

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	January 3, 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	89.85	400kV THP - Siliguri Fdr- I	0.00		Unit-II & V under shutdown. Unit-VI under maintenance Unit-III on standby. 400kV THP-SIL Fdr I on Standby. 400kV THP-SIL Fdr II under AMP.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	66.66	+	
		Unit- IV	119.82	400kV THP - Malbase Fdr- III	138.99	+	
		Unit- V	0.00	400kV Malbase - Siliguri	53.00	+	
		Unit- VI	0.00	-	-	-	
		Total	209.67	Error at Station/Auxiliary Consumption/Losses	1.917%		
2	720MW MHP	Unit-I	115.18	400kV MHP - Jigmeling Fdr - I	0.00		Unit-IV on standby. Unit-II under shutdown. Unit-III under breakdown. 400kV MHP-JLG Fdr I,III & IV on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	114.79	+	
		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	115.18	Error at Station/Auxiliary Consumption/Losses	0.339%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	-5.40	-	Unit I & II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	-5.26	-	
		Unit- III	50.38	220kV CHP - Malbase Fdr- III	27.71	+	
		Unit- IV	55.94	220kV CHP - Semtokha Fdr- IV	65.40	+	
		-	-	220kV Malbase - Birpara Fdr.	-32.00	-	
		-	-	66kV CHP - Chumdo Fdr.	17.74	+	
		-	-	66kV CHP - Gedu Fdr.	2.63	+	
		-	-	3x3MVA, 66/11kV TFR	2.40	+	
		Total	106.32	Error at Station/Auxiliary Consumption/Losses	1.035%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	6.56	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	6.31	66kV BHP - Lobeysa Fdr.	15.97	+	
	Total	6.31	220kV BHP - Tsirang Fdr.	-3.19	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	1.10	+	
Unit- II		13.95	30MVA ICT, 220/66kV				
		Total	13.95	Error at Station/Auxiliary Consumption/Losses	-0.888%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	23.01	+	Unit-I on standby.
		Unit-II	23.22	220kV Jigmeling - Dagapela Fdr.	2.80	+	
		-	-	5MVA, 220/33kV TFR			
		Total	23.22	Error at Station/Auxiliary Consumption/Losses	0.904%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	7.71	+	Unit-I under Annual Maintenance. Unit-IV on standby.
		Unit-II	11.10	132kV KHP - Kilikhar Fdr- II	13.47	+	
		Unit- III	11.09	5MVA, 132/11kV TFR	0.56	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-25.32	-	
		-	-	132kV Motanga - Rangia Fdr.	-5.17	-	
		-	-	220kV Tsirang - Jigmeling	16.82	+	
		Total	22.19	Error at Station/Auxiliary Consumption/Losses	2.028%		

Note: Generation-Load Summary for January 03, 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	359.47	265.65	263.30	77.00	2.35
2	Eastern Grid	137.37	69.89	69.05	84.30	0.84
	Total	496.84	335.54	332.35	161.30	3.19

Note: Generation-Load Summary for January 03, 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	426.05	294.96	284.68	113.09	10.28
2	Eastern Grid	122.95	62.79	53.81	78.16	8.98
	Total	549.00	357.75	338.49	191.25	19.26

NOTE- 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:	January 4, 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	90.00	400kV THP - Siliguri Fdr- I	0.00		Unit-II & V under shutdown. Unit-VI under maintenance Unit-III on standby. 400kV THP-SIL Fdr I on Standby. 400kV THP-SIL Fdr II under AMP.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	68.00	+	
		Unit- IV	120.00	400kV THP - Malbase Fdr- III	137.00	+	
		Unit- V	0.00	400kV Malbase - Siliguri	58.00	+	
		Unit- VI	0.00	-	-	-	
		Total	210.00	Error at Station/Auxiliary Consumption/Losses	2.381%		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-I on standby. Unit-II under shutdown. Unit-III under breakdown. 400kV MHP-JLG Fdr I, III & IV on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	120.04	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	120.07	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	120.07	Error at Station/Auxiliary Consumption/Losses	0.025%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	5.70	+	Unit-I & II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	5.40	+	
		Unit- III	45.02	220kV CHP - Malbase Fdr- III	42.90	+	
		Unit- IV	56.60	220kV CHP - Semtokha Fdr- IV	29.37	+	
		-	-	220kV Malbase - Birpara Fdr.	-24.00	-	
		-	-	66kV CHP - Chumdo Fdr.	10.10	+	
		-	-	66kV CHP - Gedu Fdr.	3.60	+	
		-	-	3x3MVA, 66/11kV TFR	2.20	+	
		Total	101.62	Error at Station/Auxiliary Consumption/Losses	2.313%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	15.40	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	6.00	66kV BHP - Lobeysa Fdr.	11.10	+	
	Total	6.00	220kV BHP - Tsirang Fdr.	-7.39	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.88	+	
Unit- II		13.50	30MVA ICT, 220/66kV				
		Total	13.50	Error at Station/Auxiliary Consumption/Losses	-2.513%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	24.50	+	Unit-I on standby.
		Unit-II	24.70	220kV Jigmeling - Dagapela Fdr.	1.70	+	
		-	-	5MVA, 220/33kV TFR			
		Total	24.70	Error at Station/Auxiliary Consumption/Losses	0.810%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	9.01	+	Unit-I under Annual Maintenance. Unit-IV on standby.
		Unit-II	10.00	132kV KHP - Kilihar Fdr- II	10.78	+	
		Unit- III	10.00	5MVA, 132/11kV TFR	0.17	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-14.90	-	
		-	-	132kV Motanga - Rangia Fdr.	1.99	-	
		-	-	220kV Tsirang - Jigmeling	10.30	+	
		Total	20.00	Error at Station/Auxiliary Consumption/Losses	0.200%		

Note: Generation-Load summary for January 04, 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	355.82	232.42	227.06	113.10	5.36
2	Eastern Grid	140.07	43.24	43.17	107.13	0.07
	Total	495.89	275.66	270.23	220.23	5.43

Note: Generation-Load Summary for January 04, 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	304.59	277.00	269.83	5.92	7.17
2	Eastern Grid	134.00	54.31	51.76	101.36	2.55
	Total	438.59	331.31	321.59	107.28	9.72

NOTE: MHP,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.