

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	October 23, 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	139.83	400kV THP - Siliguri Fdr- I	161.74	+	Unit-II & 400kV THP-SIL Fdr II under Standby.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00	+	
		Unit- III	100.61	400kV THP - Siliguri Fdr- IV	154.54	+	
		Unit- IV	70.94	400kV THP - Malbase Fdr- III	206.29	+	
		Unit- V	119.35	400kV Malbase - Siliguri	140.82	+	
		Unit- VI	99.73	-	-	-	
		Total	530.46	Error at Station/Auxiliary Consumption/Losses	1.487%		
2	720MW MHP	Unit-I	150.21	400kV MHP - Jigmeling Fdr - I	148.44	+	Unit-III under maintenance (22/09/20-30/11/2020). Unit-IV under standby 400kV MHP-JLG Fdr II under Breakdown. 400kV MHP-JLG Fdr III under standby.
		Unit-II	150.23	400kV MHP - Jigmeling Fdr - II	0.00	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00	+	
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	149.66		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	300.44	Error at Station/Auxiliary Consumption/Losses	0.779%		
3	336MW CHP	Unit- I	80.11	220kV CHP - Birpara Fdr- I	69.65	+	Unit-IV Standby
		Unit- II	82.12	220kV CHP - Birpara Fdr- II	69.25	+	
		Unit- III	84.71	220kV CHP - Malbase Fdr- III	99.66	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	-7.48	-	
		-	-	220kV Malbase - Birpara Fdr.	39.10	+	
		-	-	66kV CHP - Chumdo Fdr.	7.66	+	
		-	-	66kV CHP - Gedu Fdr.	4.79	+	
		Total	246.94	Error at Station/Auxiliary Consumption/Losses	0.850%		
4	24MW BHP (U/S)	Unit- I	8.89	220kV BHP - Semtokha Fdr.	40.97	+	
		Unit- II	8.89	66kV BHP - Lobeysa Fdr.	15.06	+	
		Total	17.78	220kV BHP - Tsirang Fdr.	-3.61	-	
	40MW BHP (L/S)	Unit- I	17.55	5MVA, 66/11kV TFR	0.59	+	
		Unit- II	17.36	30MVA ICT, 220/66kV			
		Total	34.91	Error at Station/Auxiliary Consumption/Losses	-0.607%		
5	126MW DHPC	Unit-I	60.76	220kV DHPC - Tsirang Fdr.	60.42	+	Unit-II standby
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.	2.00	+	
		-	-	5MVA, 220/33kV TFR			
		Total	60.76	Error at Station/Auxiliary Consumption/Losses	0.560%		
6	60MW KHP	Unit- I	13.11	132kV KHP - Nangkhon Fdr- I	29.10	+	
		Unit-II	13.60	132kV KHP - Kilihar Fdr- II	23.19	+	
		Unit- III	13.63	5MVA, 132/11kV TFR	0.25	+	
		Unit- IV	13.53	132kV Gelephu - Salakati Fdr.	18.05	+	
		-	-	132kV Motanga - Rangia Fdr.	42.21	+	
		-	-	220kV Tsirang - Jigmeling	54.00	+	
		Total	53.87	Error at Station/Auxiliary Consumption/Losses	2.469%		

Note: Generation-Load Summary for October 23, 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	890.85	201.75	193.74	635.10	8.01
2	Eastern Grid	354.31	49.95	46.28	358.36	3.67
	Total	1,245.16	251.70	240.02	993.46	11.68

Note: Generation-Load Summary for October 23, 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	847.26	274.89	266.24	523.88	8.65
2	Eastern Grid	331.47	59.86	58.56	320.10	1.30
	Total	1,178.73	334.75	324.80	843.98	9.95

NOTE: 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.
 - 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:	October 24, 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	139.34	400kV THP - Siliguri Fdr- I	165.37		Unit-II, 400kV THP-SIL Fdr II under Standby
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00	+	
		Unit- III	100.85	400kV THP - Siliguri Fdr- IV	156.19		
		Unit- IV	71.54	400kV THP - Malbase Fdr- III	171.65	+	
		Unit- V	89.35	400kV Malbase - Siliguri	153.01	+	
		Unit- VI	99.50	-	-	-	
		Total	500.58	Error at Station/Auxiliary Consumption/Losses	1.472%		
2	720MW MHP	Unit-I	154.84	400kV MHP - Jigmeling Fdr - I	155.89	+	Unit-III under maintenance (22/09/20-30/11/2020). Unit-IV under standby. 400kV MHP-JLG Fdr II under Breakdown. 400kV MHP-JLG Fdr III under standby.
		Unit-II	159.77	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	156.83	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	314.61	Error at Station/Auxiliary Consumption/Losses	0.601%		
3	336MW CHP	Unit- I	82.17	220kV CHP - Birpara Fdr- I	75.30	+	Unit-IV under standby.
		Unit- II	81.72	220kV CHP - Birpara Fdr- II	74.95	+	
		Unit- III	82.41	220kV CHP - Malbase Fdr- III	113.24	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	-27.81	-	
		-	-	220kV Malbase - Birpara Fdr.	37.81	+	
		-	-	66kV CHP - Chumdo Fdr.	4.10	+	
		-	-	66kV CHP - Gedu Fdr.	4.60	+	
		-	-	3x3MVA, 66/11kV TFR	0.83	+	
		Total	246.30	Error at Station/Auxiliary Consumption/Losses	0.443%		
4	24MW BHP (U/S)	Unit- I	8.73	220kV BHP - Semtokha Fdr.	50.92	+	
		Unit- II	8.73	66kV BHP - Lobeysa Fdr.	12.93	+	
		Total	17.46	220kV BHP - Tsirang Fdr.	-13.74	-	
	40MW BHP (L/S)	Unit- I	16.45	5MVA, 66/11kV TFR	0.48	+	
		Unit- II	16.45	30MVA ICT, 220/66kV			
		Total	32.90	Error at Station/Auxiliary Consumption/Losses	-0.699%		
5	126MW DHPC	Unit-I	60.80	220kV DHPC - Tsirang Fdr.	60.48	+	Unit-II standby
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.	1.10	+	
		-	-	5MVA, 220/33kV TFR			
		Total	60.80	Error at Station/Auxiliary Consumption/Losses	0.526%		
6	60MW KHP	Unit- I	13.00	132kV KHP - Nangkhon Fdr- I	29.69	+	
		Unit-II	12.05	132kV KHP - Kilihar Fdr- II	19.10	+	
		Unit- III	12.14	5MVA, 132/11kV TFR	0.18	+	
		Unit- IV	12.14	132kV Gelephu - Salakati Fdr.	25.08	+	
		-	-	132kV Motanga - Rangia Fdr.	33.02	+	
		-	-	220kV Tsirang - Jigmeling	44.19	+	
		Total	49.33	Error at Station/Auxiliary Consumption/Losses	0.730%		

Note: Generation-Load summary for October 24, 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	858.04	151.22	143.77	662.63	7.45
2	Eastern Grid	363.94	37.31	35.06	370.82	2.25
	Total	1,221.98	188.53	178.83	1,033.45	9.70

Note: Generation-Load Summary for October 24, 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	913.88	255.06	243.95	617.12	11.11
2	Eastern Grid	334.73	51.96	51.54	324.47	0.42
	Total	1,248.61	307.02	295.49	941.59	11.53

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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