

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	July 23, 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	187.16	400kV THP - Siliguri Fdr- I	252.41	+	
		Unit- II	186.25	400kV THP - Siliguri Fdr- II	249.96	+	
		Unit- III	187.85	400kV THP - Siliguri Fdr- IV	243.13	+	
		Unit- IV	187.39	400kV THP - Malbase Fdr- III	357.53	+	
		Unit- V	187.93	400kV Malbase - Siliguri	213.73	+	
		Unit- VI	185.49	-	-	-	
		Total	1,122.07	Error at Station/Auxiliary Consumption/Losses	1.697%		
2	720MW MHP	Unit-I	197.96	400kV MHP - Jigmeling Fdr - I	260.76	+	400kV MHP-JLG IV Standby.
		Unit-II	196.73	400kV MHP - Jigmeling Fdr - II	261.61	+	
		Unit-III	192.72	400kV MHP - Jigmeling Fdr - III	254.54	+	
		Unit-IV	190.85	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	778.26	Error at Station/Auxiliary Consumption/Losses	0.173%		
3	336MW CHP	Unit- I	91.37	220kV CHP - Birpara Fdr- I	192.27	+	220kV CHP-MAL & MAL-Birpara fdr under emergency shutdown.
		Unit- II	91.14	220kV CHP - Birpara Fdr- II	192.63	+	
		Unit- III	91.35	220kV CHP - Malbase Fdr- III	0.00		
		Unit- IV	91.21	220kV CHP - Semtokha Fdr- IV	-42.54	-	
		-	-	220kV Malbase - Birpara Fdr.	0.00		
		-	-	66kV CHP - Chumdo Fdr.	2.49	+	
		-	-	66kV CHP - Gedu Fdr.	16.75	+	
		Total	365.07	Error at Station/Auxiliary Consumption/Losses	0.619%		
4	24MW BHP (U/S)	Unit- I	11.81	220kV BHP - Semtokha Fdr.	68.61	+	
		Unit- II	11.81	66kV BHP - Lobeysa Fdr.	17.42	+	
		Total	23.62	220kV BHP - Tsirang Fdr.	-20.87	-	
	40MW BHP (L/S)	Unit- I	20.98	5MVA, 66/11kV TFR	0.50	+	
		Unit- II	20.13	30MVA ICT, 220/66kV			
		Total	41.11	Error at Station/Auxiliary Consumption/Losses	-1.437%		
5	126MW DHPC	Unit-I	63.46	220kV DHPC - Tsirang Fdr.	126.39	+	
		Unit-II	63.43	220kV Jigmeling - Dagapela Fdr.	1.40	+	
		-	-	5MVA, 220/33kV TFR			
		Total	126.89	Error at Station/Auxiliary Consumption/Losses	0.394%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	38.50	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	26.40	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.20	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	55.00	+	
		-	-	132kV Motanga - Rangia Fdr.	55.27	+	
		-	-	220kV Tsirang - Jigmeling	101.36	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.364%		

Note: Generation-Load Summary for July 23, 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	1,678.76	233.27	213.80	1,344.13	19.47
2	Eastern Grid	844.26	58.44	56.19	887.18	2.25
	Total	2,523.02	291.71	269.99	2,231.31	21.72

Note: Generation-Load Summary for July 23, 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	1,629.58	273.75	256.40	1,282.17	17.35
2	Eastern Grid	261.69	42.70	40.45	292.65	2.25
	Total	1,891.27	316.45	296.85	1,574.82	19.60

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 24, 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	187.26	400kV THP - Siliguri Fdr- I	275.29	+	
		Unit- II	184.88	400kV THP - Siliguri Fdr- II	272.45	+	
		Unit- III	186.95	400kV THP - Siliguri Fdr- IV	265.92	+	
		Unit- IV	186.50	400kV THP - Malbase Fdr- III	288.39	+	
		Unit- V	187.35	400kV Malbase - Siliguri	254.87	+	
		Unit- VI	185.92	-	-	-	
		Total	1,118.86	Error at Station/Auxiliary Consumption/Losses	1.502%		
2	720MW MHP	Unit-I	197.64	400kV MHP - Jigmeling Fdr - I	263.90	+	400kV MHP-JLG IV Standby.
		Unit-II	196.33	400kV MHP - Jigmeling Fdr - II	245.90	+	
		Unit-III	194.43	400kV MHP - Jigmeling Fdr - III	275.60	+	
		Unit-IV	195.89	400kV MHP - Jigmeling Fdr - IV			
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	784.29	Error at Station/Auxiliary Consumption/Losses	-0.142%		
3	336MW CHP	Unit- I	91.91	220kV CHP - Birpara Fdr- I	127.76	+	
		Unit- II	90.87	220kV CHP - Birpara Fdr- II	127.94	+	
		Unit- III	91.33	220kV CHP - Malbase Fdr- III	179.37	+	
		Unit- IV	92.18	220kV CHP - Semtokha Fdr- IV	-79.23	-	
		-	-	220kV Malbase - Birpara Fdr.	73.39	+	
		-	-	66kV CHP - Chumdo Fdr.	0.69	+	
		-	-	66kV CHP - Gedu Fdr.	7.90	+	
		-	-	3x3MVA, 66/11kV TFR	0.89	+	
		Total	366.29	Error at Station/Auxiliary Consumption/Losses	0.265%		
4	24MW BHP (U/S)	Unit- I	11.82	220kV BHP - Semtokha Fdr.	97.95	+	
		Unit- II	11.82	66kV BHP - Lobeysa Fdr.	16.24	+	
		Total	23.64	220kV BHP - Tsirang Fdr.	-48.57	-	
	40MW BHP (L/S)	Unit- I	20.94	5MVA, 66/11kV TFR	0.42	+	
		Unit- II	20.10	30MVA ICT, 220/66kV			
Total	41.04	Error at Station/Auxiliary Consumption/Losses	-3.314%				
5	126MW DHPC	Unit-I	63.55	220kV DHPC - Tsirang Fdr.	126.39	+	
		Unit-II	63.42	220kV Jigmeling - Dagapela Fdr.	1.33	+	
		-	-	5MVA, 220/33kV TFR			
		Total	126.97	Error at Station/Auxiliary Consumption/Losses	0.457%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	41.88	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	22.50	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.25	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	48.75	+	
		-	-	132kV Motanga - Rangia Fdr.	44.63	+	
		-	-	220kV Tsirang - Jigmeling	73.42	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	2.079%		

Note: Generation-Load summary for July 24, 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	1,676.80	205.76	190.09	1,397.62	15.67
2	Eastern Grid	850.29	44.93	44.67	878.78	0.26
	Total	2,527.09	250.69	234.76	2,276.40	15.93

Note: Generation-Load Summary for July 24, 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	1683.12	216.49	193.27	1,385.00	23.22
2	Eastern Grid	259.61	34.92	33.18	306.32	1.74
	Total	1,942.73	251.41	226.45	1,691.32	24.96

NOTES: KHP data 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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