

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	October 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	168.35	400kV THP - Siliguri Fdr- I	0.00		Unit-II, IV & 400kV THP-SIL Fdr I under Standby.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	176.34	+	
		Unit- III	101.07	400kV THP - Siliguri Fdr- IV	168.29	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	235.12	+	
		Unit- V	148.12	400kV Malbase - Siliguri	150.08	+	
		Unit- VI	170.67	-	-	-	
		Total	588.21	Error at Station/Auxiliary Consumption/Losses	1.438%		
2	720MW MHP	Unit-I	40.23	400kV MHP - Jigmeling Fdr - I	178.90	+	Unit-III under maintenance (22/09/20-30/11/2020). 400kV MHP-JLG Fdr II under Breakdown. 400kV MHP-JLG Fdr III under standby.
		Unit-II	159.82	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	160.32	400kV MHP - Jigmeling Fdr - IV	180.00	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	360.37	Error at Station/Auxiliary Consumption/Losses	0.408%		
3	336MW CHP	Unit- I	70.00	220kV CHP - Birpara Fdr- I	82.23	+	
		Unit- II	74.00	220kV CHP - Birpara Fdr- II	81.62	+	
		Unit- III	70.00	220kV CHP - Malbase Fdr- III	111.41	+	
		Unit- IV	79.00	220kV CHP - Semtokha Fdr- IV	1.27	+	
		-	-	220kV Malbase - Birpara Fdr.	49.11	+	
		-	-	66kV CHP - Chumdo Fdr.	6.97	+	
		-	-	66kV CHP - Gedu Fdr.	5.86	+	
		-	-	3x3MVA, 66/11kV TFR	1.40	+	
		Total	293.00	Error at Station/Auxiliary Consumption/Losses	0.765%		
4	24MW BHP (U/S)	Unit- I	9.66	220kV BHP - Semtokha Fdr.	30.64	+	
		Unit- II	9.66	66kV BHP - Lobeysa Fdr.	14.62	+	
		Total	19.32	220kV BHP - Tsirang Fdr.	9.11	+	
	40MW BHP (L/S)	Unit- I	17.81	5MVA, 66/11kV TFR	0.60	+	
		Unit- II	17.57	30MVA ICT, 220/66kV			
		Total	35.38	Error at Station/Auxiliary Consumption/Losses	-0.494%		
5	126MW DHPC	Unit-I	33.25	220kV DHPC - Tsirang Fdr.	67.07	+	
		Unit-II	34.29	220kV Jigmeling - Dagapela Fdr.	2.10	+	
		-	-	5MVA, 220/33kV TFR			
		Total	67.54	Error at Station/Auxiliary Consumption/Losses	0.696%		
6	60MW KHP	Unit- I	15.63	132kV KHP - Nangkhon Fdr- I	33.92	+	
		Unit-II	15.83	132kV KHP - Kilihar Fdr- II	27.89	+	
		Unit- III	15.90	5MVA, 132/11kV TFR	0.38	+	
		Unit- IV	15.79	132kV Gelephu - Salakati Fdr.	24.70	+	
		-	-	132kV Motanga - Rangia Fdr.	61.59	+	
		-	-	220kV Tsirang - Jigmeling	73.38	+	
		Total	63.15	Error at Station/Auxiliary Consumption/Losses	1.520%		

Note: Generation-Load Summary for October 18, 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	1,003.45	222.40	213.60	707.67	8.80
2	Eastern Grid	423.52	51.71	49.28	445.19	2.43
	Total	1,426.97	274.11	262.88	1,152.86	11.23

Note: Generation-Load Summary for October 18, 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	966.11	283.11	271.45	624.43	11.66
2	Eastern Grid	335.79	68.65	63.26	325.71	5.39
	Total	1,301.90	351.76	334.71	950.14	17.05

NOTE: KHP, Motanga, CHP & MHP datas 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:	October 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	169.83	400kV THP - Siliguri Fdr- I	0.00		Unit-II, IV & 400kV THP-SIL Fdr I under Standby.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	183.37	+	
		Unit- III	101.10	400kV THP - Siliguri Fdr- IV	175.57	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	198.46	+	
		Unit- V	126.09	400kV Malbase - Siliguri	167.30	+	
		Unit- VI	170.44	-	-	-	
		Total	567.46	Error at Station/Auxiliary Consumption/Losses	1.773%		
2	720MW MHP	Unit-I	60.25	400kV MHP - Jigmeling Fdr - I	179.98	+	Unit-III under maintenance (22/09/20-30/11/2020). 400kV MHP-JLG Fdr II under Breakdown. 400kV MHP-JLG Fdr III under standby.
		Unit-II	140.16	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	160.32	400kV MHP - Jigmeling Fdr - IV	180.96	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	360.73	Error at Station/Auxiliary Consumption/Losses	-0.058%		
3	336MW CHP	Unit- I	69.53	220kV CHP - Birpara Fdr- I	87.18	+	
		Unit- II	65.95	220kV CHP - Birpara Fdr- II	87.32	+	
		Unit- III	70.36	220kV CHP - Malbase Fdr- III	120.10	+	
		Unit- IV	74.70	220kV CHP - Semtokha Fdr- IV	-26.31	-	
		-	-	220kV Malbase - Birpara Fdr.	52.48	+	
		-	-	66kV CHP - Chumdo Fdr.	3.50	+	
		-	-	66kV CHP - Gedu Fdr.	6.24	+	
		-	-	3x3MVA, 66/11kV TFR	1.32	+	
		Total	280.54	Error at Station/Auxiliary Consumption/Losses	0.424%		
4	24MW BHP (U/S)	Unit- I	9.64	220kV BHP - Semtokha Fdr.	48.85	+	
		Unit- II	9.64	66kV BHP - Lobeysa Fdr.	13.62	+	
		Total	19.28	220kV BHP - Tsirang Fdr.	-8.07	-	
	40MW BHP (L/S)	Unit- I	17.75	5MVA, 66/11kV TFR	0.38	+	
		Unit- II	17.64	30MVA ICT, 220/66kV			
		Total	35.39	Error at Station/Auxiliary Consumption/Losses	-0.201%		
5	126MW DHPC	Unit-I	34.55	220kV DHPC - Tsirang Fdr.	68.65	+	
		Unit-II	34.57	220kV Jigmeling - Dagapela Fdr.	1.00	+	
		-	-	5MVA, 220/33kV TFR			
		Total	69.12	Error at Station/Auxiliary Consumption/Losses	0.680%		
6	60MW KHP	Unit- I	15.01	132kV KHP - Nangkhon Fdr- I	34.66	+	
		Unit-II	14.16	132kV KHP - Kilikhar Fdr- II	22.60	+	
		Unit- III	15.27	5MVA, 132/11kV TFR	0.24	+	
		Unit- IV	14.19	132kV Gelephu - Salakati Fdr.	27.20	+	
		-	-	132kV Motanga - Rangia Fdr.	58.80	+	
		-	-	220kV Tsirang - Jigmeling	57.00	+	
		Total	58.63	Error at Station/Auxiliary Consumption/Losses	1.922%		

Note: Generation-Load summary for October 19, 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	971.79	161.57	150.96	753.22	10.61
2	Eastern Grid	419.36	29.42	28.50	446.94	0.92
	Total	1,391.15	190.99	179.46	1,200.16	11.53

Note: Generation-Load Summary for October 19, 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	965.86	244.13	234.80	666.28	9.33
2	Eastern Grid	337.61	61.92	52.92	331.14	9.00
	Total	1,303.47	306.05	287.72	997.42	18.33

NOTES: KHP, Motanga & MHP 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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