

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	July 16, 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	187.26	400kV THP - Siliguri Fdr- I	270.80	+	
		Unit- II	183.98	400kV THP - Siliguri Fdr- II	268.79	+	
		Unit- III	186.66	400kV THP - Siliguri Fdr- IV	263.00	+	
		Unit- IV	186.46	400kV THP - Malbase Fdr- III	297.54	+	
		Unit- V	187.40	400kV Malbase - Siliguri	248.63	+	
		Unit- VI	185.90	-	-	-	
		Total	1,117.66	Error at Station/Auxiliary Consumption/Losses	1.568%		
2	720MW MHP	Unit-I	197.81	400kV MHP - Jigmeling Fdr - I	264.72	+	400kV MHP-JLG IV Standby.
		Unit-II	197.90	400kV MHP - Jigmeling Fdr - II	266.18	+	
		Unit-III	197.85	400kV MHP - Jigmeling Fdr - III	258.54	+	
		Unit-IV	197.86	400kV MHP - Jigmeling Fdr - IV			
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	791.42	Error at Station/Auxiliary Consumption/Losses	0.250%		
3	336MW CHP	Unit- I	90.49	220kV CHP - Birpara Fdr- I	120.65	+	
		Unit- II	91.40	220kV CHP - Birpara Fdr- II	120.96	+	
		Unit- III	90.71	220kV CHP - Malbase Fdr- III	162.56	+	
		Unit- IV	91.61	220kV CHP - Semtokha Fdr- IV	-53.42	-	
		-	-	220kV Malbase - Birpara Fdr.	75.10	+	
		-	-	66kV CHP - Chumdo Fdr.	2.96	+	
		-	-	66kV CHP - Gedu Fdr.	7.80	+	
		-	-	3x3MVA, 66/11kV TFR	1.11	+	
		Total	364.21	Error at Station/Auxiliary Consumption/Losses	0.437%		
4	24MW BHP (U/S)	Unit- I	11.86	220kV BHP - Semtokha Fdr.	77.20	+	
		Unit- II	11.83	66kV BHP - Lobeysa Fdr.	16.90	+	
		Total	23.69	220kV BHP - Tsirang Fdr.	-29.68	-	
	40MW BHP (L/S)	Unit- I	20.74	5MVA, 66/11kV TFR	0.95	+	
		Unit- II	19.95	30MVA ICT, 220/66kV			
		Total	40.69	Error at Station/Auxiliary Consumption/Losses	-1.538%		
5	126MW DHPC	Unit-I	63.46	220kV DHPC - Tsirang Fdr.	126.40	+	
		Unit-II	63.49	220kV Jigmeling - Dagapela Fdr.	1.75	+	
		-	-	5MVA, 220/33kV TFR			
		Total	126.95	Error at Station/Auxiliary Consumption/Losses	0.433%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	39.33	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	26.11	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	46.57	+	
		-	-	132kV Motanga - Rangia Fdr.	50.40	+	
		-	-	220kV Tsirang - Jigmeling	74.72	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	0.394%		

Note: Generation-Load Summary for July 16, 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	1,673.20	230.55	213.62	1,367.93	16.93
2	Eastern Grid	857.42	45.73	43.49	886.41	2.24
	Total	2,530.62	276.28	257.11	2,254.34	19.17

Note: Generation-Load Summary for July 16, 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	1,668.16	228.86	209.71	1,345.14	19.15
2	Eastern Grid	412.33	53.88	53.73	452.61	0.15
	Total	2,080.49	282.74	263.44	1,797.75	19.30

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 17, 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	187.48	400kV THP - Siliguri Fdr- I	277.31	+	
		Unit- II	188.09	400kV THP - Siliguri Fdr- II	273.50	+	
		Unit- III	187.01	400kV THP - Siliguri Fdr- IV	267.06	+	
		Unit- IV	186.93	400kV THP - Malbase Fdr- III	287.12	+	
		Unit- V	188.13	400kV Malbase - Siliguri	256.34	+	
		Unit- VI	186.13	-	-	-	
		Total	1,123.77	Error at Station/Auxiliary Consumption/Losses	1.671%		
2	720MW MHP	Unit-I	197.85	400kV MHP - Jigmeling Fdr - I	265.09	+	400kV MHP-JLG IV Standby.
		Unit-II	197.64	400kV MHP - Jigmeling Fdr - II	266.54	+	
		Unit-III	197.89	400kV MHP - Jigmeling Fdr - III	258.18	+	
		Unit-IV	197.86	400kV MHP - Jigmeling Fdr - IV			
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	791.24	Error at Station/Auxiliary Consumption/Losses	0.181%		
3	336MW CHP	Unit- I	90.49	220kV CHP - Birpara Fdr- I	123.74	+	
		Unit- II	91.40	220kV CHP - Birpara Fdr- II	124.13	+	
		Unit- III	90.71	220kV CHP - Malbase Fdr- III	177.34	+	
		Unit- IV	91.61	220kV CHP - Semtokha Fdr- IV	-69.62	-	
		-	-	220kV Malbase - Birpara Fdr.	67.77	+	
		-	-	66kV CHP - Chumdo Fdr.	0.87	+	
		-	-	66kV CHP - Gedu Fdr.	7.66	+	
		-	-	3x3MVA, 66/11kV TFR	0.79	+	
		Total	364.21	Error at Station/Auxiliary Consumption/Losses	-0.192%		
4	24MW BHP (U/S)	Unit- I	11.79	220kV BHP - Semtokha Fdr.	87.58	+	
		Unit- II	11.79	66kV BHP - Lobeysa Fdr.	16.00	+	
		Total	23.58	220kV BHP - Tsirang Fdr.	-38.45	-	
	40MW BHP (L/S)	Unit- I	21.01	5MVA, 66/11kV TFR	0.40	+	
		Unit- II	20.21	30MVA ICT, 220/66kV			
		Total	41.22	Error at Station/Auxiliary Consumption/Losses	-1.771%		
5	126MW DHPC	Unit-I	63.44	220kV DHPC - Tsirang Fdr.	126.15	+	
		Unit-II	63.29	220kV Jigmeling - Dagapela Fdr.	1.20	+	
		-	-	5MVA, 220/33kV TFR			
		Total	126.73	Error at Station/Auxiliary Consumption/Losses	0.458%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	40.99	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	23.66	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.10	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	51.05	+	
		-	-	132kV Motanga - Rangia Fdr.	49.91	+	
		-	-	220kV Tsirang - Jigmeling	84.72	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.888%		

Note: Generation-Load summary for July 17, 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	1,679.51	204.94	188.21	1,389.85	16.73
2	Eastern Grid	857.24	51.19	48.51	890.77	2.68
	Total	2,536.75	256.13	236.72	2,280.62	19.41

Note: Generation-Load Summary for July 17, 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	1654.72	244.82	225.90	1,336.52	18.92
2	Eastern Grid	415.94	44.75	40.17	444.57	4.58
	Total	2,070.66	289.57	266.07	1,781.09	23.50

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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