

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	June 22, 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	187.57	400kV THP - Siliguri Fdr- I	267.39	+	
		Unit- II	187.49	400kV THP - Siliguri Fdr- II	265.76	+	
		Unit- III	186.72	400kV THP - Siliguri Fdr- IV	257.31	+	
		Unit- IV	186.55	400kV THP - Malbase Fdr- III	313.45	+	
		Unit- V	187.24	400kV Malbase - Siliguri	239.79	+	
		Unit- VI	185.79	-	-	-	
		Total	1,121.36	Error at Station/Auxiliary Consumption/Losses	17.45		
2	720MW MHP	Unit-I	197.74	400kV MHP - Jigmeling Fdr - I	198.86	+	Unit-III shutdown & 400kV MHP-JLG IV Standby
		Unit-II	197.78	400kV MHP - Jigmeling Fdr - II	198.70	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	193.45	+	
		Unit-IV	197.71	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		Total	593.23	Error at Station/Auxiliary Consumption/Losses	2.22		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	89.21	+	Unit I under shutdown till 30th June,2020.
		Unit- II	91.44	220kV CHP - Birpara Fdr- II	89.21	+	
		Unit- III	91.24	220kV CHP - Malbase Fdr- III	124.84	+	
		Unit- IV	91.35	220kV CHP - Semtokha Fdr- IV	-42.33	-	
		-	-	220kV Malbase - Birpara Fdr.	50.84	+	
		-	-	66kV CHP - Chumdo Fdr.	3.60	+	
		-	-	66kV CHP - Gedu Fdr.	6.61	+	
		-	-	3x3MVA, 66/11kV TFR	1.11	+	
Total	274.03	Error at Station/Auxiliary Consumption/Losses	1.78				
4	24MW BHP (U/S)	Unit- I	11.82	220kV BHP - Semtokha Fdr.	64.79	+	
		Unit- II	11.82	66kV BHP - Lobeysa Fdr.	16.96	+	
		Total	23.64	220kV BHP - Tsirang Fdr.	-17.57	-	
	40MW BHP (L/S)	Unit- I	20.97	5MVA, 66/11kV TFR	0.98	+	
		Unit- II	20.21	30MVA ICT, 220/66kV	0.00		
		Total	41.18	Error at Station/Auxiliary Consumption/Losses	0.34		
5	126MW DHPC	Unit-I	48.32	220kV DHPC - Tsirang Fdr.	97.07	+	
		Unit-II	49.24	220kV Jigmeling - Dagapela Fdr.	1.60	+	
		-	-	5MVA, 220/33kV TFR	0.00		
		Total	97.56	Error at Station/Auxiliary Consumption/Losses	0.49		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	41.41	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	23.49	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.27	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	39.41	+	
		-	-	132kV Motanga - Rangia Fdr.	36.42	+	
		-	-	220kV Tsirang - Jigmeling	75.80	+	
Total	66.00	Error at Station/Auxiliary Consumption/Losses	0.83				

Note: Generation-Load Summary for June 22, 2020 at 19:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	1,557.77	222.46	204.68	1,259.51	17.78
2	Eastern Grid	659.23	68.19	65.14	666.84	3.05
	Total	2,217.00	290.65	269.82	1,926.35	20.83

Note: Generation-Load Summary for June 22, 2019 at 19:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	648.05	228.24	221.55	372.54	6.69
2	Eastern Grid	65.68	67.45	67.02	45.50	0.43
	Total	713.73	295.69	288.57	418.04	7.12

NOTE: KHP,MHEP, 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:	June 23, 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	187.67	400kV THP - Siliguri Fdr- I	354.18	+	400kV THP_SIL II under breakdown.
		Unit- II	187.10	400kV THP - Siliguri Fdr- II	0.00	+	
		Unit- III	187.85	400kV THP - Siliguri Fdr- IV	339.28	+	
		Unit- IV	187.71	400kV THP - Malbase Fdr- III	410.95	+	
		Unit- V	187.44	400kV Malbase - Siliguri	317.46	+	
		Unit- VI	185.55	-	-	-	
		Total	1,123.32	Error at Station/Auxiliary Consumption/Losses	18.91		
2	720MW MHP	Unit-I	197.32	400kV MHP - Jigmeling Fdr - I	196.54	+	Unit-III shutdown & 400kV MHP-JLG IV Standby.
		Unit-II	195.45	400kV MHP - Jigmeling Fdr - II	196.30	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	195.23	+	
		Unit-IV	198.54	400kV MHP - Jigmeling Fdr - IV	0.00	+	
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		Total	591.31	Error at Station/Auxiliary Consumption/Losses	3.24		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	67.57	+	Unit-II under maintenance. Unit-I under shutdown till 30th June, 2020.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	67.60	+	
		Unit- III	91.67	220kV CHP - Malbase Fdr- III	101.78	+	
		Unit- IV	92.83	220kV CHP - Semtokha Fdr- IV	-61.23	-	
		-	-	220kV Malbase - Birpara Fdr.	32.38	+	
		-	-	66kV CHP - Chumdo Fdr.	1.39	+	
		-	-	66kV CHP - Gedu Fdr.	6.11	+	
		-	-	3x3MVA, 66/11kV TFR	0.96	+	
		Total	184.50	Error at Station/Auxiliary Consumption/Losses	0.32		
4	24MW BHP (U/S)	Unit- I	11.82	220kV BHP - Semtokha Fdr.	81.43	+	
		Unit- II	11.82	66kV BHP - Lobeysa Fdr.	16.26	+	
		Total	23.64	220kV BHP - Tsirang Fdr.	-32.14	-	
	40MW BHP (L/S)	Unit- I	21.00	5MVA, 66/11kV TFR	0.42	+	
		Unit- II	20.20	30MVA ICT, 220/66kV			
		Total	41.20	Error at Station/Auxiliary Consumption/Losses	-1.13		
5	126MW DHPC	Unit-I	48.28	220kV DHPC - Tsirang Fdr.	96.06	+	
		Unit-II	48.24	220kV Jigmeling - Dagapela Fdr.	0.90	+	
		-	-	5MVA, 220/33kV TFR			
		Total	96.52	Error at Station/Auxiliary Consumption/Losses	0.46		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	41.86	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	21.93	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.17	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	34.54	+	
		-	-	132kV Motanga - Rangia Fdr.	44.03	+	
		-	-	220kV Tsirang - Jigmeling	61.35	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	2.05		

Note: Generation-Load summary for June 23, 2020 at 09:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	1,469.18	229.36	211.70	1,178.47	17.66
2	Eastern Grid	657.31	52.02	46.74	666.64	5.28
	Total	2,126.49	281.38	258.44	1,845.11	22.94

Note: Generation-Load Summary for June 23, 2019 at 09:00hrs

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	792.94	232.16	219.32	520.18	12.84
2	Eastern Grid	64.77	52.16	51.91	53.21	0.25
	Total	857.71	284.32	271.23	573.39	13.09

NOTES: KHP & Motanga 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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