

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	October 6, 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	187.68	400kV THP - Siliguri Fdr- I	229.57	+	
		Unit- II	168.18	400kV THP - Siliguri Fdr- II	227.80	+	
		Unit- III	129.58	400kV THP - Siliguri Fdr- IV	222.71	+	
		Unit- IV	187.09	400kV THP - Malbase Fdr- III	264.18	+	
		Unit- V	99.34	400kV Malbase - Siliguri	207.76	+	
		Unit- VI	186.94	-	-	-	
		Total	958.81	Error at Station/Auxiliary Consumption/Losses	1.518%		
2	720MW MHP	Unit-I	197.93	400kV MHP - Jigmeling Fdr - I	294.97	+	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	197.89	400kV MHP - Jigmeling Fdr - II	0.00	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00	+	
		Unit-IV	197.70	400kV MHP - Jigmeling Fdr - IV	296.07	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	593.52	Error at Station/Auxiliary Consumption/Losses	0.418%		
3	336MW CHP	Unit- I	91.80	220kV CHP - Birpara Fdr- I	116.20	+	
		Unit- II	90.96	220kV CHP - Birpara Fdr- II	115.92	+	
		Unit- III	90.96	220kV CHP - Malbase Fdr- III	152.64	+	
		Unit- IV	91.23	220kV CHP - Semtokha Fdr- IV	-34.88	-	
		-	-	220kV Malbase - Birpara Fdr.	74.49	+	
		-	-	66kV CHP - Chumdo Fdr.	5.31	+	
		-	-	66kV CHP - Gedu Fdr.	7.12	+	
		-	-	3x3MVA, 66/11kV TFR	1.27	+	
		Total	364.95	Error at Station/Auxiliary Consumption/Losses	0.375%		
4	24MW BHP (U/S)	Unit- I	11.83	220kV BHP - Semtokha Fdr.	64.49	+	
		Unit- II	11.83	66kV BHP - Lobeysa Fdr.	17.34	+	
		Total	23.66	220kV BHP - Tsirang Fdr.	-17.58	-	
	40MW BHP (L/S)	Unit- I	20.40	5MVA, 66/11kV TFR	0.63	+	
		Unit- II	20.72	30MVA ICT, 220/66kV			
		Total	41.12	Error at Station/Auxiliary Consumption/Losses	-0.154%		
5	126MW DHPC	Unit-I	53.30	220kV DHPC - Tsirang Fdr.	103.91	+	
		Unit-II	51.26	220kV Jigmeling - Dagapela Fdr.	1.90	+	
		-	-	5MVA, 220/33kV TFR			
		Total	104.56	Error at Station/Auxiliary Consumption/Losses	0.622%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Fdr- I	37.37	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	26.88	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	44.79	+	
		-	-	132kV Motanga - Rangia Fdr.	54.18	+	
		-	-	220kV Tsirang - Jigmeling	84.00	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	2.045%		

Note: Generation-Load Summary for October 06, 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	1,493.10	214.65	200.08	1,194.45	14.57
2	Eastern Grid	659.52	53.51	49.68	690.01	3.83
	Total	2,152.62	268.16	249.76	1,884.46	18.40

Note: Generation-Load Summary for October 06, 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	1275.58	234.66	223.56	969.43	11.10
2	Eastern Grid	342.22	69.56	65.51	344.15	4.05
	Total	1,617.80	304.22	289.07	1,313.58	15.15

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 7, 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	187.28	400kV THP - Siliguri Fdr- I	224.93	+	
		Unit- II	138.90	400kV THP - Siliguri Fdr- II	223.12	+	
		Unit- III	99.24	400kV THP - Siliguri Fdr- IV	217.60	+	
		Unit- IV	187.41	400kV THP - Malbase Fdr- III	220.65	+	
		Unit- V	99.66	400kV Malbase - Siliguri	211.57	+	
		Unit- VI	186.36	-	-	-	
		Total	898.85	Error at Station/Auxiliary Consumption/Losses	1.396%		
2	720MW MHP	Unit-I	197.71	400kV MHP - Jigmeling Fdr - I	294.72	+	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	197.73	400kV MHP - Jigmeling Fdr - II	0.00	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00	+	
		Unit-IV	197.59	400kV MHP - Jigmeling Fdr - IV	295.99	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	593.03	Error at Station/Auxiliary Consumption/Losses	0.391%		
3	336MW CHP	Unit- I	91.62	220kV CHP - Birpara Fdr- I	118.05	+	
		Unit- II	91.60	220kV CHP - Birpara Fdr- II	117.64	+	
		Unit- III	91.97	220kV CHP - Malbase Fdr- III	175.53	+	
		Unit- IV	92.16	220kV CHP - Semtokha Fdr- IV	-55.06	-	
		-	-	220kV Malbase - Birpara Fdr.	59.66	+	
		-	-	66kV CHP - Chumdo Fdr.	1.58	+	
		-	-	66kV CHP - Gedu Fdr.	7.50	+	
		-	-	3x3MVA, 66/11kV TFR	0.81	+	
		Total	367.35	Error at Station/Auxiliary Consumption/Losses	0.354%		
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Fdr.	74.18	+	
		Unit- II	12.20	66kV BHP - Lobeysa Fdr.	15.00	+	
		Total	24.50	220kV BHP - Tsirang Fdr.	-24.00	-	
	40MW BHP (L/S)	Unit- I	20.60	5MVA, 66/11kV TFR	0.83	+	
		Unit- II	21.10	30MVA ICT, 220/66kV			
		Total	41.70	Error at Station/Auxiliary Consumption/Losses	0.456%		
5	126MW DHPC	Unit-I	49.20	220kV DHPC - Tsirang Fdr.	97.89	+	
		Unit-II	49.24	220kV Jigmeling - Dagapela Fdr.	1.10	+	
		-	-	5MVA, 220/33kV TFR			
		Total	98.44	Error at Station/Auxiliary Consumption/Losses	0.559%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	41.93	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	23.09	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	47.33	+	
		-	-	132kV Motanga - Rangia Fdr.	49.98	+	
		-	-	220kV Tsirang - Jigmeling	71.03	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.030%		

Note: Generation-Load summary for October 07, 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	1,430.84	187.24	173.75	1,172.57	13.49
2	Eastern Grid	659.03	42.04	39.04	688.02	3.00
	Total	2,089.87	229.28	212.79	1,860.59	16.49

Note: Generation-Load Summary for October 07, 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	1285.85	222.75	207.52	1,007.36	15.23
2	Eastern Grid	344.078	45.22	48.01	354.60	-2.79
	Total	1,629.93	267.97	255.53	1,361.96	12.44

NOTES: KHP, BHP & 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.