

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	March 1, 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	70.34	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 THP-SIL Fdr IV under AMP.
		Unit- II	59.75	400kV THP - Siliguri Fdr- II	30.67	+	
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	97.29	+	
		Unit- V	0.00	400kV Malbase - Siliguri	16.00	+	
		Unit- VI	0.00	-	-	-	
		Total	130.09	Error at Station/Auxiliary Consumption/Losses	1.637%		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit- IV on standby. Unit-II under maintenance. Unit-III under breakdown. 400kV MHP-JLG Fdr I ,II & III on standby. Unit I tripped at 17:29 hrs.
		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	0.00	Error at Station/Auxiliary Consumption/Losses	0.000%		
3	336MW CHP	Unit- I	51.32	220kV CHP - Birpara Fdr- I	-8.05	-	Unit-II on standby. Unit III under AMP 220kV CHP-BIR fdr II under AMP.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	0.00		
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	11.87	+	
		Unit- IV	33.97	220kV CHP - Semtokha Fdr- IV	59.55	+	
		-	-	220kV Malbase - Birpara Fdr.	-22.00	-	
		-	-	66kV CHP - Chumdo Fdr.	15.57	+	
		-	-	66kV CHP - Gedu Fdr.	2.69	+	
		-	-	3x3MVA, 66/11kV TFR	1.97	+	
		Total	85.29	Error at Station/Auxiliary Consumption/Losses	1.981%		
4	24MW BHP (U/S)	Unit- I	5.63	220kV BHP - Semtokha Fdr.	2.42	+	U/S Unit-II under AMP. L/S Unit-I on standby
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	14.48	+	
		Total	5.63	220kV BHP - Tsirang Fdr.	-0.52	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.80	+	
		Unit- II	11.86	30MVA ICT, 220/66kV			
		Total	11.86	Error at Station/Auxiliary Consumption/Losses	1.772%		
5	126MW DHPC	Unit-I	19.67	220kV DHPC - Tsirang Fdr.	19.46	+	Unit-II under standby
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.	2.70	+	
		-	-	5MVA, 220/33kV TFR			
		Total	19.67	Error at Station/Auxiliary Consumption/Losses	1.068%		
6	60MW KHP	Unit- I	16.44	132kV KHP - Nangkhon Fdr- I	15.06	+	Unit-II on standby. Unit-IV under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilihar Fdr- II	16.96	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.55	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-26.64	-	
		-	-	132kV Motanga - Rangia Fdr.	5.80	+	
		-	-	220kV Tsirang - Jigmeling	16.39	+	
		Total	32.94	Error at Station/Auxiliary Consumption/Losses	1.126%		

Note: Generation-Load Summary for March 01, 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	252.54	219.53	217.89	16.62	1.64
2	Eastern Grid	32.94	70.17	69.80	-20.84	0.37
	Total	285.48	289.70	287.69	-4.22	2.01

Note: Generation-Load Summary for March 01, 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	360.95	276.65	270.69	51.43	5.96
2	Eastern Grid	112.65	70.03	69.33	75.49	0.70
	Total	473.60	346.68	340.02	126.92	6.66

NOTE- MAL,KHP & 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 2, 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	98.77	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	79.14	400kV THP - Siliguri Fdr- II	55.54	+	
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	117.59	+	
		Unit- V	0.00	400kV Malbase - Siliguri	40.00	+	
		Unit- VI	0.00	-	-	-	
		Total	177.91	Error at Station/Auxiliary Consumption/Losses	2.687%		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00	+	Unit I under inspection. 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	145.47	400kV MHP - Jigmeling Fdr - IV	145.37		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	145.47	Error at Station/Auxiliary Consumption/Losses	0.069%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	4.16		Unit-I under shutdown. Unit-III under AMP. Unit-II standby. 220kV CHP-BIR II on AMP.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	0.00	+	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	35.85	+	
		Unit- IV	88.37	220kV CHP - Semtokha Fdr- IV	30.68	+	
		-	-	220kV Malbase - Birpara Fdr.	-18.00	-	
		-	-	66kV CHP - Chumdo Fdr.	10.04	+	
		-	-	66kV CHP - Gedu Fdr.	4.01	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
		Total	88.37	Error at Station/Auxiliary Consumption/Losses	2.750%		
4	24MW BHP (U/S)	Unit- I	5.38	220kV BHP - Semtokha Fdr.	14.17	+	U/S Unit-II under AMP. L/S Unit-I on standby.
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	11.90	+	
	Total	5.38	220kV BHP - Tsirang Fdr.	-9.22	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.89	+	
Unit- II		11.72	30MVA ICT, 220/66kV				
		Total	11.72	Error at Station/Auxiliary Consumption/Losses	-3.743%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	16.99	+	Unit-I under standby.
		Unit-II	17.30	220kV Jigmeling - Dagapela Fdr.	1.40	+	
		-	-	5MVA, 220/33kV TFR			
		Total	17.30	Error at Station/Auxiliary Consumption/Losses	1.792%		
6	60MW KHP	Unit- I	14.11	132kV KHP - Nangkhon Fdr- I	24.83	+	Unit-IV under Annual Maintenance.
		Unit-II	14.11	132kV KHP - Kilihar Fdr- II	16.50	+	
		Unit- III	14.05	5MVA, 132/11kV TFR	0.37	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-21.86	-	
		-	-	132kV Motanga - Rangia Fdr.	-8.50	-	
		-	-	220kV Tsirang - Jigmeling	5.34	+	
		Total	42.27	Error at Station/Auxiliary Consumption/Losses	1.349%		

Note: Generation-Load summary for March 02, 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	300.68	213.64	208.16	81.70	5.48
2	Eastern Grid	187.74	78.07	77.40	115.01	0.67
	Total	488.42	291.71	285.56	196.71	6.15

Note: Generation-Load Summary for March 02, 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	241.75	260.89	257.17	-39.44	3.72
2	Eastern Grid	100.94	47.44	45.94	73.8	1.50
	Total	342.69	308.33	303.11	34.36	5.22

NOTE: KHP,MAL,MHP and 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.
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