

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	December 25, 2020
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	72.15	400kV THP - Siliguri Fdr- I	66.00	+	Unit-II & V under shutdown. Unit-VI under maintenance Unit-III on standby. 400kV THP-SIL Fdr II & IV on Standby.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	139.67	400kV THP - Malbase Fdr- III	140.80	+	
		Unit- V	0.00	400kV Malbase - Siliguri	46.00	+	
		Unit- VI	0.00	-	-	-	
		Total	211.82	Error at Station/Auxiliary Consumption/Losses	2.370%		
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	94.18	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	95.44	400kV MHP - Jigmeling Fdr - IV	0.00	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	95.44	Error at Station/Auxiliary Consumption/Losses	1.320%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	-1.67	-	Unit I & II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	-1.75	-	
		Unit- III	70.30	220kV CHP - Malbase Fdr- III	28.00	+	
		Unit- IV	41.80	220kV CHP - Semtokha Fdr- IV	62.28	+	
		-	-	220kV Malbase - Birpara Fdr.	-22.00	-	
		-	-	66kV CHP - Chumdo Fdr.	17.42	+	
		-	-	66kV CHP - Gedu Fdr.	2.78	+	
		-	-	3x3MVA, 66/11kV TFR	2.20	+	
		Total	112.10	Error at Station/Auxiliary Consumption/Losses	2.533%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	7.35	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	7.74	66kV BHP - Lobeysa Fdr.	16.70	+	
	Total	7.74	220kV BHP - Tsirang Fdr.	-0.96	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	1.10	+	
Unit- II		16.46	30MVA ICT, 220/66kV				
		Total	16.46	Error at Station/Auxiliary Consumption/Losses	0.041%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	26.56	+	Unit-I on standby.
		Unit-II	26.72	220kV Jigmeling - Dagapela Fdr.	2.80	+	
		-	-	5MVA, 220/33kV TFR			
		Total	26.72	Error at Station/Auxiliary Consumption/Losses	0.599%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	8.11	+	Unit-I under Annual Maintenance. Unit-IV on standby.
		Unit-II	11.14	132kV KHP - Kilikhar Fdr- II	14.22	+	
		Unit- III	12.14	5MVA, 132/11kV TFR	0.36	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-19.05	-	
		-	-	132kV Motanga - Rangia Fdr.	0.76	+	
		-	-	220kV Tsirang - Jigmeling	23.47	+	
		Total	23.28	Error at Station/Auxiliary Consumption/Losses	2.534%		

Note: Generation-Load Summary for December 25, 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	374.84	264.79	259.56	86.58	5.23
2	Eastern Grid	118.72	66.30	64.45	75.89	1.85
	Total	493.56	331.09	324.01	162.47	7.08

Note: Generation-Load Summary for December 25, 2019 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	453.21	282.55	275.95	158.06	6.60
2	Eastern Grid	138.55	65.07	65.47	86.08	-0.40
	Total	591.76	347.62	341.42	244.14	6.20

NOTE- KHP, MHP & 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:	December 26, 2020
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	71.14	400kV THP - Siliguri Fdr- I	73.38	+	Unit-II & V under shutdown. Unit-VI under maintenance Unit-III on standby. 400kV THP-SIL Fdr II & IV on Standby.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	139.93	400kV THP - Malbase Fdr- III	133.80	+	
		Unit- V	0.00	400kV Malbase - Siliguri	57.00	+	
		Unit- VI	0.00	-	-	-	
		Total	211.07	Error at Station/Auxiliary Consumption/Losses	1.843%		
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	94.98	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	95.44	400kV MHP - Jigmeling Fdr - IV	0.00	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	95.44	Error at Station/Auxiliary Consumption/Losses	0.482%		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	6.75	+	Unit-I & II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	6.71	+	
		Unit- III	61.98	220kV CHP - Malbase Fdr- III	47.66	+	
		Unit- IV	41.12	220kV CHP - Semtokha Fdr- IV	26.04	+	
		-	-	220kV Malbase - Birpara Fdr.	-27.00	-	
		-	-	66kV CHP - Chumdo Fdr.	10.90	+	
		-	-	66kV CHP - Gedu Fdr.	3.20	+	
		-	-	3x3MVA, 66/11kV TFR	1.60	+	
		Total	103.10	Error at Station/Auxiliary Consumption/Losses	0.233%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	20.08	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	7.64	66kV BHP - Lobeysa Fdr.	13.15	+	
	Total	7.64	220kV BHP - Tsirang Fdr.	-9.90	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.60	+	
Unit- II		16.09	30MVA ICT, 220/66kV				
		Total	16.09	Error at Station/Auxiliary Consumption/Losses	-0.851%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	26.50	+	Unit-I on standby.
		Unit-II	26.71	220kV Jigmeling - Dagapela Fdr.	1.80	+	
		-	-	5MVA, 220/33kV TFR			
		Total	26.71	Error at Station/Auxiliary Consumption/Losses	0.786%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	10.02	+	Unit-I under Annual Maintenance. Unit-IV on standby.
		Unit-II	11.00	132kV KHP - Kilihar Fdr- II	11.39	+	
		Unit- III	11.00	5MVA, 132/11kV TFR	0.15	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-13.38	-	
		-	-	132kV Motanga - Rangia Fdr.	0.25	+	
		-	-	220kV Tsirang - Jigmeling	14.42	+	
		Total	22.00	Error at Station/Auxiliary Consumption/Losses	2.000%		

Note: Generation-Load summary for December 26, 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	364.61	233.35	231.01	116.84	2.34
2	Eastern Grid	117.44	50.01	49.11	81.85	0.90
	Total	482.05	283.36	280.12	198.69	3.24

Note: Generation-Load Summary for December 26, 2019 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	311.31	292.54	285.41	12.81	7.13
2	Eastern Grid	136.35	50.66	48.05	91.65	2.61
	Total	447.66	343.20	333.46	104.46	9.74

NOTE: KHP,MHP, 220kV 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.
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