

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	November 16, 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	0.00	400kV THP - Siliguri Fdr- I	190.72	+	Unit-IV under Standby Unit- I,II, 400kV THP-SIL Fdr IV, 400kV Tala-Malbase & ICT under Shutdown.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	189.95	+	
		Unit- III	99.65	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	0.00		
		Unit- V	149.12	400kV Malbase - Siliguri	0.00		
		Unit- VI	139.59	-	-	-	
		Total	388.36	Error at Station/Auxiliary Consumption/Losses	1.980%		
2	720MW MHP	Unit-I	55.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II on Standby. Unit-III under AMP(22/09/20-30/11/2020). 400kV MHP-Jigmeling Fdr I under shutdown. 400kV MHP-Jigmeling Fdr II under Breakdown.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	92.51	+	
		Unit-IV	130.50	400kV MHP - Jigmeling Fdr - IV	91.91	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	185.50	Error at Station/Auxiliary Consumption/Losses	0.582%		
3	336MW CHP	Unit- I	73.00	220kV CHP - Birpara Fdr- I	29.27	+	Unit II under Annual Maintenance
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	29.20	+	
		Unit- III	56.00	220kV CHP - Malbase Fdr- III	90.87	+	
		Unit- IV	72.00	220kV CHP - Semtokha Fdr- IV	33.01	+	
		-	-	220kV Malbase - Birpara Fdr.	-19.00	-	
		-	-	66kV CHP - Chumdo Fdr.	12.75	+	
		-	-	66kV CHP - Gedu Fdr.	3.28	+	
		-	-	3x3MVA, 66/11kV TFR	1.69	+	
		Total	201.00	Error at Station/Auxiliary Consumption/Losses	0.463%		
4	24MW BHP (U/S)	Unit- I	5.97	220kV BHP - Semtokha Fdr.	21.16	+	
		Unit- II	5.97	66kV BHP - Lobeysa Fdr.	15.04	+	
		Total	11.94	220kV BHP - Tsirang Fdr.	-0.56	+	
	40MW BHP (L/S)	Unit- I	12.70	5MVA, 66/11kV TFR	0.70	+	
		Unit- II	12.10	30MVA ICT, 220/66kV			
		Total	24.80	Error at Station/Auxiliary Consumption/Losses	1.089%		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	41.98	+	Unit I on Standby
		Unit-II	42.20	220kV Jigmeling - Dagapela Fdr.	1.90	+	
		-	-	5MVA, 220/33kV TFR			
		Total	42.20	Error at Station/Auxiliary Consumption/Losses	0.521%		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	17.80	+	Unit I under Annual Maintenance.
		Unit-II	11.00	132kV KHP - Kilihar Fdr- II	16.68	+	
		Unit- III	12.00	5MVA, 132/11kV TFR	0.56	+	
		Unit- IV	12.00	132kV Gelephu - Salakati Fdr.	-1.22	-	
		-	-	132kV Motanga - Rangia Fdr.	17.22	+	
		-	-	220kV Tsirang - Jigmeling	39.00	+	
		Total	35.00	Error at Station/Auxiliary Consumption/Losses	-0.114%		

Note: Generation-Load Summary for November 16, 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	668.30	209.16	201.82	420.14	7.34
2	Eastern Grid	220.50	59.08	58.04	200.42	1.04
	Total	888.80	268.24	259.86	620.56	8.38

Note: Generation-Load Summary for November 16, 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	633.19	274.25	265.93	335.47	8.32
2	Eastern Grid	221.29	63.72	61.31	181.04	2.41
	Total	854.48	337.97	327.24	516.51	10.73

NOTE: MHP, MAL, DHP,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.

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	November 17, 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	0.00	400kV THP - Siliguri Fdr- I	161.12	+	Unit- IV & 400kV Tala-Siliguri fdr IV under standby. Unit-I & II under maintenace 400kV Tala-Malbase & ICT under shutdown.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	160.31	+	
		Unit- III	98.99	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	0.00		
		Unit- V	89.72	400kV Malbase - Siliguri	0.00		
		Unit- VI	139.93	-	-	-	
		Total	328.64	Error at Station/Auxiliary Consumption/Losses		2.194%	
2	720MW MHP	Unit-I	64.95	400kV MHP - Jigmeling Fdr - I	0.00		Unit-III under AMP (22/09/20-30/11/2020) Unit-II on standby 400kV MHP-JLG Fdr II under Breakdown 400kV MHP-JLG Fdr I under shutdown
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	97.62	+	
		Unit-IV	130.39	400kV MHP - Jigmeling Fdr - IV	96.96	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	195.34	Error at Station/Auxiliary Consumption/Losses		0.389%	
3	336MW CHP	Unit- I	66.00	220kV CHP - Birpara Fdr- I	22.81	+	Unit II under Annual Maintenance
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	22.62	+	
		Unit- III	54.00	220kV CHP - Malbase Fdr- III	86.33	+	
		Unit- IV	52.00	220kV CHP - Semtokha Fdr- IV	30.59	+	
		-	-	220kV Malbase - Birpara Fdr.	-25.62	-	
		-	-	66kV CHP - Chumdo Fdr.	8.33	+	
		-	-	66kV CHP - Gedu Fdr.	3.47	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
Total	172.00	Error at Station/Auxiliary Consumption/Losses		-1.948%			
4	24MW BHP (U/S)	Unit- I	5.90	220kV BHP - Semtokha Fdr.	30.59	+	
		Unit- II	5.90	66kV BHP - Lobeysa Fdr.	13.09	+	
		Total	11.80	220kV BHP - Tsirang Fdr.	-7.75	-	
	40MW BHP (L/S)	Unit- I	12.45	5MVA, 66/11kV TFR	0.38	+	
		Unit- II	11.91	30MVA ICT, 220/66kV			
		Total	24.36	Error at Station/Auxiliary Consumption/Losses		-0.616%	
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	41.29	+	Unit-I on Standby
		Unit-II	41.53	220kV Jigmeling - Dagapela Fdr.	1.30	+	
		-	-	5MVA, 220/33kV TFR			
		Total	41.53	Error at Station/Auxiliary Consumption/Losses		0.578%	
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Fdr- I	20.74	+	Unit I under Annual Maintenance
		Unit-II	12.09	132kV KHP - Kilikhar Fdr- II	13.13	+	
		Unit- III	12.09	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	11.04	132kV Gelephu - Salakati Fdr.	1.87	+	
		-	-	132kV Motanga - Rangia Fdr.	13.30	+	
		-	-	220kV Tsirang - Jigmeling	32.16	+	
		Total	35.22	Error at Station/Auxiliary Consumption/Losses		2.981%	

Note: Generation-Load summary for November 17, 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	578.33	204.93	202.28	341.24	2.65
2	Eastern Grid	230.56	52.97	51.16	209.75	1.81
	Total	808.89	257.90	253.44	550.99	4.46

Note: Generation-Load Summary for November 17, 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	499.96	254.25	246.66	238.34	7.59
2	Eastern Grid	224.96	49.96	41.43	182.37	8.53
	Total	724.92	304.21	288.09	420.71	16.12

NOTES: KHP,MHP & Motanga datas 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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