

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	January 28, 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	68.50	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	91.56	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	38.81	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	115.10	+	
		Unit- V	0.00	400kV Malbase - Siliguri	23.00	+	
		Unit- VI	0.00	-	-	-	
		Total	160.06	Error at Station/Auxiliary Consumption/Losses	3.842%		
2	720MW MHP	Unit-I	93.09	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	92.68	+	
		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	93.09	Error at Station/Auxiliary Consumption/Losses	0.440%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.00		Unit-I under Annual Maintenance Unit-III on standby. 220kV CHP-BIR I on Standby
		Unit- II	41.29	220kV CHP - Birpara Fdr- II	-10.69	-	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	23.23	+	
		Unit- IV	43.60	220kV CHP - Semtokha Fdr- IV	51.10	+	
		-	-	220kV Malbase - Birpara Fdr.	-35.00	-	
		-	-	66kV CHP - Chumdo Fdr.	16.73	+	
		-	-	66kV CHP - Gedu Fdr.	1.68	-	
		-	-	3x3MVA, 66/11kV TFR	2.23	+	
		Total	84.89	Error at Station/Auxiliary Consumption/Losses	0.719%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	18.70	+	U/S Unit-I under AMP.
		Unit- II	6.20	66kV BHP - Lobeysa Fdr.	17.40	+	
		Total	6.20	220kV BHP - Tsirang Fdr.	-17.36	-	
	40MW BHP (L/S)	Unit- I	6.30	5MVA, 66/11kV TFR	0.91	+	
		Unit- II	6.30	30MVA ICT, 220/66kV			
		Total	12.60	Error at Station/Auxiliary Consumption/Losses	-4.521%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	20.46	+	Unit-I under AMP
		Unit-II	20.71	220kV Jigmeling - Dagapela Fdr.	2.60	+	
		-	-	5MVA, 220/33kV TFR			
		Total	20.71	Error at Station/Auxiliary Consumption/Losses	1.207%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	4.77	+	Unit-I & IV on standby. Unit-II under Annual Maintenance. 220kV TSI-JLG under AMP
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	10.32	+	
		Unit- III	15.92	5MVA, 132/11kV TFR	0.23	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-38.27	-	
		-	-	132kV Motanga - Rangia Fdr.	-19.72	-	
		-	-	220kV Tsirang - Jigmeling	0.00		
		Total	15.92	Error at Station/Auxiliary Consumption/Losses	3.769%		

Note: Generation-Load Summary for January 28, 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	284.46	268.34	264.78	16.12	3.56
2	Eastern Grid	109.01	74.32	73.31	34.69	1.01
	Total	393.47	342.66	338.09	50.81	4.57

Note: Generation-Load Summary for January 28, 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	294.40	262.40	254.05	24.91	8.35
2	Eastern Grid	93.57	81.90	77.73	18.76	4.17
	Total	387.97	344.30	331.78	43.67	12.52

NOTE- KHP,Motanga,DHP,BHP,CHP-SEM & 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 29, 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	69.18	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	89.80	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	40.00	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	115.00	+	
		Unit- V	0.00	400kV Malbase - Siliguri	25.00	+	
		Unit- VI	0.00	-	-	-	
		Total	158.98	Error at Station/Auxiliary Consumption/Losses	2.503%		
2	720MW MHP	Unit-I	109.86	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	109.59	+	
		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	109.86	Error at Station/Auxiliary Consumption/Losses	0.246%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.00		Unit-I under Annual Maintenance Unit-III on standby. 220kV CHP-BIR I on Standby
		Unit- II	33.12	220kV CHP - Birpara Fdr- II	1.20	+	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	33.56	+	
		Unit- IV	43.40	220kV CHP - Semtokha Fdr- IV	23.10	+	
		-	-	220kV Malbase - Birpara Fdr.	-25.00	-	
		-	-	66kV CHP - Chumdo Fdr.	11.45	+	
		-	-	66kV CHP - Gedu Fdr.	3.23	+	
		-	-	3x3MVA, 66/11kV TFR	1.60	+	
		Total	76.52	Error at Station/Auxiliary Consumption/Losses	3.110%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	23.50	+	U/S Unit-I & L/S Unit-II under AMP.
		Unit- II	6.30	66kV BHP - Lobeysa Fdr.	12.00	+	
	Total	6.30	220kV BHP - Tsirang Fdr.	-17.66	-		
	40MW BHP (L/S)	Unit- I	13.00	5MVA, 66/11kV TFR	0.89	+	
Unit- II		0.00	30MVA ICT, 220/66kV				
		Total	13.00	Error at Station/Auxiliary Consumption/Losses	2.953%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	20.97	+	Unit-I under AMP
		Unit-II	21.18	220kV Jigmeling - Dagapela Fdr.	1.64	+	
		-	-	5MVA, 220/33kV TFR			
		Total	21.18	Error at Station/Auxiliary Consumption/Losses	0.992%		
6	60MW KHP	Unit- I	10.50	132kV KHP - Nangkhon Fdr- I	10.48	+	Unit-IV on standby. Unit-II under Annual Maintenance. 220kV TSI-JLG under AMP
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	9.42	+	
		Unit- III	10.50	5MVA, 132/11kV TFR	0.34	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-25.20	-	
		-	-	132kV Motanga - Rangia Fdr.	-6.78	-	
		-	-	220kV Tsirang - Jigmeling	0.00	+	
		Total	21.00	Error at Station/Auxiliary Consumption/Losses	3.619%		

Note: Generation-Load summary for January 29, 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	275.98	234.78	229.28	41.20	5.50
2	Eastern Grid	130.86	53.25	52.22	77.61	1.03
	Total	406.84	288.03	281.50	118.81	6.53

Note: Generation-Load Summary for January 29, 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	253.49	238.08	234.56	8.76	3.52
2	Eastern Grid	116.72	42.61	43.94	80.76	-1.33
	Total	370.21	280.69	278.50	89.52	2.19

NOTE: All 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.
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