

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	October 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	0.00	400kV THP - Siliguri Fdr- I	280.28	+	Unit-I & 400kV THP-SIL Fdr II under Standby.400kV Tala-Malbase line under shutdown.
		Unit- II	78.72	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	120.71	400kV THP - Siliguri Fdr- IV	270.53	+	
		Unit- IV	119.93	400kV THP - Malbase Fdr- III	0.00	+	
		Unit- V	119.18	400kV Malbase - Siliguri	-12.00	-	
		Unit- VI	120.77	-	-	-	
		Total	559.31	Error at Station/Auxiliary Consumption/Losses	1.520%		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	158.69	+	Unit-III under maintenance (22/09/20-30/11/2020). 400kV MHP-JLG Fdr II under Breakdown. Unit-I & 400kV MHP-JLG Fdr III under standby.
		Unit-II	159.80	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	160.29	400kV MHP - Jigmeling Fdr - IV	159.62	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	320.09	Error at Station/Auxiliary Consumption/Losses	0.556%		
3	336MW CHP	Unit- I	69.15	220kV CHP - Birpara Fdr- I	66.39	+	
		Unit- II	66.65	220kV CHP - Birpara Fdr- II	66.65	+	
		Unit- III	70.48	220kV CHP - Malbase Fdr- III	130.65	+	
		Unit- IV	68.84	220kV CHP - Semtokha Fdr- IV	-3.22	-	
		-	-	220kV Malbase - Birpara Fdr.	17.00	+	
		-	-	66kV CHP - Chumdo Fdr.	7.93	+	
		-	-	66kV CHP - Gedu Fdr.	5.07	+	
		-	-	3x3MVA, 66/11kV TFR	1.39	+	
		Total	275.12	Error at Station/Auxiliary Consumption/Losses	0.095%		
4	24MW BHP (U/S)	Unit- I	9.20	220kV BHP - Semtokha Fdr.	39.54	+	
		Unit- II	9.20	66kV BHP - Lobeysa Fdr.	15.61	+	
		Total	18.40	220kV BHP - Tsirang Fdr.	-3.78	-	
	40MW BHP (L/S)	Unit- I	16.51	5MVA, 66/11kV TFR	0.58	+	
		Unit- II	16.98	30MVA ICT, 220/66kV			
		Total	33.49	Error at Station/Auxiliary Consumption/Losses	-0.116%		
5	126MW DHPC	Unit-I	33.75	220kV DHPC - Tsirang Fdr.	68.55	+	
		Unit-II	35.21	220kV Jigmeling - Dagapela Fdr.	1.50	+	
		-	-	5MVA, 220/33kV TFR			
		Total	68.96	Error at Station/Auxiliary Consumption/Losses	0.595%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	37.78	+	
		Unit-II	16.50	132kV KHP - Kilihar Fdr- II	26.90	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.20	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	23.20	+	
		-	-	132kV Motanga - Rangia Fdr.	60.54	+	
		-	-	220kV Tsirang - Jigmeling	62.89	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.697%		

Note: Generation-Load Summary for October 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	955.28	203.54	195.93	688.85	7.61
2	Eastern Grid	386.09	46.93	44.03	402.05	2.90
	Total	1,341.37	250.47	239.96	1,090.90	10.51

Note: Generation-Load Summary for October 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	787.76	278.21	274.38	465.00	3.83
2	Eastern Grid	309.6	59.89	59.59	294.26	0.30
	Total	1,097.36	338.10	333.97	759.26	4.13

NOTE: BHP & EASTERN 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 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	0.00	400kV THP - Siliguri Fdr- I	248.71	+	Unit-I & 400kV THP-SIL Fdr II under Standby
		Unit- II	80.82	400kV THP - Siliguri Fdr- II	0.00	+	
		Unit- III	119.48	400kV THP - Siliguri Fdr- IV	240.76	+	
		Unit- IV	89.25	400kV THP - Malbase Fdr- III	0.00	+	
		Unit- V	89.23	400kV Malbase - Siliguri	-2.00	+	
		Unit- VI	120.48	-	-	-	
		Total	499.26	Error at Station/Auxiliary Consumption/Losses	1.961%		
2	720MW MHP	Unit-I	140.18	400kV MHP - Jigmeling Fdr - I	149.09	+	Unit-III under maintenance (22/09/20-30/11/2020). Unit-II under standby. 400kV MHP-JLG Fdr II under Breakdown. 400kV MHP-JLG Fdr III under standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	160.81	400kV MHP - Jigmeling Fdr - IV	150.35	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	300.99	Error at Station/Auxiliary Consumption/Losses	0.515%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	68.14	+	Unit I standby
		Unit- II	85.82	220kV CHP - Birpara Fdr- II	68.10	+	
		Unit- III	86.20	220kV CHP - Malbase Fdr- III	138.19	+	
		Unit- IV	87.53	220kV CHP - Semtokha Fdr- IV	-26.17	-	
		-	-	220kV Malbase - Birpara Fdr.	6.00	+	
		-	-	66kV CHP - Chumdo Fdr.	4.76	+	
		-	-	66kV CHP - Gedu Fdr.	5.47	+	
		-	-	3x3MVA, 66/11kV TFR	0.90	+	
		Total	259.55	Error at Station/Auxiliary Consumption/Losses	0.062%		
4	24MW BHP (U/S)	Unit- I	8.56	220kV BHP - Semtokha Fdr.	53.56	+	
		Unit- II	8.56	66kV BHP - Lobeysa Fdr.	13.70	+	
		Total	17.12	220kV BHP - Tsirang Fdr.	-18.29	-	
	40MW BHP (L/S)	Unit- I	16.11	5MVA, 66/11kV TFR	0.40	+	
		Unit- II	15.92	30MVA ICT, 220/66kV			
		Total	32.03	Error at Station/Auxiliary Consumption/Losses	-0.687%		
5	126MW DHPC	Unit-I	33.25	220kV DHPC - Tsirang Fdr.	66.09	+	
		Unit-II	33.22	220kV Jigmeling - Dagapela Fdr.	1.10	+	
		-	-	5MVA, 220/33kV TFR			
		Total	66.47	Error at Station/Auxiliary Consumption/Losses	0.572%		
6	60MW KHP	Unit- I	14.06	132kV KHP - Nangkhon Fdr- I	31.96	+	
		Unit-II	13.00	132kV KHP - Kilikhar Fdr- II	19.96	+	
		Unit- III	13.04	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	12.92	132kV Gelephu - Salakati Fdr.	22.06	+	
		-	-	132kV Motanga - Rangia Fdr.	38.80	+	
		-	-	220kV Tsirang - Jigmeling	44.85	+	
		Total	53.02	Error at Station/Auxiliary Consumption/Losses	1.509%		

Note: Generation-Load summary for October 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	874.43	199.87	190.86	629.71	9.01
2	Eastern Grid	354.01	38.56	36.21	360.30	2.35
	Total	1,228.44	238.43	227.07	990.01	11.36

Note: Generation-Load Summary for October 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	752.43	204.53	196.04	508.60	8.49
2	Eastern Grid	311.96	52.68	51.33	298.58	1.35
	Total	1,064.39	257.21	247.37	807.18	9.84

NOTES: KHP,MHP,MAL & 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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