

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	October 9, 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	169.73	400kV THP - Siliguri Fdr- I	197.36	+	Unit-IV standby.
		Unit- II	169.56	400kV THP - Siliguri Fdr- II	195.78	+	
		Unit- III	169.67	400kV THP - Siliguri Fdr- IV	192.56	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	246.54	+	
		Unit- V	168.74	400kV Malbase - Siliguri	174.51	+	
		Unit- VI	170.16	-	-	-	
		Total	847.86	Error at Station/Auxiliary Consumption/Losses	1.842%		
2	720MW MHP	Unit-I	149.26	400kV MHP - Jigmeling Fdr - I	243.26	+	Unit-III under Shutdown (22/09/20-30/11/2020). 400kV MHP-JLG Fdr II under Breakdown. 400kV MHP-JLG Fdr III under standby.
		Unit-II	149.77	400kV MHP - Jigmeling Fdr - II	0.00	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00	+	
		Unit-IV	190.25	400kV MHP - Jigmeling Fdr - IV	244.27	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	489.28	Error at Station/Auxiliary Consumption/Losses	0.358%		
3	336MW CHP	Unit- I	91.48	220kV CHP - Birpara Fdr- I	108.19	+	
		Unit- II	91.74	220kV CHP - Birpara Fdr- II	108.38	+	
		Unit- III	91.26	220kV CHP - Malbase Fdr- III	144.99	+	
		Unit- IV	91.68	220kV CHP - Semtokha Fdr- IV	-10.34	-	
		-	-	220kV Malbase - Birpara Fdr.	68.40	+	
		-	-	66kV CHP - Chumdo Fdr.	5.93	+	
		-	-	66kV CHP - Gedu Fdr.	6.89	+	
		-	-	3x3MVA, 66/11kV TFR	1.29	+	
		Total	366.16	Error at Station/Auxiliary Consumption/Losses	0.227%		
4	24MW BHP (U/S)	Unit- I	11.80	220kV BHP - Semtokha Fdr.	40.98	+	
		Unit- II	11.80	66kV BHP - Lobeysa Fdr.	16.58	+	
		Total	23.60	220kV BHP - Tsirang Fdr.	5.46	-	
	40MW BHP (L/S)	Unit- I	19.82	5MVA, 66/11kV TFR	0.63	+	
		Unit- II	20.23	30MVA ICT, 220/66kV			
		Total	40.05	Error at Station/Auxiliary Consumption/Losses	0.000%		
5	126MW DHPC	Unit-I	45.31	220kV DHPC - Tsirang Fdr.	90.02	+	
		Unit-II	45.25	220kV Jigmeling - Dagapela Fdr.	1.40	+	
		-	-	5MVA, 220/33kV TFR			
		Total	90.56	Error at Station/Auxiliary Consumption/Losses	0.596%		
6	60MW KHP	Unit- I	16.00	132kV KHP - Nangkhon Fdr- I	11.23	+	Unit-II & IV under shutdown.
		Unit-II	0.00	132kV KHP - Kilihar Fdr- II	19.43	+	
		Unit- III	15.95	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	35.01	+	
		-	-	132kV Motanga - Rangia Fdr.	41.20	+	
		-	-	220kV Tsirang - Jigmeling	92.83	+	
		Total	31.95	Error at Station/Auxiliary Consumption/Losses	2.786%		

Note: Generation-Load Summary for October 09, 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	1,368.23	230.22	214.63	1,045.18	15.59
2	Eastern Grid	521.23	50.32	47.68	563.74	2.64
	Total	1,889.46	280.54	262.31	1,608.92	18.23

Note: Generation-Load Summary for October 09, 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	1409.55	248.04	238.21	1,092.09	9.83
2	Eastern Grid	534.68	52.01	51.55	552.09	0.46
	Total	1,944.23	300.05	289.76	1,644.18	10.29

NOTE: KHP & 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.
 - 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 10, 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	168.61	400kV THP - Siliguri Fdr- I	188.05	+	
		Unit- II	170.02	400kV THP - Siliguri Fdr- II	186.57	+	
		Unit- III	151.57	400kV THP - Siliguri Fdr- IV	181.90	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	190.17	+	
		Unit- V	99.52	400kV Malbase - Siliguri	175.58	+	
		Unit- VI	169.87	-	-	-	
		Total	759.59	Error at Station/Auxiliary Consumption/Losses	1.698%		
2	720MW MHP	Unit-I	135.10	400kV MHP - Jigmeling Fdr - I	226.11	+	Unit-III under Shutdown (22/09/20-30/11/2020). 400kV MHP-JLG Fdr II under Breakdown. 400kV MHP-JLG Fdr III under standby.
		Unit-II	135.17	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	185.20	400kV MHP - Jigmeling Fdr - IV	226.88	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	455.47	Error at Station/Auxiliary Consumption/Losses	0.544%		
3	336MW CHP	Unit- I	91.61	220kV CHP - Birpara Fdr- I	113.04	+	
		Unit- II	91.29	220kV CHP - Birpara Fdr- II	112.83	+	
		Unit- III	91.17	220kV CHP - Malbase Fdr- III	173.21	+	
		Unit- IV	92.00	220kV CHP - Semtokha Fdr- IV	-46.21	-	
		-	-	220kV Malbase - Birpara Fdr.	53.19	+	
		-	-	66kV CHP - Chumdo Fdr.	2.06	+	
		-	-	66kV CHP - Gedu Fdr.	7.16	+	
		-	-	3x3MVA, 66/11kV TFR	0.76	+	
		Total	366.07	Error at Station/Auxiliary Consumption/Losses	0.880%		
4	24MW BHP (U/S)	Unit- I	11.79	220kV BHP - Semtokha Fdr.	64.35	+	
		Unit- II	11.79	66kV BHP - Lobeysa Fdr.	15.22	+	
		Total	23.58	220kV BHP - Tsirang Fdr.	-15.17	+	
	40MW BHP (L/S)	Unit- I	20.31	5MVA, 66/11kV TFR	0.40	+	
		Unit- II	20.64	30MVA ICT, 220/66kV			
		Total	40.95	Error at Station/Auxiliary Consumption/Losses	-0.418%		
5	126MW DHPC	Unit-I	44.27	220kV DHPC - Tsirang Fdr.	89.04	+	
		Unit-II	45.30	220kV Jigmeling - Dagapela Fdr.	1.20	+	
		-	-	5MVA, 220/33kV TFR			
		Total	89.57	Error at Station/Auxiliary Consumption/Losses	0.592%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	41.52	-	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	23.71	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.31	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	47.76	+	
		-	-	132kV Motanga - Rangia Fdr.	51.55	+	
		-	-	220kV Tsirang - Jigmeling	71.09	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	0.697%		

Note: Generation-Load summary for October 10, 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	1,279.76	197.51	182.33	1,011.16	15.18
2	Eastern Grid	521.47	40.26	37.32	552.30	2.94
	Total	1,801.23	237.77	219.65	1,563.46	18.12

Note: Generation-Load Summary for October 10, 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	1270.02	213.54	198.05	999.19	15.49
2	Eastern Grid	336.3	34.96	32.44	358.63	2.52
	Total	1,606.32	248.50	230.49	1,357.82	18.01

NOTES: KHP & 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.
 - 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.