

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	October 22, 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	139.92	400kV THP - Siliguri Fdr- I	151.74	+	Unit-II, IV & 400kV THP-SIL Fdr II under Standby.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00	+	
		Unit- III	101.00	400kV THP - Siliguri Fdr- IV	145.67	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	195.03	+	
		Unit- V	88.53	400kV Malbase - Siliguri	130.18	+	
		Unit- VI	170.41	-	-	-	
		Total	499.86	Error at Station/Auxiliary Consumption/Losses	1.484%		
2	720MW MHP	Unit-I	160.10	400kV MHP - Jigmeling Fdr - I	155.95	+	Unit-III under maintenance (22/09/20-30/11/2020). Unit-IV under standby 400kV MHP-JLG Fdr II under Breakdown. 400kV MHP-JLG Fdr III under standby.
		Unit-II	155.45	400kV MHP - Jigmeling Fdr - II	0.00	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00	+	
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	157.08		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	315.55	Error at Station/Auxiliary Consumption/Losses	0.799%		
3	336MW CHP	Unit- I	61.65	220kV CHP - Birpara Fdr- I	75.14	+	
		Unit- II	61.74	220kV CHP - Birpara Fdr- II	74.84	+	
		Unit- III	65.85	220kV CHP - Malbase Fdr- III	94.64	+	
		Unit- IV	70.94	220kV CHP - Semtokha Fdr- IV	1.14	+	
		-	-	220kV Malbase - Birpara Fdr.	52.49	+	
		-	-	66kV CHP - Chumdo Fdr.	7.99	+	
		-	-	66kV CHP - Gedu Fdr.	4.44	+	
		-	-	3x3MVA, 66/11kV TFR	1.50	+	
		Total	260.18	Error at Station/Auxiliary Consumption/Losses	0.188%		
4	24MW BHP (U/S)	Unit- I	8.93	220kV BHP - Semtokha Fdr.	34.78	+	
		Unit- II	8.93	66kV BHP - Lobeysa Fdr.	14.57	+	
		Total	17.86	220kV BHP - Tsirang Fdr.	1.04	+	
	40MW BHP (L/S)	Unit- I	16.72	5MVA, 66/11kV TFR		+	
		Unit- II	16.54	30MVA ICT, 220/66kV			
		Total	33.26	Error at Station/Auxiliary Consumption/Losses	1.428%		
5	126MW DHPC	Unit-I	31.24	220kV DHPC - Tsirang Fdr.	62.42	+	
		Unit-II	31.62	220kV Jigmeling - Dagapela Fdr.	1.90	+	
		-	-	5MVA, 220/33kV TFR			
		Total	62.86	Error at Station/Auxiliary Consumption/Losses	0.700%		
6	60MW KHP	Unit- I	14.10	132kV KHP - Nangkhon Fdr- I	30.01	+	
		Unit-II	14.19	132kV KHP - Kilikhar Fdr- II	25.21	+	
		Unit- III	14.05	5MVA, 132/11kV TFR	0.23	+	
		Unit- IV	14.25	132kV Gelephu - Salakati Fdr.	24.94	+	
		-	-	132kV Motanga - Rangia Fdr.	52.40	+	
		-	-	220kV Tsirang - Jigmeling	47.44	+	
		Total	56.59	Error at Station/Auxiliary Consumption/Losses	2.014%		

Note: Generation-Load Summary for October 22, 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	874.02	196.52	189.34	630.06	7.18
2	Eastern Grid	372.14	29.21	25.55	390.37	3.66
	Total	1,246.16	225.73	214.89	1,020.43	10.84

Note: Generation-Load Summary for October 22, 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	761.83	260.04	256.51	448.81	3.53
2	Eastern Grid	343.62	67.15	62.02	329.45	5.13
	Total	1,105.45	327.19	318.53	778.26	8.66

NOTE: KHP,MHP & 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:	October 23, 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	140.27	400kV THP - Siliguri Fdr- I	170.92		Unit-II, IV & 400kV THP-SIL Fdr IV under Standby
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00	+	
		Unit- III	100.93	400kV THP - Siliguri Fdr- IV	163.69		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	187.54	+	
		Unit- V	118.93	400kV Malbase - Siliguri	155.84	+	
		Unit- VI	170.02	-	-	-	
		Total	530.15	Error at Station/Auxiliary Consumption/Losses	1.509%		
2	720MW MHP	Unit-I	160.23	400kV MHP - Jigmeling Fdr - I	158.48	+	Unit-III under maintenance (22/09/20-30/11/2020). Unit-IV under standby. 400kV MHP-JLG Fdr II under Breakdown. 400kV MHP-JLG Fdr III under standby.
		Unit-II	159.81	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	159.55	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	320.04	Error at Station/Auxiliary Consumption/Losses	0.628%		
3	336MW CHP	Unit- I	71.60	220kV CHP - Birpara Fdr- I	79.55	+	
		Unit- II	75.59	220kV CHP - Birpara Fdr- II	79.35	+	
		Unit- III	51.80	220kV CHP - Malbase Fdr- III	121.76	+	
		Unit- IV	68.10	220kV CHP - Semtokha Fdr- IV	-24.89	-	
		-	-	220kV Malbase - Birpara Fdr.	37.66	+	
		-	-	66kV CHP - Chumdo Fdr.	4.28	+	
		-	-	66kV CHP - Gedu Fdr.	5.06	+	
		-	-	3x3MVA, 66/11kV TFR	0.85	+	
		Total	267.09	Error at Station/Auxiliary Consumption/Losses	0.423%		
4	24MW BHP (U/S)	Unit- I	8.88	220kV BHP - Semtokha Fdr.	50.02	+	
		Unit- II	8.88	66kV BHP - Lobeysa Fdr.	13.31	+	
		Total	17.76	220kV BHP - Tsirang Fdr.	-12.54	-	
	40MW BHP (L/S)	Unit- I	16.63	5MVA, 66/11kV TFR	0.44	+	
		Unit- II	16.48	30MVA ICT, 220/66kV			
		Total	33.11	Error at Station/Auxiliary Consumption/Losses	-1.087%		
5	126MW DHPC	Unit-I	32.25	220kV DHPC - Tsirang Fdr.	62.03	+	
		Unit-II	30.24	220kV Jigmeling - Dagapela Fdr.	1.10	+	
		-	-	5MVA, 220/33kV TFR			
		Total	62.49	Error at Station/Auxiliary Consumption/Losses	0.736%		
6	60MW KHP	Unit- I	12.71	132kV KHP - Nangkhon Fdr- I	29.80	+	
		Unit-II	12.48	132kV KHP - Kilihar Fdr- II	19.11	+	
		Unit- III	12.50	5MVA, 132/11kV TFR	0.18	+	
		Unit- IV	13.02	132kV Gelephu - Salakati Fdr.	28.67	+	
		-	-	132kV Motanga - Rangia Fdr.	33.02	+	
		-	-	220kV Tsirang - Jigmeling	54.00	+	
		Total	50.71	Error at Station/Auxiliary Consumption/Losses	3.195%		

Note: Generation-Load summary for October 23, 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	910.60	169.59	161.46	687.01	8.13
2	Eastern Grid	370.75	45.03	41.40	379.72	3.63
	Total	1,281.35	214.62	202.86	1,066.73	11.76

Note: Generation-Load Summary for October 23, 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	906.35	236.09	227.10	627.88	8.99
2	Eastern Grid	326.46	56.38	46.83	312.46	9.55
	Total	1,232.81	292.47	273.93	940.34	18.54

NOTES: KHP,MHP & 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.
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