

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	February 12, 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	90.36	400kV THP - Siliguri Fdr- I	45.73	+	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	69.16	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	110.38	+	
		Unit- V	0.00	400kV Malbase - Siliguri	30.00	+	
		Unit- VI	0.00	-	-	-	
		Total	159.52	Error at Station/Auxiliary Consumption/Losses	2.138%		
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	100.14	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	100.26	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	100.26	Error at Station/Auxiliary Consumption/Losses	0.120%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	-4.91	-	Unit-I & III under Annual Maintenance. 220kV CHP-BIR II on Standby
		Unit- II	37.25	220kV CHP - Birpara Fdr- II	0.00		
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	12.76	+	
		Unit- IV	41.21	220kV CHP - Semtokha Fdr- IV	50.61	+	
		-	-	220kV Malbase - Birpara Fdr.	-11.00	-	
		-	-	66kV CHP - Chumdo Fdr.	14.20	+	
		-	-	66kV CHP - Gedu Fdr.	2.13	+	
		-	-	3x3MVA, 66/11kV TFR	2.10	+	
		Total	78.46	Error at Station/Auxiliary Consumption/Losses	2.001%		
4	24MW BHP (U/S)	Unit- I	5.41	220kV BHP - Semtokha Fdr.	4.34	+	U/S Unit-II and L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	13.66	+	
	Total	5.41	220kV BHP - Tsirang Fdr.	-1.79	-		
	40MW BHP (L/S)	Unit- I	11.66	5MVA, 66/11kV TFR	0.98	+	
Unit- II		0.00	30MVA ICT, 220/66kV				
		Total	11.66	Error at Station/Auxiliary Consumption/Losses	-0.703%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	0.00		Unit-I under AMP. 220kV DHPC-TSI on standby
		Unit-II	19.15	220kV DHPC - Dagapela Fdr.	18.95	+	
		-	-	5MVA, 220/33kV TFR			
		Total	19.15	Error at Station/Auxiliary Consumption/Losses	1.044%		
6	60MW KHP	Unit- I	10.11	132kV KHP - Nangkhon Fdr- I	6.62	+	Unit-II on standby. Unit IV under AMP
		Unit-II	0.00	132kV KHP - Kilihar Fdr- II	12.82	+	
		Unit- III	10.14	5MVA, 132/11kV TFR	0.55	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-20.20	-	
		-	-	132kV Motanga - Rangia Fdr.	-3.91	-	
		-	-	220kV Tsirang - Jigmeling	-4.50	-	
		Total	20.25	Error at Station/Auxiliary Consumption/Losses	1.284%		

Note: Generation-Load Summary for February 12, 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	274.20	218.88	213.82	59.82	5.06
2	Eastern Grid	120.51	39.98	39.60	76.03	0.38
	Total	394.71	258.86	253.42	135.85	5.44

Note: Generation-Load Summary for February 12, 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	306.95	286.96	280.19	-8.07	6.77
2	Eastern Grid	112.59	78.22	77.43	62.43	0.79
	Total	419.54	365.18	357.62	54.36	7.56

NOTE-MHP & KHP 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 13, 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	90.27	400kV THP - Siliguri Fdr- I	45.19	+	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	69.35	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	111.29	+	
		Unit- V	0.00	400kV Malbase - Siliguri	28.00	+	
		Unit- VI	0.00	-	-	-	
		Total	159.62	Error at Station/Auxiliary Consumption/Losses	1.967%		
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	84.96	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	85.06	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	85.06	Error at Station/Auxiliary Consumption/Losses	0.118%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	-0.78	-	Unit-I under AMP. Unit-III on standby. 220kV CHP-BIR II on Standby
		Unit- II	36.95	220kV CHP - Birpara Fdr- II	0.00		
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	24.81	+	
		Unit- IV	39.37	220kV CHP - Semtokha Fdr- IV	35.90	+	
		-	-	220kV Malbase - Birpara Fdr.	-19.00	-	
		-	-	66kV CHP - Chumdo Fdr.	11.39	+	
		-	-	66kV CHP - Gedu Fdr.	2.48	+	
		-	-	3x3MVA, 66/11kV TFR	1.38	+	
		Total	76.32	Error at Station/Auxiliary Consumption/Losses	1.494%		
4	24MW BHP (U/S)	Unit- I	5.45	220kV BHP - Semtokha Fdr.	10.87	+	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	11.76	+	
	Total	5.45	220kV BHP - Tsirang Fdr.	-6.15	-		
	40MW BHP (L/S)	Unit- I	11.56	5MVA, 66/11kV TFR	0.50	+	
Unit- II		0.00	30MVA ICT, 220/66kV				
		Total	11.56	Error at Station/Auxiliary Consumption/Losses	0.176%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	0.00		Unit-I under AMP 220kV DHP-TSI under AMP
		Unit-II	19.15	220kV DHPC - Dagapela Fdr.	18.95	+	
		-	-	5MVA, 220/33kV TFR			
		Total	19.15	Error at Station/Auxiliary Consumption/Losses	1.044%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	6.00	+	Unit- I & II on standby. Unit IV under AMP
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	9.78	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.20	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-16.62	-	
		-	-	132kV Motanga - Rangia Fdr.	-6.94	-	
		-	-	220kV Tsirang - Jigmeling	-7.71	-	
		Total	16.50	Error at Station/Auxiliary Consumption/Losses	3.152%		

Note: Generation-Load summary for February 13, 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	272.10	226.40	221.89	53.41	4.51
2	Eastern Grid	101.56	32.45	31.83	61.40	0.62
	Total	373.66	258.85	253.72	114.81	5.13

Note: Generation-Load Summary for February 13, 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	229.85	248.18	243.77	-39.89	4.41
2	Eastern Grid	113.70	82.64	72.94	52.62	9.70
	Total	343.55	330.82	316.71	12.73	14.11

NOTE: Eastern load & Mal load 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.