

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	August 20, 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	187.13	400kV THP - Siliguri Fdr- I	269.34	+	
		Unit- II	186.80	400kV THP - Siliguri Fdr- II	267.67	+	
		Unit- III	186.87	400kV THP - Siliguri Fdr- IV	261.00	+	
		Unit- IV	186.70	400kV THP - Malbase Fdr- III	305.23	+	
		Unit- V	187.22	400kV Malbase - Siliguri	244.65	+	
		Unit- VI	186.66	-	-	-	
		Total	1,121.38	Error at Station/Auxiliary Consumption/Losses	1.618%		
2	720MW MHP	Unit-I	197.51	400kV MHP - Jigmeling Fdr - I	260.00	+	400kV MHP-JLG IV Standby
		Unit-II	196.50	400kV MHP - Jigmeling Fdr - II	241.90	+	
		Unit-III	189.21	400kV MHP - Jigmeling Fdr - III	271.00	+	
		Unit-IV	190.56	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	773.78	Error at Station/Auxiliary Consumption/Losses	0.114%		
3	336MW CHP	Unit- I	91.33	220kV CHP - Birpara Fdr- I	119.63	+	
		Unit- II	91.15	220kV CHP - Birpara Fdr- II	119.43	+	
		Unit- III	91.05	220kV CHP - Malbase Fdr- III	159.83	+	
		Unit- IV	91.62	220kV CHP - Semtokha Fdr- IV	-47.97	-	
		-	-	220kV Malbase - Birpara Fdr.	74.16	+	
		-	-	66kV CHP - Chumdo Fdr.	4.92	+	
		-	-	66kV CHP - Gedu Fdr.	6.23	+	
		-	-	3x3MVA, 66/11kV TFR	1.32	+	
		Total	365.15	Error at Station/Auxiliary Consumption/Losses	0.482%		
4	24MW BHP (U/S)	Unit- I	11.99	220kV BHP - Semtokha Fdr.	75.55	+	
		Unit- II	11.99	66kV BHP - Lobeysa Fdr.	17.25	+	
		Total	23.98	220kV BHP - Tsirang Fdr.	-27.55	-	
	40MW BHP (L/S)	Unit- I	20.99	5MVA, 66/11kV TFR	0.74	+	
		Unit- II	20.22	30MVA ICT, 220/66kV			
		Total	41.21	Error at Station/Auxiliary Consumption/Losses	-1.227%		
5	126MW DHPC	Unit-I	63.46	220kV DHPC - Tsirang Fdr.	126.30	+	
		Unit-II	63.54	220kV Jigmeling - Dagapela Fdr.	1.80	+	
		-	-	5MVA, 220/33kV TFR			
		Total	127.00	Error at Station/Auxiliary Consumption/Losses	0.551%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	36.52	+	
		Unit-II	16.50	132kV KHP - Kilihar Fdr- II	28.19	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.31	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	45.61	+	
		-	-	132kV Motanga - Rangia Fdr.	57.81	+	
		-	-	220kV Tsirang - Jigmeling	94.81	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.485%		

Note: Generation-Load Summary for August 20, 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	1,678.72	228.03	210.03	1,355.88	18.00
2	Eastern Grid	839.78	58.27	56.41	876.32	1.86
	Total	2,518.50	286.30	266.44	2,232.20	19.86

Note: Generation-Load Summary for August 20, 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	1,637.61	260.06	249.70	1287.79	10.36
2	Eastern Grid	251.29	64.75	64.44	276.3	0.31
	Total	1,888.90	324.81	314.14	1,564.09	10.67

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 21, 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	276.95	+	
		Unit- II	185.69	400kV THP - Siliguri Fdr- II	274.34	+	
		Unit- III	187.19	400kV THP - Siliguri Fdr- IV	267.63	+	
		Unit- IV	186.30	400kV THP - Malbase Fdr- III	283.41	+	
		Unit- V	186.27	400kV Malbase - Siliguri	257.98	+	
		Unit- VI	187.44	-	-	-	
		Total	1,119.74	Error at Station/Auxiliary Consumption/Losses	1.555%		
2	720MW MHP	Unit-I	170.14	400kV MHP - Jigmeling Fdr - I	235.90	+	400kV MHP-JLG IV Standby.
		Unit-II	180.14	400kV MHP - Jigmeling Fdr - II	216.90	+	
		Unit-III	169.77	400kV MHP - Jigmeling Fdr - III	247.30	+	
		Unit-IV	180.46	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	700.51	Error at Station/Auxiliary Consumption/Losses	0.059%		
3	336MW CHP	Unit- I	91.58	220kV CHP - Birpara Fdr- I	122.15	+	
		Unit- II	91.21	220kV CHP - Birpara Fdr- II	122.23	+	
		Unit- III	91.57	220kV CHP - Malbase Fdr- III	184.10	+	
		Unit- IV	91.66	220kV CHP - Semtokha Fdr- IV	-72.06	-	
		-	-	220kV Malbase - Birpara Fdr.	60.11	+	
		-	-	66kV CHP - Chumdo Fdr.	1.00	+	
		-	-	66kV CHP - Gedu Fdr.	6.16	+	
		-	-	3x3MVA, 66/11kV TFR	0.82	+	
		Total	366.02	Error at Station/Auxiliary Consumption/Losses	0.443%		
4	24MW BHP (U/S)	Unit- I	11.88	220kV BHP - Semtokha Fdr.	88.75	+	
		Unit- II	11.88	66kV BHP - Lobeysa Fdr.	15.56	+	
		Total	23.76	220kV BHP - Tsirang Fdr.	-38.85	-	
	40MW BHP (L/S)	Unit- I	20.97	5MVA, 66/11kV TFR	0.42	+	
		Unit- II	20.16	30MVA ICT, 220/66kV			
		Total	41.13	Error at Station/Auxiliary Consumption/Losses	-2.407%		
5	126MW DHPC	Unit-I	63.47	220kV DHPC - Tsirang Fdr.	126.38	+	
		Unit-II	63.42	220kV Jigmeling - Dagapela Fdr.	1.20	+	
		-	-	5MVA, 220/33kV TFR			
		Total	126.89	Error at Station/Auxiliary Consumption/Losses	0.402%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	36.52	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	28.19	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.32	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	48.48	+	
		-	-	132kV Motanga - Rangia Fdr.	55.87	+	
		-	-	220kV Tsirang - Jigmeling	83.15	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.476%		

Note: Generation-Load summary for August 21, 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	1,677.54	213.00	195.65	1,381.39	17.35
2	Eastern Grid	766.51	45.21	43.83	804.45	1.38
	Total	2,444.05	258.21	239.48	2,185.84	18.73

Note: Generation-Load Summary for August 21, 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	1592.51	235.77	217.44	1,285.14	18.33
2	Eastern Grid	251.79	58.90	58.63	264.49	0.27
	Total	1,844.30	294.67	276.07	1,549.63	18.60

NOTES: KHP 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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