

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	February 22, 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	70.00	400kV THP - Siliguri Fdr- I	37.00	+	Unit-III on standby. Unit-IV, V & VI under shutdown. 400kV THP-SIL Fdr II on standby. 400kV THP-SIL Fdr IV under AMP.
		Unit- II	70.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	99.00	+	
		Unit- V	0.00	400kV Malbase - Siliguri	21.00	+	
		Unit- VI	0.00	-	-	-	
		Total	140.00	Error at Station/Auxiliary Consumption/Losses	2.857%		
2	720MW MHP	Unit-I	119.17	400kV MHP - Jigmeling Fdr - I	119.08		Unit- IV standby. Unit-II under maintenance. Unit-III under breakdown. 400kV MHP-JLG Fdr IV ,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	0.00	400kV MHP - Jigmeling Fdr - IV	0.00	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	119.17	Error at Station/Auxiliary Consumption/Losses	0.076%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.00		Unit-I & III under Annual Maintenance 220kV CHP-BIR I on Standby 220kV CHP-MAL line under shutdown
		Unit- II	37.70	220kV CHP - Birpara Fdr- II	0.60	+	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	0.00		
		Unit- IV	41.90	220kV CHP - Semtokha Fdr- IV	57.88	+	
		-	-	220kV Malbase - Birpara Fdr.	-33.00	-	
		-	-	66kV CHP - Chumdo Fdr.	15.10	+	
		-	-	66kV CHP - Gedu Fdr.	3.30	+	
		-	-	3x3MVA, 66/11kV TFR	1.95	+	
		Total	79.60	Error at Station/Auxiliary Consumption/Losses	0.967%		
4	24MW BHP (U/S)	Unit- I	4.70	220kV BHP - Semtokha Fdr.	2.00	+	U/S Unit-II under AMP. L/S Unit-I under standby
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	13.60	+	
	Total	4.70	220kV BHP - Tsirang Fdr.	-1.40	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.88	+	
Unit- II		10.40	30MVA ICT, 220/66kV				
		Total	10.40	Error at Station/Auxiliary Consumption/Losses	0.132%		
5	126MW DHPC	Unit-I	17.83	220kV DHPC - Tsirang Fdr.	17.62	+	Unit-II under AMP
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.	2.47	+	
		-	-	5MVA, 220/33kV TFR			
		Total	17.83	Error at Station/Auxiliary Consumption/Losses	1.178%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	5.91	+	Unit-I on standby. Unit-IV under Annual Maintenance.
		Unit-II	10.50	132kV KHP - Kilihar Fdr- II	14.48	+	
		Unit- III	10.50	5MVA, 132/11kV TFR	0.19	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-29.76	-	
		-	-	132kV Motanga - Rangia Fdr.	-0.12	-	
		-	-	220kV Tsirang - Jigmeling	12.03	+	
		Total	21.00	Error at Station/Auxiliary Consumption/Losses	2.000%		

Note: Generation-Load Summary for February 22, 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	252.53	214.90	212.37	25.60	2.53
2	Eastern Grid	140.17	63.00	62.49	89.20	0.51
	Total	392.70	277.90	274.86	114.80	3.04

Note: Generation-Load Summary for February 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	333.23	266.66	260.62	24.65	6.04
2	Eastern Grid	109.98	79.64	79.41	72.26	0.23
	Total	443.21	346.30	340.03	96.91	6.27

NOTE- MAL,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:	February 23, 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	69.19	400kV THP - Siliguri Fdr- I	38.48	+	Unit-III on standby. Unit-IV,V &VI under shutdown. 400kV THP-SIL Fdr II on standby. 400kV Tala-Sil IV under AMP.
		Unit- II	80.92	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	106.99	+	
		Unit- V	0.00	400kV Malbase - Siliguri	22.00	+	
		Unit- VI	0.00	-	-	-	
		Total	150.11	Error at Station/Auxiliary Consumption/Losses	3.091%		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	119.94		Unit I on Standby Unit-II under maintenance. Unit-III under breakdown. 400kV MHP-JLG Fdr II,III & IV 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	120.07	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	120.07	Error at Station/Auxiliary Consumption/Losses	0.108%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.00		Unit-I & III under AMP. 220kV CHP-BIR I on Standby
		Unit- II	35.00	220kV CHP - Birpara Fdr- II	0.00	+	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	17.74	+	
		Unit- IV	36.00	220kV CHP - Semtokha Fdr- IV	38.92	+	
		-	-	220kV Malbase - Birpara Fdr.	-15.00	-	
		-	-	66kV CHP - Chumdo Fdr.	11.46	+	
		-	-	66kV CHP - Gedu Fdr.	1.99	+	
		-	-	3x3MVA, 66/11kV TFR	1.40	+	
		Total	71.00	Error at Station/Auxiliary Consumption/Losses	-0.718%		
4	24MW BHP (U/S)	Unit- I	4.75	220kV BHP - Semtokha Fdr.	6.92	+	U/S Unit-II under AMP. L/S Unit-I under standby.
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	11.19	+	
	Total	4.75	220kV BHP - Tsirang Fdr.	-3.25	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.50	+	
Unit- II		10.37	30MVA ICT, 220/66kV				
		Total	10.37	Error at Station/Auxiliary Consumption/Losses	-1.587%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	17.33	+	Unit-I under AMP
		Unit-II	17.52	220kV Jigmeling - Dagapela Fdr.	1.39	+	
		-	-	5MVA, 220/33kV TFR			
		Total	17.52	Error at Station/Auxiliary Consumption/Losses	1.084%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	5.11	+	Unit-IV under Annual Maintenance. Unit-I & II on standby.
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	9.88	+	
		Unit- III	16.11	5MVA, 132/11kV TFR	0.35	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-21.09	-	
		-	-	132kV Motanga - Rangia Fdr.	-6.06	-	
		-	-	220kV Tsirang - Jigmeling	12.90	+	
		Total	16.11	Error at Station/Auxiliary Consumption/Losses	4.780%		

Note: Generation-Load summary for February 23, 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	253.75	195.37	192.68	45.48	2.69
2	Eastern Grid	136.18	56.29	55.39	92.79	0.90
	Total	389.93	251.66	248.07	138.27	3.59

Note: Generation-Load Summary for February 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	237.73	228.68	222.26	-17.85	6.42
2	Eastern Grid	110.87	72.18	71.90	65.59	0.28
	Total	348.60	300.86	294.16	47.74	6.70

NOTE:Eastern load and MAL 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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