

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	July 24, 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	186.95	400kV THP - Siliguri Fdr- I	271.35	+	
		Unit- II	186.66	400kV THP - Siliguri Fdr- II	269.81	+	
		Unit- III	187.28	400kV THP - Siliguri Fdr- IV	262.98	+	
		Unit- IV	188.31	400kV THP - Malbase Fdr- III	301.89	+	
		Unit- V	187.30	400kV Malbase - Siliguri	247.99	+	
		Unit- VI	187.18	-	-	-	
		Total	1,123.68	Error at Station/Auxiliary Consumption/Losses	1.571%		
2	720MW MHP	Unit-I	197.39	400kV MHP - Jigmeling Fdr - I	198.67	+	400kV MHP-JLG IV Standby. Unit-IV opened at 19:04hrs due to oil leakages
		Unit-II	197.55	400kV MHP - Jigmeling Fdr - II	199.36	+	
		Unit-III	197.68	400kV MHP - Jigmeling Fdr - III	194.22	+	
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	592.62	Error at Station/Auxiliary Consumption/Losses	0.062%		
3	336MW CHP	Unit- I	91.35	220kV CHP - Birpara Fdr- I	124.21	+	
		Unit- II	90.99	220kV CHP - Birpara Fdr- II	123.68	+	
		Unit- III	91.16	220kV CHP - Malbase Fdr- III	160.95		
		Unit- IV	91.60	220kV CHP - Semtokha Fdr- IV	-57.09	-	
		-	-	220kV Malbase - Birpara Fdr.	79.50		
		-	-	66kV CHP - Chumdo Fdr.	2.80	+	
		-	-	66kV CHP - Gedu Fdr.	8.09	+	
		-	-	3x3MVA, 66/11kV TFR	1.23	+	
		Total	365.10	Error at Station/Auxiliary Consumption/Losses	0.337%		
4	24MW BHP (U/S)	Unit- I	11.83	220kV BHP - Semtokha Fdr.	80.19	+	
		Unit- II	11.83	66kV BHP - Lobeysa Fdr.	16.96	+	
		Total	23.66	220kV BHP - Tsirang Fdr.	-31.76	-	
	40MW BHP (L/S)	Unit- I	20.98	5MVA, 66/11kV TFR	0.54	+	
		Unit- II	20.13	30MVA ICT, 220/66kV			
		Total	41.11	Error at Station/Auxiliary Consumption/Losses	-1.791%		
5	126MW DHPC	Unit-I	63.56	220kV DHPC - Tsirang Fdr.	126.39	+	
		Unit-II	63.42	220kV Jigmeling - Dagapela Fdr.	1.42	+	
		-	-	5MVA, 220/33kV TFR			
		Total	126.98	Error at Station/Auxiliary Consumption/Losses	0.465%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	27.75	+	Unit-III trip at 12:52hrs due to earthfault.
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	20.16	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.35	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	46.86	+	
		-	-	132kV Motanga - Rangia Fdr.	39.85	+	
		-	-	220kV Tsirang - Jigmeling	92.33	+	
		Total	49.50	Error at Station/Auxiliary Consumption/Losses	2.505%		

Note: Generation-Load Summary for July 24, 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	1,680.53	208.68	191.79	1,379.52	16.89
2	Eastern Grid	642.12	55.49	53.88	678.96	1.61
	Total	2,322.65	264.17	245.67	2,058.48	18.50

Note: Generation-Load Summary for July 24, 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	1,664.42	237.55	232.27	1,315.10	5.28
2	Eastern Grid	259.79	74.65	74.23	296.91	0.42
	Total	1,924.21	312.20	306.50	1,612.01	5.70

NOTE: KHP & MHP 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:	July 25, 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	186.65	400kV THP - Siliguri Fdr- I	276.57	+	
		Unit- II	185.79	400kV THP - Siliguri Fdr- II	274.22	+	
		Unit- III	186.49	400kV THP - Siliguri Fdr- IV	267.53	+	
		Unit- IV	185.85	400kV THP - Malbase Fdr- III	283.36	+	
		Unit- V	186.68	400kV Malbase - Siliguri	258.38	+	
		Unit- VI	185.66	-	-	-	
		Total	1,117.12	Error at Station/Auxiliary Consumption/Losses	1.382%		
2	720MW MHP	Unit-I	197.42	400kV MHP - Jigmeling Fdr - I	260.50	+	400kV MHP-JLG IV Standby.
		Unit-II	197.23	400kV MHP - Jigmeling Fdr - II	242.60	+	
		Unit-III	189.41	400kV MHP - Jigmeling Fdr - III	272.50	+	
		Unit-IV	190.47	400kV MHP - Jigmeling Fdr - IV			
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	774.53	Error at Station/Auxiliary Consumption/Losses	-0.138%		
3	336MW CHP	Unit- I	91.64	220kV CHP - Birpara Fdr- I	125.93	+	
		Unit- II	90.98	220kV CHP - Birpara Fdr- II	125.83	+	
		Unit- III	91.72	220kV CHP - Malbase Fdr- III	180.86	+	
		Unit- IV	92.10	220kV CHP - Semtokha Fdr- IV	-75.62	-	
		-	-	220kV Malbase - Birpara Fdr.	67.81	+	
		-	-	66kV CHP - Chumdo Fdr.	0.99	+	
		-	-	66kV CHP - Gedu Fdr.	7.73	+	
		-	-	3x3MVA, 66/11kV TFR	0.89	+	
		Total	366.44	Error at Station/Auxiliary Consumption/Losses	-0.046%		
4	24MW BHP (U/S)	Unit- I	11.81	220kV BHP - Semtokha Fdr.	94.27	+	
		Unit- II	11.81	66kV BHP - Lobeysa Fdr.	15.89	+	
		Total	23.62	220kV BHP - Tsirang Fdr.	-44.47	-	
	40MW BHP (L/S)	Unit- I	21.00	5MVA, 66/11kV TFR	0.42	+	
		Unit- II	20.14	30MVA ICT, 220/66kV			
		Total	41.14	Error at Station/Auxiliary Consumption/Losses	-3.281%		
5	126MW DHPC	Unit-I	63.54	220kV DHPC - Tsirang Fdr.	126.43	+	
		Unit-II	63.44	220kV Jigmeling - Dagapela Fdr.	1.33	+	
		-	-	5MVA, 220/33kV TFR			
		Total	126.98	Error at Station/Auxiliary Consumption/Losses	0.433%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Fdr- I	40.85	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	23.58	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.25	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	50.29	+	
		-	-	132kV Motanga - Rangia Fdr.	56.05	+	
		-	-	220kV Tsirang - Jigmeling	78.07	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	2.003%		

Note: Generation-Load summary for July 25, 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	1,675.30	200.96	187.82	1,396.27	13.14
2	Eastern Grid	840.53	36.66	36.41	881.94	0.25
	Total	2,515.83	237.62	224.23	2,278.21	13.39

Note: Generation-Load Summary for July 25, 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	1674.66	232.72	225.98	1,341.18	6.74
2	Eastern Grid	379.6	50.58	46.66	429.78	3.92
	Total	2,054.26	283.30	272.64	1,770.96	10.66

NOTES: KHP 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.