

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	October 5, 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	187.22	400kV THP - Siliguri Fdr- I	246.75	+	
		Unit- II	108.98	400kV THP - Siliguri Fdr- II	247.41	+	
		Unit- III	187.70	400kV THP - Siliguri Fdr- IV	240.23	+	
		Unit- IV	186.30	400kV THP - Malbase Fdr- III	275.57	+	
		Unit- V	169.40	400kV Malbase - Siliguri	227.02	+	
		Unit- VI	185.91	-	-	-	
		Total	1,025.51	Error at Station/Auxiliary Consumption/Losses	1.516%		
2	720MW MHP	Unit-I	197.70	400kV MHP - Jigmeling Fdr - I	294.78	+	Unit-III under Shutdown (22/09/20-30/10/2020). 400kV MHP-JLG Fdr II under Breakdown. 400kV MHP-JLG Fdr III under standby.
		Unit-II	197.92	400kV MHP - Jigmeling Fdr - II	0.00	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00	+	
		Unit-IV	197.68	400kV MHP - Jigmeling Fdr - IV	295.80	+	
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		Total	593.30	Error at Station/Auxiliary Consumption/Losses	0.458%		
3	336MW CHP	Unit- I	92.10	220kV CHP - Birpara Fdr- I	118.58	+	
		Unit- II	91.65	220kV CHP - Birpara Fdr- II	118.55	+	
		Unit- III	92.07	220kV CHP - Malbase Fdr- III	154.39	+	
		Unit- IV	91.53	220kV CHP - Semtokha Fdr- IV	-39.03	-	
		-	-	220kV Malbase - Birpara Fdr.	77.90	+	
		-	-	66kV CHP - Chumdo Fdr.	5.18	+	
		-	-	66kV CHP - Gedu Fdr.	6.42	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
		Total	367.35	Error at Station/Auxiliary Consumption/Losses	0.561%		
4	24MW BHP (U/S)	Unit- I	11.83	220kV BHP - Semtokha Fdr.	67.46	+	
		Unit- II	11.83	66kV BHP - Lobeysa Fdr.	17.24	+	
		Total	23.66	220kV BHP - Tsirang Fdr.	-20.06	-	
	40MW BHP (L/S)	Unit- I	20.45	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	20.69	30MVA ICT, 220/66kV	0.00		
		Total	41.14	Error at Station/Auxiliary Consumption/Losses	-1.142%		
5	126MW DHPC	Unit-I	57.21	220kV DHPC - Tsirang Fdr.	112.89	+	
		Unit-II	56.30	220kV Jigmeling - Dagapela Fdr.	1.90	+	
		-	-	5MVA, 220/33kV TFR	0.00		
		Total	113.51	Error at Station/Auxiliary Consumption/Losses	0.546%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	39.10	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	25.92	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	45.61	+	
		-	-	132kV Motanga - Rangia Fdr.	50.21	+	
		-	-	220kV Tsirang - Jigmeling	90.61	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	0.879%		

Note: Generation-Load Summary for October 05, 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	1,571.17	204.12	188.53	1,276.44	15.59
2	Eastern Grid	659.30	63.51	60.21	686.40	3.30
	Total	2,230.47	267.63	248.74	1,962.84	18.89

Note: Generation-Load Summary for October 05, 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	1378.42	255.47	241.46	1,055.81	14.01
2	Eastern Grid	547.78	57.75	56.90	557.17	0.85
	Total	1,926.20	313.22	298.36	1,612.98	14.86

NOTE: KHP & MHP 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:	October 6, 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	187.58	400kV THP - Siliguri Fdr- I	269.89	+	
		Unit- II	166.90	400kV THP - Siliguri Fdr- II	268.55	+	
		Unit- III	187.82	400kV THP - Siliguri Fdr- IV	261.68	+	
		Unit- IV	186.64	400kV THP - Malbase Fdr- III	269.03	+	
		Unit- V	168.92	400kV Malbase - Siliguri	254.03	+	
		Unit- VI	186.78	-	-	-	
		Total	1,084.64	Error at Station/Auxiliary Consumption/Losses	1.428%		
2	720MW MHP	Unit-I	197.92	400kV MHP - Jigmeling Fdr - I	295.09	+	Unit-III under Shutdown (22/09/20-30/10/2020). 400kV MHP-JLG Fdr II under Breakdown. 400kV MHP-JLG Fdr III under standby.
		Unit-II	197.75	400kV MHP - Jigmeling Fdr - II	0.00	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00	+	
		Unit-IV	197.64	400kV MHP - Jigmeling Fdr - IV	296.37	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	593.31	Error at Station/Auxiliary Consumption/Losses	0.312%		
3	336MW CHP	Unit- I	91.24	220kV CHP - Birpara Fdr- I	121.61	+	
		Unit- II	91.27	220kV CHP - Birpara Fdr- II	121.10	+	
		Unit- III	91.52	220kV CHP - Malbase Fdr- III	174.48	+	
		Unit- IV	91.67	220kV CHP - Semtokha Fdr- IV	-62.41	-	
		-	-	220kV Malbase - Birpara Fdr.	65.57	+	
		-	-	66kV CHP - Chumdo Fdr.	1.25	+	
		-	-	66kV CHP - Gedu Fdr.	7.91	+	
		-	-	3x3MVA, 66/11kV TFR	0.80	+	
		Total	365.70	Error at Station/Auxiliary Consumption/Losses	0.263%		
4	24MW BHP (U/S)	Unit- I	11.81	220kV BHP - Semtokha Fdr.	79.90	+	
		Unit- II	11.81	66kV BHP - Lobeysa Fdr.	14.00	+	
		Total	23.62	220kV BHP - Tsirang Fdr.	-30.00	-	
	40MW BHP (L/S)	Unit- I	20.43	5MVA, 66/11kV TFR	0.80	+	
		Unit- II	20.69	30MVA ICT, 220/66kV			
		Total	41.12	Error at Station/Auxiliary Consumption/Losses	0.097%		
5	126MW DHPC	Unit-I	55.24	220kV DHPC - Tsirang Fdr.	109.89	+	
		Unit-II	55.23	220kV Jigmeling - Dagapela Fdr.	1.20	+	
		-	-	5MVA, 220/33kV TFR			
		Total	110.47	Error at Station/Auxiliary Consumption/Losses	0.525%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Fdr- I	42.07	+	
		Unit-II	16.50	132kV KHP - Kilihar Fdr- II	22.60	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	50.46	+	
		-	-	132kV Motanga - Rangia Fdr.	55.11	+	
		-	-	220kV Tsirang - Jigmeling	76.90	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.561%		

Note: Generation-Load summary for October 06, 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	1,625.55	186.22	170.35	1,362.43	15.87
2	Eastern Grid	659.31	39.18	36.30	697.03	2.88
	Total	2,284.86	225.40	206.65	2,059.46	18.75

Note: Generation-Load Summary for October 06, 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	1348.36	236.92	223.17	1,053.67	13.75
2	Eastern Grid	537.31	40.43	43.04	554.65	-2.61
	Total	1,885.67	277.35	266.21	1,608.32	11.14

NOTES: KHP & MHP 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.