

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	July 14, 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	187.10	400kV THP - Siliguri Fdr- I	272.17	+	
		Unit- II	184.69	400kV THP - Siliguri Fdr- II	270.17	+	
		Unit- III	186.81	400kV THP - Siliguri Fdr- IV	263.45	+	
		Unit- IV	187.65	400kV THP - Malbase Fdr- III	297.16	+	
		Unit- V	186.79	400kV Malbase - Siliguri	249.08	+	
		Unit- VI	186.87	-	-	-	
		Total	1,119.91	Error at Station/Auxiliary Consumption/Losses	1.514%		
2	720MW MHP	Unit-I	197.79	400kV MHP - Jigmeling Fdr - I	264.08	+	400kV MHP-JLG IV Standby.
		Unit-II	197.72	400kV MHP - Jigmeling Fdr - II	265.58	+	
		Unit-III	197.78	400kV MHP - Jigmeling Fdr - III	258.45	+	
		Unit-IV	197.86	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		Total	791.15	Error at Station/Auxiliary Consumption/Losses	0.384%		
3	336MW CHP	Unit- I	90.49	220kV CHP - Birpara Fdr- I	120.63	+	
		Unit- II	91.40	220kV CHP - Birpara Fdr- II	121.00	+	
		Unit- III	90.71	220kV CHP - Malbase Fdr- III	159.31	+	
		Unit- IV	91.61	220kV CHP - Semtokha Fdr- IV	-47.55	-	
		-	-	220kV Malbase - Birpara Fdr.	76.82	+	
		-	-	66kV CHP - Chumdo Fdr.	3.57	+	
		-	-	66kV CHP - Gedu Fdr.	6.65	+	
		-	-	3x3MVA, 66/11kV TFR	1.19	+	
		Total	364.21	Error at Station/Auxiliary Consumption/Losses	-0.162%		
4	24MW BHP (U/S)	Unit- I	11.82	220kV BHP - Semtokha Fdr.	70.84	+	
		Unit- II	11.82	66kV BHP - Lobeysa Fdr.	16.88	+	
		Total	23.64	220kV BHP - Tsirang Fdr.	-22.53	-	
	40MW BHP (L/S)	Unit- I	21.01	5MVA, 66/11kV TFR	0.56	+	
		Unit- II	20.13	30MVA ICT, 220/66kV	0.00		
		Total	41.14	Error at Station/Auxiliary Consumption/Losses	-1.497%		
5	126MW DHPC	Unit-I	63.44	220kV DHPC - Tsirang Fdr.	126.16	+	
		Unit-II	63.36	220kV Jigmeling - Dagapela Fdr.	1.50	+	
		-	-	5MVA, 220/33kV TFR	0.00		
		Total	126.80	Error at Station/Auxiliary Consumption/Losses	0.505%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Fdr- I	38.65	+	
		Unit-II	16.50	132kV KHP - Kilihar Fdr- II	26.15	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	51.53	+	
		-	-	132kV Motanga - Rangia Fdr.	55.74	+	
		-	-	220kV Tsirang - Jigmeling	98.89	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.364%		

Note: Generation-Load Summary for July 14, 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	1,675.70	203.49	188.95	1,373.32	14.54
2	Eastern Grid	857.15	60.66	56.72	895.38	3.94
	Total	2,532.85	264.15	245.67	2,268.70	18.48

Note: Generation-Load Summary for July 14, 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	1680.97	275.48	254.37	1,313.94	21.11
2	Eastern Grid	413.82	62.65	61.59	442.72	1.06
	Total	2,094.79	338.13	315.96	1,756.66	22.17

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 15, 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	187.66	400kV THP - Siliguri Fdr- I	275.76	+	
		Unit- II	187.87	400kV THP - Siliguri Fdr- II	272.91	+	
		Unit- III	187.40	400kV THP - Siliguri Fdr- IV	267.34	+	
		Unit- IV	186.27	400kV THP - Malbase Fdr- III	289.98	+	
		Unit- V	187.95	400kV Malbase - Siliguri	255.69	+	
		Unit- VI	186.37	-	-	-	
		Total	1,123.52	Error at Station/Auxiliary Consumption/Losses	1.560%		
2	720MW MHP	Unit-I	197.59	400kV MHP - Jigmeling Fdr - I	264.31	+	400kV MHP-JLG IV Standby.
		Unit-II	197.56	400kV MHP - Jigmeling Fdr - II	265.36	+	
		Unit-III	197.80	400kV MHP - Jigmeling Fdr - III	258.12	+	
		Unit-IV	197.42	400kV MHP - Jigmeling Fdr - IV			
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	790.37	Error at Station/Auxiliary Consumption/Losses	0.327%		
3	336MW CHP	Unit- I	90.49	220kV CHP - Birpara Fdr- I	125.24	+	
		Unit- II	91.40	220kV CHP - Birpara Fdr- II	125.89	+	
		Unit- III	90.71	220kV CHP - Malbase Fdr- III	167.56	+	
		Unit- IV	91.61	220kV CHP - Semtokha Fdr- IV	-63.05	-	
		-	-	220kV Malbase - Birpara Fdr.	78.15	+	
		-	-	66kV CHP - Chumdo Fdr.	1.17	+	
		-	-	66kV CHP - Gedu Fdr.	6.86	+	
		-	-	3x3MVA, 66/11kV TFR	0.84	+	
		Total	364.21	Error at Station/Auxiliary Consumption/Losses	-0.082%		
4	24MW BHP (U/S)	Unit- I	11.82	220kV BHP - Semtokha Fdr.	80.46	+	
		Unit- II	11.82	66kV BHP - Lobeysa Fdr.	15.67	+	
		Total	23.64	220kV BHP - Tsirang Fdr.	-30.51	-	
	40MW BHP (L/S)	Unit- I	21.03	5MVA, 66/11kV TFR	0.42	+	
		Unit- II	20.19	30MVA ICT, 220/66kV			
		Total	41.22	Error at Station/Auxiliary Consumption/Losses	-2.863%		
5	126MW DHPC	Unit-I	63.47	220kV DHPC - Tsirang Fdr.	126.30	+	
		Unit-II	63.39	220kV Jigmeling - Dagapela Fdr.	1.05	+	
		-	-	5MVA, 220/33kV TFR			
		Total	126.86	Error at Station/Auxiliary Consumption/Losses	0.441%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	41.09	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	23.65	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.29	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	54.87	+	
		-	-	132kV Motanga - Rangia Fdr.	52.78	+	
		-	-	220kV Tsirang - Jigmeling	93.50	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.470%		

Note: Generation-Load summary for July 15, 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	1,679.45	184.97	169.41	1,400.98	15.56
2	Eastern Grid	856.37	54.43	50.88	895.44	3.55
	Total	2,535.82	239.40	220.29	2,296.42	19.11

Note: Generation-Load Summary for July 15, 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	1679.11	231.59	213.19	1,367.44	18.40
2	Eastern Grid	411.65	46.30	46.67	445.43	-0.37
	Total	2,090.76	277.89	259.86	1,812.87	18.03

NOTES: KHP & 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.
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