

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	December 10, 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	0.00		Unit-I & II under shutdown. Unit-IV & V on standby. 400kV THP-SIL Fdr I under shutdown. 400kV THP-SIL Fdr IV on Standby.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	101.29	+	
		Unit- III	101.32	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	133.16	+	
		Unit- V	0.00	400kV Malbase - Siliguri	80.00	+	
		Unit- VI	140.68	-	-	-	
		Total	242.00	Error at Station/Auxiliary Consumption/Losses	3.120%		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-I on standby. Unit-II under shutdown. Unit-III under breakdown. 400kV MHP-JLG Fdr I & III on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	72.29	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	145.56	400kV MHP - Jigmeling Fdr - IV	72.52	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	145.56	Error at Station/Auxiliary Consumption/Losses	0.515%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	9.60	+	Unit I & II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	9.60	+	
		Unit- III	64.98	220kV CHP - Malbase Fdr- III	41.10	+	
		Unit- IV	65.11	220kV CHP - Semtokha Fdr- IV	47.00	+	
		-	-	220kV Malbase - Birpara Fdr.	-16.00	-	
		-	-	66kV CHP - Chumdo Fdr.	15.70	+	
		-	-	66kV CHP - Gedu Fdr.	3.20	+	
		-	-	3x3MVA, 66/11kV TFR	2.04	+	
		Total	130.09	Error at Station/Auxiliary Consumption/Losses	1.422%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	17.46	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	9.55	66kV BHP - Lobeysa Fdr.	18.00	+	
		Total	9.55	220kV BHP - Tsirang Fdr.	-6.70	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	19.25	30MVA ICT, 220/66kV			
		Total	19.25	Error at Station/Auxiliary Consumption/Losses	-2.986%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	32.47	+	Unit-I on standby.
		Unit-II	32.68	220kV Jigmeling - Dagapela Fdr.	2.40	+	
		-	-	5MVA, 220/33kV TFR			
		Total	32.68	Error at Station/Auxiliary Consumption/Losses	0.643%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	12.92	+	Unit-I under Annual Maintenance. Unit-IV on Standby.
		Unit-II	14.48	132kV KHP - Kilikhar Fdr- II	14.95	+	
		Unit- III	14.52	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-6.09	-	
		-	-	132kV Motanga - Rangia Fdr.	4.83	+	
		-	-	220kV Tsirang - Jigmeling	18.00	+	
		Total	29.00	Error at Station/Auxiliary Consumption/Losses	2.517%		

Note: Generation-Load Summary for December 10, 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	433.57	231.08	224.73	184.49	6.35
2	Eastern Grid	174.56	49.01	47.53	143.55	1.48
	Total	608.13	280.09	272.26	328.04	7.83

Note: Generation-Load Summary for December 10, 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	462.52	268.44	259.24	177.08	9.20
2	Eastern Grid	159.71	78.58	75.62	98.13	2.96
	Total	622.23	347.02	334.86	275.21	12.16

NOTE-MHP,MAL,KHP & MOT 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.
 - 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:	December 11, 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	0.00		Unit-I & II under shutdown. Unit-IV & V on standby. 400kV THP-SIL Fdr I under shutdown. 400kV THP-SIL Fdr IV on Standby.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	98.72	+	
		Unit- III	110.67	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	147.10	+	
		Unit- V	0.00	400kV Malbase - Siliguri	82.00	+	
		Unit- VI	139.64	-	-	-	
		Total	250.31	Error at Station/Auxiliary Consumption/Losses	1.794%		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-I on standby. Unit-II under shutdown. Unit-III under breakdown. 400kV MHP-JLG Fdr I & III on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	74.69	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	150.52	400kV MHP - Jigmeling Fdr - IV	74.88	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	150.52	Error at Station/Auxiliary Consumption/Losses	0.631%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	16.15	+	Unit-I & II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	16.96	+	
		Unit- III	64.30	220kV CHP - Malbase Fdr- III	48.51	+	
		Unit- IV	64.70	220kV CHP - Semtokha Fdr- IV	28.18	+	
		-	-	220kV Malbase - Birpara Fdr.	-9.10	-	
		-	-	66kV CHP - Chumdo Fdr.	11.82	+	
		-	-	66kV CHP - Gedu Fdr.	4.13	+	
		-	-	3x3MVA, 66/11kV TFR	1.52	+	
		Total	129.00	Error at Station/Auxiliary Consumption/Losses	1.341%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	22.91	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	9.11	66kV BHP - Lobeysa Fdr.	14.50	+	
	Total	9.11	220kV BHP - Tsirang Fdr.	-11.21	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.89	+	
Unit- II		17.80	30MVA ICT, 220/66kV				
		Total	17.80	Error at Station/Auxiliary Consumption/Losses	-0.669%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	32.00	+	Unit-I on standby.
		Unit-II	31.83	220kV Jigmeling - Dagapela Fdr.	1.90	+	
		-	-	5MVA, 220/33kV TFR			
		Total	31.83	Error at Station/Auxiliary Consumption/Losses	-0.534%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	13.65	+	Unit-I under Annual Maintenance. Unit-IV on Standby.
		Unit-II	13.10	132kV KHP - Kilikhar Fdr- II	11.60	+	
		Unit- III	13.08	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-12.30	-	
		-	-	132kV Motanga - Rangia Fdr.	-1.71	+	
		-	-	220kV Tsirang - Jigmeling	18.65	+	
		Total	26.18	Error at Station/Auxiliary Consumption/Losses	2.406%		

Note: Generation-Load summary for December 11, 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	438.05	214.67	210.70	204.73	3.97
2	Eastern Grid	176.70	59.79	58.21	135.56	1.58
	Total	614.75	274.46	268.91	340.29	5.55

Note: Generation-Load Summary for December 11, 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	414.34	244.88	243.65	153.56	1.23
2	Eastern Grid	166.77	65.76	64.41	116.91	1.35
	Total	581.11	310.64	308.06	270.47	2.58

NOTE: Data collected from MHPA,MAL, KHP & MOT

- 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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