

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	August 19, 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	186.91	400kV THP - Siliguri Fdr- I	270.47	+	
		Unit- II	186.61	400kV THP - Siliguri Fdr- II	269.79	+	
		Unit- III	186.45	400kV THP - Siliguri Fdr- IV	262.33	+	
		Unit- IV	188.35	400kV THP - Malbase Fdr- III	303.04	+	
		Unit- V	186.93	400kV Malbase - Siliguri	246.74	+	
		Unit- VI	186.53	-	-	-	
		Total	1,121.78	Error at Station/Auxiliary Consumption/Losses	1.440%		
2	720MW MHP	Unit-I	197.74	400kV MHP - Jigmeling Fdr - I	262.51	+	400kV MHP-JLG IV Standby
		Unit-II	197.16	400kV MHP - Jigmeling Fdr - II	263.22	+	
		Unit-III	195.30	400kV MHP - Jigmeling Fdr - III	256.08	+	
		Unit-IV	195.37	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	785.57	Error at Station/Auxiliary Consumption/Losses	0.479%		
3	336MW CHP	Unit- I	91.31	220kV CHP - Birpara Fdr- I	120.80	+	
		Unit- II	90.80	220kV CHP - Birpara Fdr- II	120.57	+	
		Unit- III	91.18	220kV CHP - Malbase Fdr- III	155.66	+	
		Unit- IV	91.59	220kV CHP - Semtokha Fdr- IV	-44.69	-	
		-	-	220kV Malbase - Birpara Fdr.	79.16	+	
		-	-	66kV CHP - Chumdo Fdr.	4.35	+	
		-	-	66kV CHP - Gedu Fdr.	6.19	+	
		-	-	3x3MVA, 66/11kV TFR	1.30	+	
		Total	364.88	Error at Station/Auxiliary Consumption/Losses	0.192%		
4	24MW BHP (U/S)	Unit- I	11.88	220kV BHP - Semtokha Fdr.	71.76	+	
		Unit- II	11.88	66kV BHP - Lobeysa Fdr.	16.99	+	
		Total	23.76	220kV BHP - Tsirang Fdr.	-23.79	-	
	40MW BHP (L/S)	Unit- I	20.98	5MVA, 66/11kV TFR	0.75	+	
		Unit- II	20.16	30MVA ICT, 220/66kV			
		Total	41.14	Error at Station/Auxiliary Consumption/Losses	-1.248%		
5	126MW DHPC	Unit-I	63.51	220kV DHPC - Tsirang Fdr.	126.44	+	
		Unit-II	63.53	220kV Jigmeling - Dagapela Fdr.	2.00	+	
		-	-	5MVA, 220/33kV TFR			
		Total	127.04	Error at Station/Auxiliary Consumption/Losses	0.472%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	37.32	+	
		Unit-II	16.50	132kV KHP - Kilihar Fdr- II	27.94	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	45.90	+	
		-	-	132kV Motanga - Rangia Fdr.	54.85	+	
		-	-	220kV Tsirang - Jigmeling	96.06	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	0.667%		

Note: Generation-Load Summary for August 19, 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	1,678.60	212.68	198.04	1,369.86	14.64
2	Eastern Grid	851.57	65.07	60.87	882.56	4.20
	Total	2,530.17	277.75	258.91	2,252.42	18.84

Note: Generation-Load Summary for August 19, 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	1,637.13	247.43	237.75	1298.11	9.68
2	Eastern Grid	618.99	69.62	68.01	640.96	1.61
	Total	2,256.12	317.05	305.76	1,939.07	11.29

NOTE: KHP 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:	August 20, 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	187.32	400kV THP - Siliguri Fdr- I	278.78	+	
		Unit- II	186.50	400kV THP - Siliguri Fdr- II	274.92	+	
		Unit- III	187.29	400kV THP - Siliguri Fdr- IV	268.77	+	
		Unit- IV	186.84	400kV THP - Malbase Fdr- III	281.59	+	
		Unit- V	186.18	400kV Malbase - Siliguri	260.17	+	
		Unit- VI	186.63	-	-	-	
		Total	1,120.76	Error at Station/Auxiliary Consumption/Losses	1.490%		
2	720MW MHP	Unit-I	197.55	400kV MHP - Jigmeling Fdr - I	262.80	+	400kV MHP-JLG IV Standby.
		Unit-II	197.64	400kV MHP - Jigmeling Fdr - II	244.60	+	
		Unit-III	192.45	400kV MHP - Jigmeling Fdr - III	273.80	+	
		Unit-IV	193.85	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	781.49	Error at Station/Auxiliary Consumption/Losses	0.037%		
3	336MW CHP	Unit- I	91.62	220kV CHP - Birpara Fdr- I	117.36	+	
		Unit- II	91.12	220kV CHP - Birpara Fdr- II	116.85	+	
		Unit- III	91.87	220kV CHP - Malbase Fdr- III	179.65	+	
		Unit- IV	91.76	220kV CHP - Semtokha Fdr- IV	-56.10	-	
		-	-	220kV Malbase - Birpara Fdr.	54.82	+	
		-	-	66kV CHP - Chumdo Fdr.	1.41	+	
		-	-	66kV CHP - Gedu Fdr.	6.04	+	
		-	-	3x3MVA, 66/11kV TFR	0.75	+	
		Total	366.37	Error at Station/Auxiliary Consumption/Losses	0.112%		
4	24MW BHP (U/S)	Unit- I	11.90	220kV BHP - Semtokha Fdr.	75.50	+	US II & LS unit II under MTC
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	11.17	+	
		Total	11.90	220kV BHP - Tsirang Fdr.	-53.17	-	
	40MW BHP (L/S)	Unit- I	20.98	5MVA, 66/11kV TFR	0.43	+	
		Unit- II	0.00	30MVA ICT, 220/66kV			
Total	20.98	Error at Station/Auxiliary Consumption/Losses	-5.005%				
5	126MW DHPC	Unit-I	63.56	220kV DHPC - Tsirang Fdr.	126.37	+	
		Unit-II	63.47	220kV Jigmeling - Dagapela Fdr.	1.10	+	
		-	-	5MVA, 220/33kV TFR			
		Total	127.03	Error at Station/Auxiliary Consumption/Losses	0.520%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	41.55	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	22.98	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.26	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	48.42	+	
		-	-	132kV Motanga - Rangia Fdr.	47.05	+	
		-	-	220kV Tsirang - Jigmeling	69.43	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.839%		

Note: Generation-Load summary for August 20, 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	1,647.04	205.94	190.32	1,371.67	15.62
2	Eastern Grid	847.49	40.25	38.75	876.67	1.50
	Total	2,494.53	246.19	229.07	2,248.34	17.12

Note: Generation-Load Summary for August 20, 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	1637.28	248.65	226.36	1,310.41	22.29
2	Eastern Grid	618.94	57.23	55.59	639.93	1.64
	Total	2,256.22	305.88	281.95	1,950.34	23.93

NOTES: KHP 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:
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