

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	July 10, 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	271.00	+	
		Unit- II	186.00	400kV THP - Siliguri Fdr- II	269.00	+	
		Unit- III	187.00	400kV THP - Siliguri Fdr- IV	262.00	+	
		Unit- IV	187.00	400kV THP - Malbase Fdr- III	300.00	+	
		Unit- V	187.00	400kV Malbase - Siliguri	249.12	+	
		Unit- VI	186.00	-	-	-	
		Total	1,120.00	Error at Station/Auxiliary Consumption/Losses	18.00		
2	720MW MHP	Unit-I	197.67	400kV MHP - Jigmeling Fdr - I	260.45	+	400kV MHP-JLG IV Standby.
		Unit-II	195.99	400kV MHP - Jigmeling Fdr - II	261.67	+	
		Unit-III	195.25	400kV MHP - Jigmeling Fdr - III	254.02	+	
		Unit-IV	190.22	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		Total	779.13	Error at Station/Auxiliary Consumption/Losses	2.99		
3	336MW CHP	Unit- I	91.33	220kV CHP - Birpara Fdr- I	119.17	+	
		Unit- II	91.24	220kV CHP - Birpara Fdr- II	119.29	+	
		Unit- III	91.70	220kV CHP - Malbase Fdr- III	168.73	+	
		Unit- IV	91.97	220kV CHP - Semtokha Fdr- IV	-52.61	-	
		-	-	220kV Malbase - Birpara Fdr.	67.60	+	
		-	-	66kV CHP - Chumdo Fdr.	2.92	+	
		-	-	66kV CHP - Gedu Fdr.	7.19	+	
		-	-	3x3MVA, 66/11kV TFR	1.18	+	
		Total	366.24	Error at Station/Auxiliary Consumption/Losses	0.37		
4	24MW BHP (U/S)	Unit- I	11.83	220kV BHP - Semtokha Fdr.	76.04	+	
		Unit- II	11.83	66kV BHP - Lobeysa Fdr.	16.68	+	
		Total	23.66	220kV BHP - Tsirang Fdr.	-28.25	-	
	40MW BHP (L/S)	Unit- I	20.97	5MVA, 66/11kV TFR	1.06	+	
		Unit- II	20.22	30MVA ICT, 220/66kV	0.00		
		Total	41.19	Error at Station/Auxiliary Consumption/Losses	0.68		
5	126MW DHPC	Unit-I	63.40	220kV DHPC - Tsirang Fdr.	126.16	+	
		Unit-II	63.38	220kV Jigmeling - Dagapela Fdr.	1.63	+	
		-	-	5MVA, 220/33kV TFR	0.00		
		Total	126.78	Error at Station/Auxiliary Consumption/Losses	0.62		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	38.02	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	26.62	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.26	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	47.66	+	
		-	-	132kV Motanga - Rangia Fdr.	56.61	+	
		-	-	220kV Tsirang - Jigmeling	92.79	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.10		

Note: Generation-Load Summary for July 10, 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	1,677.87	227.90	211.22	1,357.18	16.68
2	Eastern Grid	845.13	57.51	53.42	880.41	4.09
	Total	2,523.00	285.41	264.64	2,237.59	20.77

Note: Generation-Load Summary for July 10, 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	1674.55	263.02	259.77	1,319.13	3.25
2	Eastern Grid	429.74	60.18	60.06	461.96	0.12
	Total	2,104.29	323.20	319.83	1,781.09	3.37

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 11, 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	188.19	400kV THP - Siliguri Fdr- I	280.13	+	
		Unit- II	187.16	400kV THP - Siliguri Fdr- II	275.47	+	
		Unit- III	187.01	400kV THP - Siliguri Fdr- IV	268.64	+	
		Unit- IV	186.07	400kV THP - Malbase Fdr- III	280.73	+	
		Unit- V	188.24	400kV Malbase - Siliguri	260.76	+	
		Unit- VI	186.74	-	-	-	
		Total	1,123.41	Error at Station/Auxiliary Consumption/Losses	18.44		
2	720MW MHP	Unit-I	197.40	400kV MHP - Jigmeling Fdr - I	263.60	+	400kV MHP-JLG IV Standby.
		Unit-II	197.50	400kV MHP - Jigmeling Fdr - II	245.60	+	
		Unit-III	194.40	400kV MHP - Jigmeling Fdr - III	275.00	+	
		Unit-IV	195.40	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		Total	784.70	Error at Station/Auxiliary Consumption/Losses	0.50		
3	336MW CHP	Unit- I	91.91	220kV CHP - Birpara Fdr- I	126.31	+	
		Unit- II	91.30	220kV CHP - Birpara Fdr- II	126.31	+	
		Unit- III	91.85	220kV CHP - Malbase Fdr- III	181.16	+	
		Unit- IV	91.43	220kV CHP - Semtokha Fdr- IV	-77.88	-	
		-	-	220kV Malbase - Birpara Fdr.	68.49	+	
		-	-	66kV CHP - Chumdo Fdr.	0.98	+	
		-	-	66kV CHP - Gedu Fdr.	7.23	+	
		-	-	3x3MVA, 66/11kV TFR	0.80	+	
		Total	366.49	Error at Station/Auxiliary Consumption/Losses	1.58		
4	24MW BHP (U/S)	Unit- I	11.81	220kV BHP - Semtokha Fdr.	93.41	+	
		Unit- II	11.81	66kV BHP - Lobeysa Fdr.	16.62	+	
		Total	23.62	220kV BHP - Tsirang Fdr.	-44.74	-	
	40MW BHP (L/S)	Unit- I	20.98	5MVA, 66/11kV TFR	0.42	+	
		Unit- II	20.18	30MVA ICT, 220/66kV			
		Total	41.16	Error at Station/Auxiliary Consumption/Losses	-0.93		
5	126MW DHPC	Unit-I	63.45	220kV DHPC - Tsirang Fdr.	126.25	+	
		Unit-II	63.38	220kV Jigmeling - Dagapela Fdr.	1.34	+	
		-	-	5MVA, 220/33kV TFR			
		Total	126.83	Error at Station/Auxiliary Consumption/Losses	0.58		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	41.78	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	22.73	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.28	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	46.40	+	
		-	-	132kV Motanga - Rangia Fdr.	46.64	+	
		-	-	220kV Tsirang - Jigmeling	77.20	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.21		

Note: Generation-Load summary for July 11, 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	1,681.51	198.20	179.87	1,406.11	18.33
2	Eastern Grid	850.70	50.66	48.95	877.24	1.71
	Total	2,532.21	248.86	228.82	2,283.35	20.04

Note: Generation-Load Summary for July 11, 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	1677.49	248.75	229.85	1,352.74	18.90
2	Eastern Grid	430.85	42.87	42.17	463.98	0.70
	Total	2,108.34	291.62	272.02	1,816.72	19.60

NOTES: KHP & 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.