

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	August 27, 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	187.19	400kV THP - Siliguri Fdr- I	256.45	+	
		Unit- II	186.52	400kV THP - Siliguri Fdr- II	255.86	+	
		Unit- III	186.71	400kV THP - Siliguri Fdr- IV	247.49	+	
		Unit- IV	188.31	400kV THP - Malbase Fdr- III	345.48	+	
		Unit- V	188.30	400kV Malbase - Siliguri	221.10	+	
		Unit- VI	186.17	-	-	-	
		Total	1,123.20	Error at Station/Auxiliary Consumption/Losses	1.595%		
2	720MW MHP	Unit-I	155.20	400kV MHP - Jigmeling Fdr - I	212.24	+	400kV MHP-JLG IV Standby
		Unit-II	155.26	400kV MHP - Jigmeling Fdr - II	213.19	+	
		Unit-III	160.92	400kV MHP - Jigmeling Fdr - III	207.79	+	
		Unit-IV	165.46	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	636.84	Error at Station/Auxiliary Consumption/Losses	0.568%		
3	336MW CHP	Unit- I	91.51	220kV CHP - Birpara Fdr- I	183.91	+	220kV CHP-BIR Fdr-II under breakdown.
		Unit- II	91.29	220kV CHP - Birpara Fdr- II	0.00	+	
		Unit- III	91.55	220kV CHP - Malbase Fdr- III	168.61	+	
		Unit- IV	91.99	220kV CHP - Semtokha Fdr- IV	-6.43	-	
		-	-	220kV Malbase - Birpara Fdr.	165.24	+	
		-	-	66kV CHP - Chumdo Fdr.	5.50	+	
		-	-	66kV CHP - Gedu Fdr.	12.27	+	
		-	-	3x3MVA, 66/11kV TFR	1.35	+	
		Total	366.34	Error at Station/Auxiliary Consumption/Losses	0.308%		
4	24MW BHP (U/S)	Unit- I	11.89	220kV BHP - Semtokha Fdr.	36.61	+	
		Unit- II	11.89	66kV BHP - Lobeysa Fdr.	16.78	+	
		Total	23.78	220kV BHP - Tsirang Fdr.	10.74	+	
	40MW BHP (L/S)	Unit- I	20.38	5MVA, 66/11kV TFR	0.72	+	
		Unit- II	20.79	30MVA ICT, 220/66kV			
		Total	41.17	Error at Station/Auxiliary Consumption/Losses	0.154%		
5	126MW DHPC	Unit-I	50.35	220kV DHPC - Tsirang Fdr.	110.05	+	
		Unit-II	60.35	220kV Jigmeling - Dagapela Fdr.	2.10	+	
		-	-	5MVA, 220/33kV TFR			
		Total	110.70	Error at Station/Auxiliary Consumption/Losses	0.587%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	23.64	+	Unit I under shutdown (27/08/2020- 27/08/2020)
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	24.59	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	45.34	+	
		-	-	132kV Motanga - Rangia Fdr.	45.19	+	
		-	-	220kV Tsirang - Jigmeling	117.96	+	
		Total	49.50	Error at Station/Auxiliary Consumption/Losses	1.960%		

Note: Generation-Load Summary for August 27, 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	1,665.19	217.18	199.48	1,330.05	17.70
2	Eastern Grid	686.34	80.55	75.96	723.75	4.59
	Total	2,351.53	297.73	275.44	2,053.80	22.29

Note: Generation-Load Summary for August 27, 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	1,318.80	261.72	249.27	990.31	12.45
2	Eastern Grid	448.75	64.93	64.17	450.59	0.76
	Total	1,767.55	326.65	313.44	1,440.90	13.21

NOTES:

- 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 28, 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	187.49	400kV THP - Siliguri Fdr- I	275.78	+	
		Unit- II	187.20	400kV THP - Siliguri Fdr- II	273.09	+	
		Unit- III	187.50	400kV THP - Siliguri Fdr- IV	265.51	+	
		Unit- IV	186.58	400kV THP - Malbase Fdr- III	291.70	+	
		Unit- V	187.49	400kV Malbase - Siliguri	253.61	+	
		Unit- VI	185.97	-	-	-	
		Total	1,122.23	Error at Station/Auxiliary Consumption/Losses	1.439%		
2	720MW MHP	Unit-I	160.12	400kV MHP - Jigmeling Fdr - I	218.80	+	400kV MHP-JLG IV Standby.
		Unit-II	160.64	400kV MHP - Jigmeling Fdr - II	196.40	+	
		Unit-III	154.12	400kV MHP - Jigmeling Fdr - III	228.50	+	
		Unit-IV	165.68	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	640.56	Error at Station/Auxiliary Consumption/Losses	-0.490%		
3	336MW CHP	Unit- I	91.53	220kV CHP - Birpara Fdr- I	120.24	+	
		Unit- II	91.47	220kV CHP - Birpara Fdr- II	120.28	+	
		Unit- III	91.36	220kV CHP - Malbase Fdr- III	167.19	+	
		Unit- IV	91.96	220kV CHP - Semtokha Fdr- IV	-50.63	-	
		-	-	220kV Malbase - Birpara Fdr.	69.85	+	
		-	-	66kV CHP - Chumdo Fdr.	1.66	+	
		-	-	66kV CHP - Gedu Fdr.	5.85	+	
		-	-	3x3MVA, 66/11kV TFR	0.78	+	
		Total	366.32	Error at Station/Auxiliary Consumption/Losses	0.259%		
4	24MW BHP (U/S)	Unit- I	11.85	220kV BHP - Semtokha Fdr.	68.15	+	
		Unit- II	11.85	66kV BHP - Lobeysa Fdr.	15.08	+	
		Total	23.70	220kV BHP - Tsirang Fdr.	-18.23	-	
	40MW BHP (L/S)	Unit- I	20.45	5MVA, 66/11kV TFR	0.43	+	
		Unit- II	20.70	30MVA ICT, 220/66kV			
		Total	41.15	Error at Station/Auxiliary Consumption/Losses	-1.409%		
5	126MW DHPC	Unit-I	50.32	220kV DHPC - Tsirang Fdr.	105.03	+	
		Unit-II	55.31	220kV Jigmeling - Dagapela Fdr.	1.00	+	
		-	-	5MVA, 220/33kV TFR			
		Total	105.63	Error at Station/Auxiliary Consumption/Losses	0.568%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	29.05	+	Unit IV under shutdown (28/08/2020- 29/08/2020)
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	19.31	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	47.49	+	
		-	-	132kV Motanga - Rangia Fdr.	38.25	+	
		-	-	220kV Tsirang - Jigmeling	83.37	+	
		Total	49.50	Error at Station/Auxiliary Consumption/Losses	1.697%		

Note: Generation-Load summary for August 28, 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	1,659.03	197.30	181.18	1,378.36	16.12
2	Eastern Grid	690.06	43.99	46.29	729.44	-2.30
	Total	2,349.09	241.29	227.47	2,107.80	13.82

Note: Generation-Load Summary for August 28, 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	1351.15	239.20	219.86	1,051.84	19.34
2	Eastern Grid	448.58	54.39	51.53	454.30	2.86
	Total	1,799.73	293.59	271.39	1,506.14	22.20

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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