

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	July 15, 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	187.00	400kV THP - Siliguri Fdr- I	272.05	+	
		Unit- II	186.65	400kV THP - Siliguri Fdr- II	270.32	+	
		Unit- III	187.12	400kV THP - Siliguri Fdr- IV	263.76	+	
		Unit- IV	187.20	400kV THP - Malbase Fdr- III	297.13	+	
		Unit- V	187.44	400kV Malbase - Siliguri	249.84	+	
		Unit- VI	186.14	-	-	-	
		Total	1,121.55	Error at Station/Auxiliary Consumption/Losses	1.631%		
2	720MW MHP	Unit-I	197.81	400kV MHP - Jigmeling Fdr - I	264.41	+	400kV MHP-JLG IV Standby.
		Unit-II	197.83	400kV MHP - Jigmeling Fdr - II	265.49	+	
		Unit-III	197.80	400kV MHP - Jigmeling Fdr - III	258.16	+	
		Unit-IV	197.93	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		Total	791.37	Error at Station/Auxiliary Consumption/Losses	0.418%		
3	336MW CHP	Unit- I	90.49	220kV CHP - Birpara Fdr- I	121.17	+	
		Unit- II	91.40	220kV CHP - Birpara Fdr- II	121.77	+	
		Unit- III	90.71	220kV CHP - Malbase Fdr- III	161.30	+	
		Unit- IV	91.61	220kV CHP - Semtokha Fdr- IV	-51.30	-	
		-	-	220kV Malbase - Birpara Fdr.	77.06	+	
		-	-	66kV CHP - Chumdo Fdr.	3.27	+	
		-	-	66kV CHP - Gedu Fdr.	7.25	+	
		-	-	3x3MVA, 66/11kV TFR	1.12	+	
		Total	364.21	Error at Station/Auxiliary Consumption/Losses	-0.102%		
4	24MW BHP (U/S)	Unit- I	11.85	220kV BHP - Semtokha Fdr.	75.83	+	
		Unit- II	11.85	66kV BHP - Lobeysa Fdr.	17.15	+	
		Total	23.70	220kV BHP - Tsirang Fdr.	-28.25	-	
	40MW BHP (L/S)	Unit- I	21.00	5MVA, 66/11kV TFR	1.21	+	
		Unit- II	20.16	30MVA ICT, 220/66kV	0.00		
		Total	41.16	Error at Station/Auxiliary Consumption/Losses	-1.665%		
5	126MW DHPC	Unit-I	63.47	220kV DHPC - Tsirang Fdr.	126.33	+	
		Unit-II	63.38	220kV Jigmeling - Dagapela Fdr.	1.50	+	
		-	-	5MVA, 220/33kV TFR	0.00		
		Total	126.85	Error at Station/Auxiliary Consumption/Losses	0.410%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	39.18	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	25.48	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.28	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	48.13	+	
		-	-	132kV Motanga - Rangia Fdr.	51.80	+	
		-	-	220kV Tsirang - Jigmeling	93.93	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.606%		

Note: Generation-Load Summary for July 15, 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	1,677.47	207.57	191.71	1,375.97	15.86
2	Eastern Grid	857.37	63.31	58.94	887.99	4.37
	Total	2,534.84	270.88	250.65	2,263.96	20.23

Note: Generation-Load Summary for July 15, 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	1679.69	233.57	221.25	1,352.98	12.32
2	Eastern Grid	412.53	48.09	52.64	457.58	-4.55
	Total	2,092.22	281.66	273.89	1,810.56	7.77

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 16, 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	186.96	400kV THP - Siliguri Fdr- I	277.78	+	
		Unit- II	188.19	400kV THP - Siliguri Fdr- II	274.51	+	
		Unit- III	186.42	400kV THP - Siliguri Fdr- IV	267.34	+	
		Unit- IV	186.96	400kV THP - Malbase Fdr- III	284.81	+	
		Unit- V	188.21	400kV Malbase - Siliguri	258.34	+	
		Unit- VI	185.66	-	-	-	
		Total	1,122.40	Error at Station/Auxiliary Consumption/Losses	1.600%		
2	720MW MHP	Unit-I	197.54	400kV MHP - Jigmeling Fdr - I	265.50	+	400kV MHP-JLG IV Standby.
		Unit-II	198.09	400kV MHP - Jigmeling Fdr - II	247.80	+	
		Unit-III	197.12	400kV MHP - Jigmeling Fdr - III	277.10	+	
		Unit-IV	198.39	400kV MHP - Jigmeling Fdr - IV			
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	791.14	Error at Station/Auxiliary Consumption/Losses	0.094%		
3	336MW CHP	Unit- I	90.49	220kV CHP - Birpara Fdr- I	123.94	+	
		Unit- II	91.40	220kV CHP - Birpara Fdr- II	123.69	+	
		Unit- III	90.71	220kV CHP - Malbase Fdr- III	179.21	+	
		Unit- IV	91.61	220kV CHP - Semtokha Fdr- IV	-71.18	-	
		-	-	220kV Malbase - Birpara Fdr.	66.06	+	
		-	-	66kV CHP - Chumdo Fdr.	0.81	+	
		-	-	66kV CHP - Gedu Fdr.	7.93	+	
		-	-	3x3MVA, 66/11kV TFR	0.81	+	
		Total	364.21	Error at Station/Auxiliary Consumption/Losses	-0.275%		
4	24MW BHP (U/S)	Unit- I	11.85	220kV BHP - Semtokha Fdr.	89.67	+	
		Unit- II	11.85	66kV BHP - Lobeysa Fdr.	16.20	+	
		Total	23.70	220kV BHP - Tsirang Fdr.	-40.27	-	
	40MW BHP (L/S)	Unit- I	20.99	5MVA, 66/11kV TFR	0.41	+	
		Unit- II	20.21	30MVA ICT, 220/66kV			
		Total	41.20	Error at Station/Auxiliary Consumption/Losses	-2.694%		
5	126MW DHPC	Unit-I	63.55	220kV DHPC - Tsirang Fdr.	126.36	+	
		Unit-II	63.40	220kV Jigmeling - Dagapela Fdr.	1.05	+	
		-	-	5MVA, 220/33kV TFR			
		Total	126.95	Error at Station/Auxiliary Consumption/Losses	0.465%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Fdr- I	40.86	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	23.88	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.27	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	49.37	+	
		-	-	132kV Motanga - Rangia Fdr.	51.92	+	
		-	-	220kV Tsirang - Jigmeling	82.53	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.500%		

Note: Generation-Load summary for July 16, 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	1,678.46	204.27	188.88	1,391.66	15.39
2	Eastern Grid	857.14	47.98	46.25	891.69	1.73
	Total	2,535.60	252.25	235.13	2,283.35	17.12

Note: Generation-Load Summary for July 16, 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	1679.74	224.23	215.68	1,377.09	8.55
2	Eastern Grid	415.1	49.84	49.33	443.68	0.51
	Total	2,094.84	274.07	265.01	1,820.77	9.06

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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