

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	August 9, 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	187.36	400kV THP - Siliguri Fdr- I	275.92	+	
		Unit- II	186.87	400kV THP - Siliguri Fdr- II	276.67	+	
		Unit- III	188.13	400kV THP - Siliguri Fdr- IV	267.28	+	
		Unit- IV	188.59	400kV THP - Malbase Fdr- III	283.67	+	
		Unit- V	185.60	400kV Malbase - Siliguri	258.66	+	
		Unit- VI	186.14	-	-	-	
		Total	1,122.69	Error at Station/Auxiliary Consumption/Losses	1.706%		
2	720MW MHP	Unit-I	197.75	400kV MHP - Jigmeling Fdr - I	259.63	+	400kV MHP-JLG IV Standby.
		Unit-II	195.66	400kV MHP - Jigmeling Fdr - II	260.72	+	
		Unit-III	191.80	400kV MHP - Jigmeling Fdr - III	252.72	+	
		Unit-IV	190.52	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	775.73	Error at Station/Auxiliary Consumption/Losses	0.343%		
3	336MW CHP	Unit- I	91.86	220kV CHP - Birpara Fdr- I	124.96	+	
		Unit- II	91.04	220kV CHP - Birpara Fdr- II	125.16	+	
		Unit- III	91.63	220kV CHP - Malbase Fdr- III	173.81	+	
		Unit- IV	91.72	220kV CHP - Semtokha Fdr- IV	-68.59	-	
		-	-	220kV Malbase - Birpara Fdr.	71.59	+	
		-	-	66kV CHP - Chumdo Fdr.	1.20	+	
		-	-	66kV CHP - Gedu Fdr.	7.29	+	
		-	-	3x3MVA, 66/11kV TFR	0.54	+	
		Total	366.25	Error at Station/Auxiliary Consumption/Losses	0.513%		
4	24MW BHP (U/S)	Unit- I	11.83	220kV BHP - Semtokha Fdr.	87.59	+	
		Unit- II	11.83	66kV BHP - Lobeysa Fdr.	15.99	+	
		Total	23.66	220kV BHP - Tsirang Fdr.	-38.11	-	
	40MW BHP (L/S)	Unit- I	21.08	5MVA, 66/11kV TFR	0.45	+	
		Unit- II	20.16	30MVA ICT, 220/66kV			
		Total	41.24	Error at Station/Auxiliary Consumption/Losses	-1.572%		
5	126MW DHPC	Unit-I	63.39	220kV DHPC - Tsirang Fdr.	126.26	+	
		Unit-II	63.40	220kV Jigmeling - Dagapela Fdr.	1.74	+	
		-	-	5MVA, 220/33kV TFR			
		Total	126.79	Error at Station/Auxiliary Consumption/Losses	0.418%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Fdr- I	35.65	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	28.63	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	47.36	+	
		-	-	132kV Motanga - Rangia Fdr.	53.65	+	
		-	-	220kV Tsirang - Jigmeling	85.85	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	2.152%		

Note: Generation-Load Summary for August 09, 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	1,680.63	194.54	175.74	1,400.24	18.80
2	Eastern Grid	841.73	53.50	49.42	874.08	4.08
	Total	2,522.36	248.04	225.16	2,274.32	22.88

Note: Generation-Load Summary for August 09, 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	1,572.98	248.77	236.16	1,229.55	12.61
2	Eastern Grid	437.7	68.66	65.19	463.70	3.47
	Total	2,010.68	317.43	301.35	1,693.25	16.08

NOTE: KHP 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:	August 10, 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	186.85	400kV THP - Siliguri Fdr- I	278.30	+	
		Unit- II	187.57	400kV THP - Siliguri Fdr- II	275.03	+	
		Unit- III	187.21	400kV THP - Siliguri Fdr- IV	267.36	+	
		Unit- IV	186.37	400kV THP - Malbase Fdr- III	281.17	+	
		Unit- V	187.69	400kV Malbase - Siliguri	260.03	+	
		Unit- VI	185.76	-	-	-	
		Total	1,121.45	Error at Station/Auxiliary Consumption/Losses	1.747%		
2	720MW MHP	Unit-I	197.48	400kV MHP - Jigmeling Fdr - I	261.20	+	400kV MHP-JLG IV Standby.
		Unit-II	195.91	400kV MHP - Jigmeling Fdr - II	242.20	+	
		Unit-III	190.36	400kV MHP - Jigmeling Fdr - III	271.80	+	
		Unit-IV	190.71	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	774.46	Error at Station/Auxiliary Consumption/Losses	-0.096%		
3	336MW CHP	Unit- I	92.33	220kV CHP - Birpara Fdr- I	124.01	+	
		Unit- II	91.06	220kV CHP - Birpara Fdr- II	123.32	+	
		Unit- III	91.52	220kV CHP - Malbase Fdr- III	174.36	+	
		Unit- IV	91.93	220kV CHP - Semtokha Fdr- IV	-66.37	-	
		-	-	220kV Malbase - Birpara Fdr.	69.78	+	
		-	-	66kV CHP - Chumdo Fdr.	1.07	+	
		-	-	66kV CHP - Gedu Fdr.	7.99	+	
		-	-	3x3MVA, 66/11kV TFR	0.79	+	
		Total	366.84	Error at Station/Auxiliary Consumption/Losses	0.455%		
4	24MW BHP (U/S)	Unit- I	11.82	220kV BHP - Semtokha Fdr.	85.64	+	
		Unit- II	11.82	66kV BHP - Lobeysa Fdr.	16.30	+	
		Total	23.64	220kV BHP - Tsirang Fdr.	-36.53	-	
	40MW BHP (L/S)	Unit- I	20.99	5MVA, 66/11kV TFR	0.37	+	
		Unit- II	20.15	30MVA ICT, 220/66kV			
Total	41.14	Error at Station/Auxiliary Consumption/Losses	-2.431%				
5	126MW DHPC	Unit-I	63.40	220kV DHPC - Tsirang Fdr.	126.26	+	
		Unit-II	63.47	220kV Jigmeling - Dagapela Fdr.	1.40	+	
		-	-	5MVA, 220/33kV TFR			
		Total	126.87	Error at Station/Auxiliary Consumption/Losses	0.481%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	40.88	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	23.77	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.01	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	50.86	+	
		-	-	132kV Motanga - Rangia Fdr.	51.39	+	
		-	-	220kV Tsirang - Jigmeling	83.49	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	2.030%		

Note: Generation-Load summary for August 10, 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	1,679.94	198.62	179.15	1,397.83	19.47
2	Eastern Grid	840.46	46.50	45.90	877.45	0.60
	Total	2,520.40	245.12	225.05	2,275.28	20.07

Note: Generation-Load Summary for August 10, 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	1569.87	232.30	224.84	1,259.55	7.46
2	Eastern Grid	437.8	53.31	53.08	462.51	0.23
	Total	2,007.67	285.61	277.92	1,722.06	7.69

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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