

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	July 17, 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	186.86	400kV THP - Siliguri Fdr- I	272.25	+	
		Unit- II	187.06	400kV THP - Siliguri Fdr- II	269.44	+	
		Unit- III	187.59	400kV THP - Siliguri Fdr- IV	263.91	+	
		Unit- IV	187.03	400kV THP - Malbase Fdr- III	299.28	+	
		Unit- V	187.49	400kV Malbase - Siliguri	248.23	+	
		Unit- VI	186.63	-	-	-	
		Total	1,122.66	Error at Station/Auxiliary Consumption/Losses		1.584%	
2	720MW MHP	Unit-I	197.76	400kV MHP - Jigmeling Fdr - I	264.39	+	400kV MHP-JLG IV Standby.
		Unit-II	197.74	400kV MHP - Jigmeling Fdr - II	265.82	+	
		Unit-III	197.81	400kV MHP - Jigmeling Fdr - III	258.59	+	
		Unit-IV	197.87	400kV MHP - Jigmeling Fdr - IV			
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	791.18	Error at Station/Auxiliary Consumption/Losses		0.301%	
3	336MW CHP	Unit- I	90.49	220kV CHP - Birpara Fdr- I	118.67	+	
		Unit- II	91.40	220kV CHP - Birpara Fdr- II	118.96	+	
		Unit- III	90.71	220kV CHP - Malbase Fdr- III	165.27	+	
		Unit- IV	91.61	220kV CHP - Semtokha Fdr- IV	-50.05	-	
		-	-	220kV Malbase - Birpara Fdr.	69.52	+	
		-	-	66kV CHP - Chumdo Fdr.	3.42	+	
		-	-	66kV CHP - Gedu Fdr.	7.67	+	
		-	-	3x3MVA, 66/11kV TFR	1.26	+	
		Total	364.21	Error at Station/Auxiliary Consumption/Losses		-0.272%	
4	24MW BHP (U/S)	Unit- I	11.83	220kV BHP - Semtokha Fdr.	74.86	+	
		Unit- II	11.83	66kV BHP - Lobeysa Fdr.	16.88	+	
		Total	23.66	220kV BHP - Tsirang Fdr.	-26.51	-	
	40MW BHP (L/S)	Unit- I	21.00	5MVA, 66/11kV TFR	0.61	+	
		Unit- II	20.21	30MVA ICT, 220/66kV			
		Total	41.21	Error at Station/Auxiliary Consumption/Losses		-1.495%	
5	126MW DHPC	Unit-I	63.45	220kV DHPC - Tsirang Fdr.	126.22	+	
		Unit-II	63.43	220kV Jigmeling - Dagapela Fdr.	1.62	+	
		-	-	5MVA, 220/33kV TFR			
		Total	126.88	Error at Station/Auxiliary Consumption/Losses		0.520%	
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	38.27	+	
		Unit-II	16.50	132kV KHP - Kilihar Fdr- II	26.15	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.29	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	46.50	+	
		-	-	132kV Motanga - Rangia Fdr.	50.71	+	
		-	-	220kV Tsirang - Jigmeling	95.38	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses		1.955%	

Note: Generation-Load Summary for July 17, 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	1,678.62	222.26	207.40	1,360.98	14.86
2	Eastern Grid	857.18	66.55	62.88	886.01	3.67
	Total	2,535.80	288.81	270.28	2,246.99	18.53

Note: Generation-Load Summary for July 17, 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	1,548.15	265.11	245.94	1,209.67	19.17
2	Eastern Grid	66.51	44.83	43.46	95.05	1.37
	Total	1,614.66	309.94	289.40	1,304.72	20.54

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 18, 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	187.21	400kV THP - Siliguri Fdr- I	276.15	+	
		Unit- II	186.76	400kV THP - Siliguri Fdr- II	272.50	+	
		Unit- III	187.17	400kV THP - Siliguri Fdr- IV	265.58	+	
		Unit- IV	187.68	400kV THP - Malbase Fdr- III	290.68	+	
		Unit- V	187.68	400kV Malbase - Siliguri	254.44	+	
		Unit- VI	186.49	-	-	-	
		Total	1,122.99	Error at Station/Auxiliary Consumption/Losses	1.610%		
2	720MW MHP	Unit-I	197.60	400kV MHP - Jigmeling Fdr - I	265.90	+	400kV MHP-JLG IV Standby.
		Unit-II	198.00	400kV MHP - Jigmeling Fdr - II	247.90	+	
		Unit-III	197.20	400kV MHP - Jigmeling Fdr - III	277.40	+	
		Unit-IV	198.40	400kV MHP - Jigmeling Fdr - IV			
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	791.20	Error at Station/Auxiliary Consumption/Losses	0.000%		
3	336MW CHP	Unit- I	90.49	220kV CHP - Birpara Fdr- I	125.07	+	
		Unit- II	91.40	220kV CHP - Birpara Fdr- II	125.06	+	
		Unit- III	90.71	220kV CHP - Malbase Fdr- III	180.93	+	
		Unit- IV	91.61	220kV CHP - Semtokha Fdr- IV	-74.81	-	
		-	-	220kV Malbase - Birpara Fdr.	66.36	+	
		-	-	66kV CHP - Chumdo Fdr.	0.97	+	
		-	-	66kV CHP - Gedu Fdr.	7.67	+	
		-	-	3x3MVA, 66/11kV TFR	0.82	+	
		Total	364.21	Error at Station/Auxiliary Consumption/Losses	-0.412%		
4	24MW BHP (U/S)	Unit- I	11.82	220kV BHP - Semtokha Fdr.	94.25	+	
		Unit- II	11.82	66kV BHP - Lobeysa Fdr.	16.26	+	
		Total	23.64	220kV BHP - Tsirang Fdr.	-45.19	-	
	40MW BHP (L/S)	Unit- I	20.98	5MVA, 66/11kV TFR	0.43	+	
		Unit- II	20.18	30MVA ICT, 220/66kV			
		Total	41.16	Error at Station/Auxiliary Consumption/Losses	-2.308%		
5	126MW DHPC	Unit-I	63.51	220kV DHPC - Tsirang Fdr.	126.31	+	
		Unit-II	63.40	220kV Jigmeling - Dagapela Fdr.	1.20	+	
		-	-	5MVA, 220/33kV TFR			
		Total	126.91	Error at Station/Auxiliary Consumption/Losses	0.473%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	41.20	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	23.25	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.11	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	48.48	+	
		-	-	132kV Motanga - Rangia Fdr.	49.20	+	
		-	-	220kV Tsirang - Jigmeling	78.71	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	2.179%		

Note: Generation-Load summary for July 18, 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	1,678.91	215.04	200.01	1,385.16	15.03
2	Eastern Grid	857.20	47.03	45.59	888.88	1.44
	Total	2,536.11	262.07	245.60	2,274.04	16.47

Note: Generation-Load Summary for July 18, 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	1634.73	206.44	222.71	1,364.00	-16.27
2	Eastern Grid	434.01	56.52	55.83	441.78	0.69
	Total	2,068.74	262.96	278.54	1,805.78	-15.58

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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