

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	March 14, 2021
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	79.59	400kV THP - Siliguri Fdr- I	0.00		Unit-III standby. Unit-IV, V & VI under shutdown. 400kV THP-SIL Fdr I on standby. 400kV THP-SIL Fdr IV under AMP.
		Unit- II	120.37	400kV THP - Siliguri Fdr- II	64.55	+	
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	131.31	+	
		Unit- V	0.00	400kV Malbase - Siliguri	45.81	+	
		Unit- VI	0.00	-	-	-	
		Total	199.96	Error at Station/Auxiliary Consumption/Losses	2.050%		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II under maintenance. Unit-III under breakdown. Unit- I on standby. 400kV MHP-JLG Fdr I, II & III on 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	185.33	400kV MHP - Jigmeling Fdr - IV	184.74	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	185.33	Error at Station/Auxiliary Consumption/Losses	0.318%		
3	336MW CHP	Unit- I	51.83	220kV CHP - Birpara Fdr- I	0.00		Unit-III & IV under AMP 220kV CHP-BIR I on standby.
		Unit- II	50.36	220kV CHP - Birpara Fdr- II	-1.79	-	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	37.08	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	39.69	+	
		-	-	220kV Malbase - Birpara Fdr.	-31.56	-	
		-	-	66kV CHP - Chumdo Fdr.	20.96	+	
		-	-	66kV CHP - Gedu Fdr.	2.08	+	
		-	-	3x3MVA, 66/11kV TFR	2.04	+	
		Total	102.19	Error at Station/Auxiliary Consumption/Losses	2.084%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	13.59	+	U/S Unit-I standby L/S Unit-I standby
		Unit- II	6.00	66kV BHP - Lobeysa Fdr.	13.37	+	
		Total	6.00	220kV BHP - Tsirang Fdr.	-9.24	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.73	+	
		Unit- II	12.56	30MVA ICT, 220/66kV			
		Total	12.56	Error at Station/Auxiliary Consumption/Losses	0.593%		
5	126MW DHPC	Unit-I	25.22	220kV DHPC - Tsirang Fdr.	25.01	+	Unit-II AMP
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.	2.45	+	
		-	-	5MVA, 220/33kV TFR			
		Total	25.22	Error at Station/Auxiliary Consumption/Losses	0.833%		
6	60MW KHP	Unit- I	10.11	132kV KHP - Nangkhon Fdr- I	13.53	+	Unit- IV on standby.
		Unit-II	10.09	132kV KHP - Kilihar Fdr- II	15.76	+	
		Unit- III	10.10	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-22.96	-	
		-	-	132kV Motanga - Rangia Fdr.	-13.87	-	
		-	-	220kV Tsirang - Jigmeling	4.00	+	
		Total	30.30	Error at Station/Auxiliary Consumption/Losses	2.013%		

Note: Generation-Load Summary for March 14, 2021 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	345.93	264.92	260.82	77.01	4.10
2	Eastern Grid	215.63	71.72	70.52	147.91	1.20
	Total	561.56	336.64	331.34	224.92	5.30

Note: Generation-Load Summary for March 14, 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	348.48	279.16	273.83	46.97	5.33
2	Eastern Grid	143.89	81.46	78.91	84.78	2.55
	Total	492.37	360.62	352.74	131.75	7.88

NOTE- KHP,MHP & Motanga 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:	March 15, 2021
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	80.00	400kV THP - Siliguri Fdr- I	0.00		Unit-III on standby. Unit-IV,V &VI under shutdown. 400kV THP-SIL Fdr I on standby. 400kV Tala-SIL IV under AMP.
		Unit- II	139.10	400kV THP - Siliguri Fdr- II	73.56	+	
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	140.36	+	
		Unit- V	0.00	400kV Malbase - Siliguri	52.95	+	
		Unit- VI	0.00	-	-	-	
		Total	219.10	Error at Station/Auxiliary Consumption/Losses	2.364%		
2	720MW MHP	Unit-I	150.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II under maintenance. Unit-III under breakdown. 400kV MHP-JLG Fdr I, II & III on 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	114.00	400kV MHP - Jigmeling Fdr - IV	263.90	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	264.00	Error at Station/Auxiliary Consumption/Losses	0.038%		
3	336MW CHP	Unit- I	43.65	220kV CHP - Birpara Fdr- I	0.00		Unit-III & IV under AMP 220kV CHP-BIR I on standby.
		Unit- II	44.92	220kV CHP - Birpara Fdr- II	1.60	+	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	46.70	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	21.03	+	
		-	-	220kV Malbase - Birpara Fdr.	-33.53	-	
		-	-	66kV CHP - Chumdo Fdr.	13.40	+	
		-	-	66kV CHP - Gedu Fdr.	3.10	+	
		-	-	3x3MVA, 66/11kV TFR	1.25	+	
		Total	88.57	Error at Station/Auxiliary Consumption/Losses	1.682%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	16.90	+	U/S Unit-I on standby. L/S Unit-I on standby.
		Unit- II	6.40	66kV BHP - Lobeysa Fdr.	11.00	+	
	Total	6.40	220kV BHP - Tsirang Fdr.	-9.00	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.89	+	
Unit- II		13.40	30MVA ICT, 220/66kV				
		Total	13.40	Error at Station/Auxiliary Consumption/Losses	0.051%		
5	126MW DHPC	Unit-I	22.16	220kV DHPC - Tsirang Fdr.	21.97	+	Unit-II under AMP..
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.	1.20	+	
		-	-	5MVA, 220/33kV TFR			
		Total	22.16	Error at Station/Auxiliary Consumption/Losses	0.857%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	13.78	+	Unit-IV on standby
		Unit-II	13.07	132kV KHP - Kilikhar Fdr- II	11.73	+	
		Unit- III	13.13	5MVA, 132/11kV TFR	0.35	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-21.74	-	
		-	-	132kV Motanga - Rangia Fdr.	0.00	+	
		-	-	220kV Tsirang - Jigmeling	11.46	+	
		Total	26.20	Error at Station/Auxiliary Consumption/Losses	1.298%		

Note: Generation-Load summary for March 15, 2021 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	349.63	243.59	237.92	94.58	5.67
2	Eastern Grid	290.20	59.50	59.06	242.16	0.44
	Total	639.83	303.09	296.98	336.74	6.11

Note: Generation-Load Summary for March 15, 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	249.07	236.48	233.39	0.02	3.09
2	Eastern Grid	188.12	69.74	67.81	130.95	1.93
	Total	437.19	306.22	301.20	130.97	5.02

NOTE: KHP,MHP & Motanga data collected from site.

1. 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:

- i) 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.
- ii) The clocks of all the locations are not synchronized.

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