

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	January 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	68.60	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 II under AMP.
		Unit- II	108.07	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	49.42	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	125.85	+	
		Unit- V	0.00	400kV Malbase - Siliguri	33.00	+	
		Unit- VI	0.00	-	-	-	
		Total	176.67	Error at Station/Auxiliary Consumption/Losses	0.792%		
2	720MW MHP	Unit-I	105.19	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II under maintenance. Unit-III under breakdown. Unit-IV on standby. 400kV MHP-JLG Fdr I,III & IV on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	104.58	+	
		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	105.19	Error at Station/Auxiliary Consumption/Losses	0.580%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	-8.38	-	Unit-I under Annual Maintenance Unit-III on standby.
		Unit- II	39.31	220kV CHP - Birpara Fdr- II	-8.31	-	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	23.51	+	
		Unit- IV	51.03	220kV CHP - Semtokha Fdr- IV	55.28	+	
		-	-	220kV Malbase - Birpara Fdr.	-27.00	-	
		-	-	66kV CHP - Chumdo Fdr.	23.97	+	
		-	-	66kV CHP - Gedu Fdr.	1.79	+	
		-	-	3x3MVA, 66/11kV TFR	1.70	+	
		Total	90.34	Error at Station/Auxiliary Consumption/Losses	0.863%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	7.47	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	6.66	66kV BHP - Lobeysa Fdr.	15.05	+	
	Total	6.66	220kV BHP - Tsirang Fdr.	-3.07	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.95	+	
Unit- II		13.68	30MVA ICT, 220/66kV				
		Total	13.68	Error at Station/Auxiliary Consumption/Losses	-0.295%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	21.46	+	Unit-I on standby.
		Unit-II	21.68	220kV Jigmeling - Dagapela Fdr.	2.70	+	
		-	-	5MVA, 220/33kV TFR			
		Total	21.68	Error at Station/Auxiliary Consumption/Losses	1.015%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	4.06	+	Unit-IV on standby. Unit-II under Annual Maintenance. Unit III tripped at 18:43hrs
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	11.85	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.18	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-27.14	-	
		-	-	132kV Motanga - Rangia Fdr.	-15.26	-	
		-	-	220kV Tsirang - Jigmeling	14.98	+	
		Total	16.50	Error at Station/Auxiliary Consumption/Losses	2.497%		

Note: Generation-Load Summary for January 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	309.03	255.32	255.68	38.73	-0.36
2	Eastern Grid	121.69	74.49	73.47	62.18	1.02
	Total	430.72	329.81	329.15	100.91	0.66

Note: Generation-Load Summary for January 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	436.17	277.55	272.17	142.62	5.38
2	Eastern Grid	118.30	63.42	61.32	70.88	2.10
	Total	554.47	340.97	333.49	213.50	7.48

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:	January 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	67.77	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 THP-SIL Fdr II under AMP.
		Unit- II	107.74	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	53.21	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	121.82	+	
		Unit- V	0.00	400kV Malbase - Siliguri	41.00	+	
		Unit- VI	0.00	-	-	-	
		Total	175.51	Error at Station/Auxiliary Consumption/Losses	0.273%		
2	720MW MHP	Unit-I	120.26	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II under maintenance. Unit-III under breakdown.Unit IV on standby.400kV MHP-JLG Fdr I,III & IV on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	119.88	+	
		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	120.26	Error at Station/Auxiliary Consumption/Losses	0.316%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.20	+	Unit-I under Annual Maintenance Unit-III on standby.
		Unit- II	35.46	220kV CHP - Birpara Fdr- II	0.50	+	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	39.16	+	
		Unit- IV	49.40	220kV CHP - Semtokha Fdr- IV	27.15	+	
		-	-	220kV Malbase - Birpara Fdr.	-35.00	-	
		-	-	66kV CHP - Chumdo Fdr.	11.20	+	
		-	-	66kV CHP - Gedu Fdr.	3.70	+	
		-	-	3x3MVA, 66/11kV TFR	1.43	+	
		Total	84.86	Error at Station/Auxiliary Consumption/Losses	1.791%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	14.45	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	6.49	66kV BHP - Lobeysa Fdr.	11.73	+	
	Total	6.49	220kV BHP - Tsirang Fdr.	-6.28	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.80	+	
Unit- II		13.90	30MVA ICT, 220/66kV				
		Total	13.90	Error at Station/Auxiliary Consumption/Losses	-1.520%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	22.76	+	Unit-I on standby.
		Unit-II	22.70	220kV Jigmeling - Dagapela Fdr.	1.10	+	
		-	-	5MVA, 220/33kV TFR			
		Total	22.70	Error at Station/Auxiliary Consumption/Losses	-0.264%		
6	60MW KHP	Unit- I	10.60	132kV KHP - Nangkhon Fdr- I	9.81	+	Unit-IV on standby. Unit-II under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	10.60	+	
		Unit- III	10.58	5MVA, 132/11kV TFR	0.38	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-16.22	-	
		-	-	132kV Motanga - Rangia Fdr.	-10.52	-	
		-	-	220kV Tsirang - Jigmeling	15.01	+	
		Total	21.18	Error at Station/Auxiliary Consumption/Losses	1.841%		

Note: Generation-Load summary for January 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	303.46	228.54	228.01	59.91	0.53
2	Eastern Grid	141.44	63.31	62.54	93.14	0.77
	Total	444.90	291.85	290.55	153.05	1.30

Note: Generation-Load Summary for January 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	246.24	246.41	241.91	-6.97	4.50
2	Eastern Grid	113.62	48.46	47.65	71.96	0.81
	Total	359.86	294.87	289.56	64.99	5.31

NOTE: MAL & Eastern loads 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.