

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	June 30, 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	187.87	400kV THP - Siliguri Fdr- I	266.15	+	
		Unit- II	183.86	400kV THP - Siliguri Fdr- II	263.95	+	
		Unit- III	187.10	400kV THP - Siliguri Fdr- IV	258.50	+	
		Unit- IV	186.53	400kV THP - Malbase Fdr- III	313.13	+	
		Unit- V	187.81	400kV Malbase - Siliguri	239.61	+	
		Unit- VI	187.32	-	-	-	
		Total	1,120.49	Error at Station/Auxiliary Consumption/Losses	18.76		
2	720MW MHP	Unit-I	197.20	400kV MHP - Jigmeling Fdr - I	252.00	+	400kV MHP-JLG IV Standby.
		Unit-II	194.50	400kV MHP - Jigmeling Fdr - II	255.00	+	
		Unit-III	180.50	400kV MHP - Jigmeling Fdr - III	247.00	+	
		Unit-IV	181.90	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		Total	754.10	Error at Station/Auxiliary Consumption/Losses	0.10		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	90.06	+	Unit I under shutdown till 30th June,2020.
		Unit- II	91.32	220kV CHP - Birpara Fdr- II	90.12	+	
		Unit- III	91.66	220kV CHP - Malbase Fdr- III	116.22	+	
		Unit- IV	91.66	220kV CHP - Semtokha Fdr- IV	-33.20	-	
		-	-	220kV Malbase - Birpara Fdr.	59.98	+	
		-	-	66kV CHP - Chumdo Fdr.	3.85	+	
		-	-	66kV CHP - Gedu Fdr.	5.43	+	
		-	-	3x3MVA, 66/11kV TFR	1.05	+	
		Total	274.64	Error at Station/Auxiliary Consumption/Losses	1.11		
4	24MW BHP (U/S)	Unit- I	11.84	220kV BHP - Semtokha Fdr.	53.92	+	
		Unit- II	11.84	66kV BHP - Lobeysa Fdr.	16.40	+	
		Total	23.68	220kV BHP - Tsirang Fdr.	-5.77	-	
	40MW BHP (L/S)	Unit- I	21.01	5MVA, 66/11kV TFR	0.53	+	
		Unit- II	20.20	30MVA ICT, 220/66kV	0.00		
		Total	41.21	Error at Station/Auxiliary Consumption/Losses	0.19		
5	126MW DHPC	Unit-I	27.23	220kV DHPC - Tsirang Fdr.	90.07	+	
		Unit-II	63.24	220kV Jigmeling - Dagapela Fdr.	1.74	+	
		-	-	5MVA, 220/33kV TFR	0.00		
		Total	90.47	Error at Station/Auxiliary Consumption/Losses	0.40		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	41.13	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	23.22	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.25	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	39.40	+	
		-	-	132kV Motanga - Rangia Fdr.	50.51	+	
		-	-	220kV Tsirang - Jigmeling	82.30	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.40		

Note: Generation-Load Summary for June 30, 2020 at 19:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	1,550.49	199.82	181.48	1,268.37	18.34
2	Eastern Grid	820.10	58.49	56.99	843.91	1.50
	Total	2,370.59	258.31	238.47	2,112.28	19.84

Note: Generation-Load Summary for June 30, 2019 at 19:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	761.59	242.70	230.65	480.39	12.05
2	Eastern Grid	65.563	46.85	46.99	57.21	-0.14
	Total	827.15	289.55	277.64	537.60	11.91

NOTE: KHP,MHEP & Motanga 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.
 - 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 1, 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	187.00	400kV THP - Siliguri Fdr- I	271.53	+	
		Unit- II	186.39	400kV THP - Siliguri Fdr- II	269.18	+	
		Unit- III	187.00	400kV THP - Siliguri Fdr- IV	261.40	+	
		Unit- IV	185.60	400kV THP - Malbase Fdr- III	299.72	+	
		Unit- V	187.00	400kV Malbase - Siliguri	247.45	+	
		Unit- VI	186.12	-	-	-	
		Total	1,119.11	Error at Station/Auxiliary Consumption/Losses	17.28		
2	720MW MHP	Unit-I	197.24	400kV MHP - Jigmeling Fdr - I	253.00	+	400kV MHP-JLG IV Standby.
		Unit-II	193.90	400kV MHP - Jigmeling Fdr - II	235.00	+	
		Unit-III	180.60	400kV MHP - Jigmeling Fdr - III	265.00	+	
		Unit-IV	182.00	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		Total	753.74	Error at Station/Auxiliary Consumption/Losses	0.74		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	92.86	+	Unit-I under shutdown till 30th June, 2020.
		Unit- II	91.29	220kV CHP - Birpara Fdr- II	92.78	+	
		Unit- III	90.65	220kV CHP - Malbase Fdr- III	137.00	+	
		Unit- IV	91.23	220kV CHP - Semtokha Fdr- IV	-57.61	-	
		-	-	220kV Malbase - Birpara Fdr.	46.80	+	
		-	-	66kV CHP - Chumdo Fdr.	1.72	+	
		-	-	66kV CHP - Gedu Fdr.	6.20	+	
		-	-	3x3MVA, 66/11kV TFR	0.79	+	
		Total	273.17	Error at Station/Auxiliary Consumption/Losses	-0.57		
4	24MW BHP (U/S)	Unit- I	11.83	220kV BHP - Semtokha Fdr.	75.44	+	
		Unit- II	11.83	66kV BHP - Lobeysa Fdr.	15.60	+	
		Total	23.66	220kV BHP - Tsirang Fdr.	-25.98	-	
	40MW BHP (L/S)	Unit- I	21.00	5MVA, 66/11kV TFR	0.51	+	
		Unit- II	20.14	30MVA ICT, 220/66kV			
		Total	41.14	Error at Station/Auxiliary Consumption/Losses	-0.77		
5	126MW DHPC	Unit-I	50.29	220kV DHPC - Tsirang Fdr.	101.01	+	
		Unit-II	51.27	220kV Jigmeling - Dagapela Fdr.	1.30	+	
		-	-	5MVA, 220/33kV TFR			
		Total	101.56	Error at Station/Auxiliary Consumption/Losses	0.55		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	42.12	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	22.37	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.27	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	41.47	+	
		-	-	132kV Motanga - Rangia Fdr.	45.24	+	
		-	-	220kV Tsirang - Jigmeling	71.92	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.24		

Note: Generation-Load summary for July 01, 2020 at 09:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	1,558.64	204.72	189.53	1,282.00	15.19
2	Eastern Grid	819.74	51.95	49.97	839.71	1.98
	Total	2,378.38	256.67	239.50	2,121.71	17.17

Note: Generation-Load Summary for July 01, 2019 at 09:00hrs

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	705.53	194.88	208.57	481.26	-13.69
2	Eastern Grid	65.8	41.99	41.69	53.20	0.30
	Total	771.33	236.87	250.26	534.46	-13.39

NOTES: KHP, MHP & Motanga 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.
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