

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	February 19, 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	69.24	400kV THP - Siliguri Fdr- I	36.85	+	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	69.94	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	98.59	+	
		Unit- V	0.00	400kV Malbase - Siliguri	23.00	+	
		Unit- VI	0.00	-	-	-	
		Total	139.18	Error at Station/Auxiliary Consumption/Losses	2.687%		
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,III & IV on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	95.30	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	95.34	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	95.34	Error at Station/Auxiliary Consumption/Losses	0.042%		
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	40.15	220kV CHP - Birpara Fdr- II	-13.32	-	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	0.00	+	
		Unit- IV	34.84	220kV CHP - Semtokha Fdr- IV	64.68	+	
		-	-	220kV Malbase - Birpara Fdr.	-34.00	-	
		-	-	66kV CHP - Chumdo Fdr.	17.28	+	
		-	-	66kV CHP - Gedu Fdr.	2.27	+	
		-	-	3x3MVA, 66/11kV TFR	2.16	+	
		Total	74.99	Error at Station/Auxiliary Consumption/Losses	2.560%		
4	24MW BHP (U/S)	Unit- I	5.18	220kV BHP - Semtokha Fdr.	2.66	+	U/S Unit-II under AMP. L/S Unit-I under standby
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	15.99	+	
	Total	5.18	220kV BHP - Tsirang Fdr.	-3.11	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.75	+	
Unit- II		11.23	30MVA ICT, 220/66kV				
		Total	11.23	Error at Station/Auxiliary Consumption/Losses	0.731%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	17.91	+	Unit-I under AMP
		Unit-II	18.13	220kV Jigmeling - Dagapela Fdr.	2.70	+	
		-	-	5MVA, 220/33kV TFR			
		Total	18.13	Error at Station/Auxiliary Consumption/Losses	1.213%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	5.18	+	Unit-I on standby. Unit-IV under Annual Maintenance.
		Unit-II	10.11	132kV KHP - Kilikhar Fdr- II	14.27	+	
		Unit- III	10.12	5MVA, 132/11kV TFR	0.37	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-18.01	-	
		-	-	132kV Motanga - Rangia Fdr.	-5.48	-	
		-	-	220kV Tsirang - Jigmeling	9.25	+	
		Total	20.23	Error at Station/Auxiliary Consumption/Losses	2.042%		

Note: Generation-Load Summary for February 19, 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	248.71	226.93	223.63	12.53	3.30
2	Eastern Grid	115.57	53.01	52.56	71.81	0.45
	Total	364.28	279.94	276.19	84.34	3.75

Note: Generation-Load Summary for February 19, 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	328.55	303.21	296.36	-0.91	6.85
2	Eastern Grid	98.02	76.47	73.81	47.8	2.66
	Total	426.57	379.68	370.17	46.89	9.51

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 20, 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	69.00	400kV THP - Siliguri Fdr- I	37.94	+	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	71.53	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	99.47	+	
		Unit- V	0.00	400kV Malbase - Siliguri	21.00	+	
		Unit- VI	0.00	-	-	-	
		Total	140.53	Error at Station/Auxiliary Consumption/Losses	2.220%		
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	95.28	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	95.36	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	95.36	Error at Station/Auxiliary Consumption/Losses	0.084%		
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	40.11	220kV CHP - Birpara Fdr- II	10.46	+	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	0.00	+	
		Unit- IV	31.61	220kV CHP - Semtokha Fdr- IV	45.30	+	
		-	-	220kV Malbase - Birpara Fdr.	-16.00	-	
		-	-	66kV CHP - Chumdo Fdr.	12.31	+	
		-	-	66kV CHP - Gedu Fdr.	2.64	+	
		-	-	3x3MVA, 66/11kV TFR	1.50	+	
		Total	71.72	Error at Station/Auxiliary Consumption/Losses	-0.683%		
4	24MW BHP (U/S)	Unit- I	5.22	220kV BHP - Semtokha Fdr.	6.24	+	U/S Unit-II under AMP. L/S Unit-I under standby.
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	12.35	+	
	Total	5.22	220kV BHP - Tsirang Fdr.	-2.95	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.50	+	
Unit- II		11.27	30MVA ICT, 220/66kV				
		Total	11.27	Error at Station/Auxiliary Consumption/Losses	2.122%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	17.88	+	Unit-I under AMP
		Unit-II	18.11	220kV Jigmeling - Dagapela Fdr.	1.40	+	
		-	-	5MVA, 220/33kV TFR			
		Total	18.11	Error at Station/Auxiliary Consumption/Losses	1.270%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	5.26	+	Unit-IV under Annual Maintenance. Unit-I & III on standby.
		Unit-II	16.00	132kV KHP - Kilikhar Fdr- II	10.30	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.34	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-20.28	-	
		-	-	132kV Motanga - Rangia Fdr.	-6.90	-	
		-	-	220kV Tsirang - Jigmeling	13.37	+	
		Total	16.00	Error at Station/Auxiliary Consumption/Losses	0.625%		

Note: Generation-Load summary for February 20, 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	246.85	180.08	178.27	53.40	1.81
2	Eastern Grid	111.36	56.63	56.45	68.10	0.18
	Total	358.21	236.71	234.72	121.50	1.99

Note: Generation-Load Summary for February 20, 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	213.38	242.23	236.64	-55.49	5.59
2	Eastern Grid	104.78	73.37	72.45	58.05	0.92
	Total	318.16	315.60	309.09	2.56	6.51

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.
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