

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	March 9, 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	139.40	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	69.59	400kV THP - Siliguri Fdr- II	70.48	+	
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	133.01	+	
		Unit- V	0.00	400kV Malbase - Siliguri		+	
		Unit- VI	0.00	-	-	-	
		Total	208.99	Error at Station/Auxiliary Consumption/Losses	2.632%		
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	95.43	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV		400kV MHP - Jigmeling Fdr - IV	94.77	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	95.43	Error at Station/Auxiliary Consumption/Losses	0.692%		
3	336MW CHP	Unit- I	63.55	220kV CHP - Birpara Fdr- I	9.35	+	Unit-III & IV on AMP 220kV CHP-BIR fdr II under AMP.
		Unit- II	55.38	220kV CHP - Birpara Fdr- II	0.00		
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	35.76	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	46.01	+	
		-	-	220kV Malbase - Birpara Fdr.	0.00	-	
		-	-	66kV CHP - Chumdo Fdr.	22.10	+	
		-	-	66kV CHP - Gedu Fdr.	2.26	+	
		-	-	3x3MVA, 66/11kV TFR	1.97	+	
		Total	118.93	Error at Station/Auxiliary Consumption/Losses	1.244%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	11.51	+	U/S Unit-I on standby L/S Unit-I on standby
		Unit- II	5.11	66kV BHP - Lobeysa Fdr.	14.34	+	
		Total	5.11	220kV BHP - Tsirang Fdr.	-10.65	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.79	+	
		Unit- II	10.65	30MVA ICT, 220/66kV			
		Total	10.65	Error at Station/Auxiliary Consumption/Losses	-1.459%		
5	126MW DHPC	Unit-I	17.97	220kV DHPC - Tsirang Fdr.	17.77	+	Unit-II AMP
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.	2.70	+	
		-	-	5MVA, 220/33kV TFR			
		Total	17.97	Error at Station/Auxiliary Consumption/Losses	1.113%		
6	60MW KHP	Unit- I	10.10	132kV KHP - Nangkhon Fdr- I	6.92	+	Unit-I on standby. Unit-IV under Annual Maintenance.
		Unit-II	10.09	132kV KHP - Kilikhar Fdr- II	12.45	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.50	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-30.99	-	
		-	-	132kV Motanga - Rangia Fdr.	-13.65	-	
		-	-	220kV Tsirang - Jigmeling	5.92	+	
		Total	20.19	Error at Station/Auxiliary Consumption/Losses	1.565%		

Note: Generation-Load Summary for March 09, 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	361.65	275.90	271.65	79.83	4.25
2	Eastern Grid	115.62	71.41	70.43	50.13	0.98
Total		477.27	347.31	342.08	129.96	5.23

Note: Generation-Load Summary for March 09, 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	363.37	305.51	299.99	25.53	5.52
2	Eastern Grid	120.49	84.78	82.94	68.04	1.84
Total		483.86	390.29	382.93	93.57	7.36

NOTE- KHP,MHP, Motanga & 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.

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	March 10, 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	138.81	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	70.05	400kV THP - Siliguri Fdr- II	56.23	+	
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	148.91	+	
		Unit- V	0.00	400kV Malbase - Siliguri	32.00	+	
		Unit- VI	0.00	-	-	-	
		Total	208.86	Error at Station/Auxiliary Consumption/Losses	1.781%		
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	100.03	400kV MHP - Jigmeling Fdr - IV	99.61	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	100.03	Error at Station/Auxiliary Consumption/Losses	0.420%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	-32.22	-	CHP total shutdown Unit-III under AMP 220kV CHP-BIR II under AMP.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	0.00	+	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	-11.66	-	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	26.07	+	
		-	-	220kV Malbase - Birpara Fdr.	-42.41	-	
		-	-	66kV CHP - Chumdo Fdr.	14.34	+	
		-	-	66kV CHP - Gedu Fdr.	1.75	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
		Total	0.00	Error at Station/Auxiliary Consumption/Losses	0.000%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	18.20	+	U/S Unit-I on standby. L/S Unit-I on standby.
		Unit- II	5.21	66kV BHP - Lobeysa Fdr.	11.65	+	
		Total	5.21	220kV BHP - Tsirang Fdr.	-13.64	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.40	+	
		Unit- II	10.65	30MVA ICT, 220/66kV			
		Total	10.65	Error at Station/Auxiliary Consumption/Losses	-4.729%		
5	126MW DHPC	Unit-I	17.46	220kV DHPC - Tsirang Fdr.	17.27	+	Unit-II under AMP..
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.	1.00	+	
		-	-	5MVA, 220/33kV TFR			
		Total	17.46	Error at Station/Auxiliary Consumption/Losses	1.088%		
6	60MW KHP	Unit- I	10.09	132kV KHP - Nangkhor Fdr- I	9.15	+	Unit- III on standby. Unit-IV under Annual Maintenance.
		Unit-II	10.11	132kV KHP - Kilikhar Fdr- II	10.39	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.33	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-24.65	-	
		-	-	132kV Motanga - Rangia Fdr.	-15.11	-	
		-	-	220kV Tsirang - Jigmeling	1.04	+	
		Total	20.20	Error at Station/Auxiliary Consumption/Losses	1.634%		

Note: Generation-Load summary for March 10, 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	242.18	227.54	224.86	13.60	2.68
2	Eastern Grid	120.23	61.42	60.67	59.85	0.75
	Total	362.41	288.96	285.53	73.45	3.43

Note: Generation-Load Summary for March 10, 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	228.42	240.10	233.97	-30.66	6.13
2	Eastern Grid	117.41	57.07	55.91	79.32	1.16
	Total	345.83	297.17	289.88	48.66	7.29

NOTE: KHP,MHP, Motanga & MAL 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.

2. This report is generated to give an idea of the generation & load flow for the system at a particular instant.