, 132/11kV TFR	0.48	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-5.00	-	
		-	-	132kV Motanga - Rangia Fdr.	13.31	+	
		-	-	220kV Tsirang - Jigmeling	29.61	+	
Total	32.19	Error at Station/Auxiliary Consumption/Losses	3.697%				

Note: Generation-Load Summary for November 26, 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	530.99	235.31	233.65	266.07	1.66
2	Eastern Grid	192.29	54.60	52.30	167.30	2.30
	Total	723.28	289.91	285.95	433.37	3.96

Note: Generation-Load Summary for November 26, 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	564.90	287.53	280.78	256.47	6.75
2	Eastern Grid	197.34	61.59	60.27	156.65	1.32
	Total	762.24	349.12	341.05	413.12	8.07

NOTE:KHP,MHP & Motanga 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 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	0.00		Unit-IV & 400kV THP-SIL Fdr I under Standby Unit- I,II,400kV Tala-Malbase & ICT under Shutdown.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	135.00	+	
		Unit- III	80.00	400kV THP - Siliguri Fdr- IV	129.00	+	
		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	270.00	Error at Station/Auxiliary Consumption/Losses	2.222%		
2	720MW MHP	Unit-I	170.24	400kV MHP - Jigmeling Fdr - I	0.00	+	Unit-II under shutdown. Unit-III under breakdown. Unit-IV on standby 400kV MHP-JLG Fdr I & III under shutdown. 400kV MHP-Jigmeling Fdr II under Breakdown.
		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	165.80	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	170.24	Error at Station/Auxiliary Consumption/Losses	2.608%		
3	336MW CHP	Unit- I	69.54	220kV CHP - Birpara Fdr- I	7.40	+	Unit IV on Standby. Unit II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	7.60	+	
		Unit- III	70.98	220kV CHP - Malbase Fdr- III	68.20	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	37.20	+	
		-	-	220kV Malbase - Birpara Fdr.	-39.17	-	
		-	-	66kV CHP - Chumdo Fdr.	11.60	+	
		-	-	66kV CHP - Gedu Fdr.	4.30	+	
		-	-	3x3MVA, 66/11kV TFR	1.45	+	
		Total	140.52	Error at Station/Auxiliary Consumption/Losses	1.971%		
4	24MW BHP (U/S)	Unit- I	5.10	220kV BHP - Semtokha Fdr.	17.00	+	
		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	0.85	+	
		Unit- II	10.80	30MVA ICT, 220/66kV			
		Total	21.60	Error at Station/Auxiliary Consumption/Losses	-0.787%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	36.37	+	Unit-I Standby
		Unit-II	36.62	220kV Jigmeling - Dagapela Fdr.	1.40	+	
		-	-	5MVA, 220/33kV TFR			
		Total	36.62	Error at Station/Auxiliary Consumption/Losses	0.683%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	15.11	+	Unit I under Annual Maintenance. Unit-IV standby
		Unit-II	15.12	132kV KHP - Kilikhar Fdr- II	13.75	+	
		Unit- III	15.09	5MVA, 132/11kV TFR	0.34	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	0.30	-	
		-	-	132kV Motanga - Rangia Fdr.	11.50	+	
		-	-	220kV Tsirang - Jigmeling	30.50	+	
		Total	30.21	Error at Station/Auxiliary Consumption/Losses	3.350%		

Note: Generation-Load summary for November 27, 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	479.34	209.01	201.56	239.83	7.45
2	Eastern Grid	200.45	53.35	47.90	177.60	5.45
	Total	679.79	262.36	249.46	417.43	12.90

Note: Generation-Load Summary for November 27, 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	481.90	277.87	266.85	191.96	11.02
2	Eastern Grid	198.16	60.47	58.48	149.76	1.99
	Total	680.06	338.34	325.33	341.72	13.01

NOTES: MAL ,BHP,CHP,RANGIA & KHP DATA COLLECTED FROM SI1

- 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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