

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	February 21, 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	69.97	400kV THP - Siliguri Fdr- I	40.51	+	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	71.63	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	95.80	+	
		Unit- V	0.00	400kV Malbase - Siliguri	26.00	+	
		Unit- VI	0.00	-	-	-	
		Total	141.60	Error at Station/Auxiliary Consumption/Losses	3.736%		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit- I standby. 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	90.45	400kV MHP - Jigmeling Fdr - IV	90.38	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	90.45	Error at Station/Auxiliary Consumption/Losses	0.077%		
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	40.58	220kV CHP - Birpara Fdr- II	-6.49	-	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	0.00		
		Unit- IV	33.37	220kV CHP - Semtokha Fdr- IV	58.96	+	
		-	-	220kV Malbase - Birpara Fdr.	-20.00	-	
		-	-	66kV CHP - Chumdo Fdr.	15.74	+	
		-	-	66kV CHP - Gedu Fdr.	2.12	+	
		-	-	3x3MVA, 66/11kV TFR	2.08	+	
		Total	73.95	Error at Station/Auxiliary Consumption/Losses	2.082%		
4	24MW BHP (U/S)	Unit- I	4.77	220kV BHP - Semtokha Fdr.	3.14	+	U/S Unit-II under AMP. L/S Unit-I under standby
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	14.33	+	
		Total	4.77	220kV BHP - Tsirang Fdr.	-3.60	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.81	+	
		Unit- II	9.89	30MVA ICT, 220/66kV			
		Total	9.89	Error at Station/Auxiliary Consumption/Losses	-0.136%		
5	126MW DHPC	Unit-I	17.64	220kV DHPC - Tsirang Fdr.	17.43	+	Unit-II under AMP
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.	2.60	+	
		-	-	5MVA, 220/33kV TFR			
		Total	17.64	Error at Station/Auxiliary Consumption/Losses	1.190%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	4.91	+	Unit-I on standby. Unit-IV under Annual Maintenance.
		Unit-II	10.12	132kV KHP - Kilikhar Fdr- II	14.50	+	
		Unit- III	10.06	5MVA, 132/11kV TFR	0.51	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-28.13	-	
		-	-	132kV Motanga - Rangia Fdr.	-2.33	-	
		-	-	220kV Tsirang - Jigmeling	10.66	+	
		Total	20.18	Error at Station/Auxiliary Consumption/Losses	1.303%		

Note: Generation-Load Summary for February 21, 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	247.85	197.17	192.75	40.02	4.42
2	Eastern Grid	110.63	61.37	61.04	59.92	0.33
	Total	358.48	258.54	253.79	99.94	4.75

Note: Generation-Load Summary for February 21, 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	334.75	253.09	244.64	41.03	8.45
2	Eastern Grid	109.83	88.94	87.53	61.52	1.41
	Total	444.58	342.03	332.17	102.55	9.86

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 22, 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	69.63	400kV THP - Siliguri Fdr- I	36.84	+	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	69.95	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	100.39	+	
		Unit- V	0.00	400kV Malbase - Siliguri	19.00	+	
		Unit- VI	0.00	-	-	-	
		Total	139.58	Error at Station/Auxiliary Consumption/Losses	1.684%		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit I on Standby Unit-II under maintenance. Unit-III under breakdown. 400kV MHP-JLG Fdr I,III & IV on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	97.39	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	97.10	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	97.10	Error at Station/Auxiliary Consumption/Losses	-0.299%		
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 220kV CHP-MAL line under shutdown
		Unit- II	38.09	220kV CHP - Birpara Fdr- II	11.73	+	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	0.00	+	
		Unit- IV	32.84	220kV CHP - Semtokha Fdr- IV	42.56	+	
		-	-	220kV Malbase - Birpara Fdr.	-19.00	-	
		-	-	66kV CHP - Chumdo Fdr.	11.62	+	
		-	-	66kV CHP - Gedu Fdr.	2.84	+	
		-	-	3x3MVA, 66/11kV TFR	1.40	+	
		Total	70.93	Error at Station/Auxiliary Consumption/Losses	1.100%		
4	24MW BHP (U/S)	Unit- I	4.85	220kV BHP - Semtokha Fdr.	4.12	+	U/S Unit-II under AMP. L/S Unit-I under standby.
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	11.17	+	
	Total	4.85	220kV BHP - Tsirang Fdr.	-0.64	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.50	+	
Unit- II		10.28	30MVA ICT, 220/66kV				
		Total	10.28	Error at Station/Auxiliary Consumption/Losses	-0.132%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	16.89	+	Unit-I under AMP
		Unit-II	17.14	220kV Jigmeling - Dagapela Fdr.	1.47	+	
		-	-	5MVA, 220/33kV TFR			
		Total	17.14	Error at Station/Auxiliary Consumption/Losses	1.459%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	5.70	+	Unit-IV under Annual Maintenance. Unit-I & II on standby.
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	9.88	+	
		Unit- III	16.00	5MVA, 132/11kV TFR	0.38	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-18.70	-	
		-	-	132kV Motanga - Rangia Fdr.	-2.81	-	
		-	-	220kV Tsirang - Jigmeling	14.52	+	
		Total	16.00	Error at Station/Auxiliary Consumption/Losses	0.250%		

Note: Generation-Load summary for February 22, 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	242.78	179.69	177.80	48.57	1.89
2	Eastern Grid	113.10	51.74	51.99	75.88	-0.25
	Total	355.88	231.43	229.79	124.45	1.64

Note: Generation-Load Summary for February 22, 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	228.67	249.66	239.96	-46.75	9.70
2	Eastern Grid	105.83	67.41	64.58	64.18	2.83
	Total	334.50	317.07	304.54	17.43	12.53

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.
 - 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.