

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	June 29, 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	186.96	400kV THP - Siliguri Fdr- I	267.58	+	
		Unit- II	187.38	400kV THP - Siliguri Fdr- II	265.43	+	
		Unit- III	186.99	400kV THP - Siliguri Fdr- IV	258.64	+	
		Unit- IV	186.69	400kV THP - Malbase Fdr- III	312.53	+	
		Unit- V	186.92	400kV Malbase - Siliguri	240.46	+	
		Unit- VI	185.65	-	-	-	
		Total	1,120.59	Error at Station/Auxiliary Consumption/Losses		16.41	
2	720MW MHP	Unit-I	197.67	400kV MHP - Jigmeling Fdr - I	255.52	+	400kV MHP-JLG IV Standby.
		Unit-II	196.81	400kV MHP - Jigmeling Fdr - II	256.81	+	
		Unit-III	185.25	400kV MHP - Jigmeling Fdr - III	249.70	+	
		Unit-IV	185.31	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		Total	765.04	Error at Station/Auxiliary Consumption/Losses		3.01	
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	91.39	+	Unit I under shutdown till 30th June,2020.
		Unit- II	91.82	220kV CHP - Birpara Fdr- II	91.29	+	
		Unit- III	91.57	220kV CHP - Malbase Fdr- III	122.38	+	
		Unit- IV	91.35	220kV CHP - Semtokha Fdr- IV	-43.53	-	
		-	-	220kV Malbase - Birpara Fdr.	56.43	+	
		-	-	66kV CHP - Chumdo Fdr.	3.97	+	
		-	-	66kV CHP - Gedu Fdr.	6.65	+	
		-	-	3x3MVA, 66/11kV TFR	1.12	+	
		Total	274.74	Error at Station/Auxiliary Consumption/Losses		1.47	
4	24MW BHP (U/S)	Unit- I	11.83	220kV BHP - Semtokha Fdr.	67.30	+	
		Unit- II	11.83	66kV BHP - Lobeysa Fdr.	17.11	+	
		Total	23.66	220kV BHP - Tsirang Fdr.	-19.31	-	
	40MW BHP (L/S)	Unit- I	20.98	5MVA, 66/11kV TFR	0.54	+	
		Unit- II	20.17	30MVA ICT, 220/66kV	0.00		
		Total	41.15	Error at Station/Auxiliary Consumption/Losses		0.83	
5	126MW DHPC	Unit-I	55.30	220kV DHPC - Tsirang Fdr.	109.94	+	
		Unit-II	55.15	220kV Jigmeling - Dagapela Fdr.	1.60	+	
		-	-	5MVA, 220/33kV TFR	0.00		
		Total	110.45	Error at Station/Auxiliary Consumption/Losses		0.51	
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	39.79	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	24.69	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.25	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	44.57	+	
		-	-	132kV Motanga - Rangia Fdr.	47.61	+	
		-	-	220kV Tsirang - Jigmeling	86.65	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses		1.27	

Note: Generation-Load Summary for June 29, 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	1,570.59	212.72	196.76	1,271.22	15.96
2	Eastern Grid	831.04	63.48	59.20	854.21	4.28
	Total	2,401.63	276.20	255.96	2,125.43	20.24

Note: Generation-Load Summary for June 29, 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	783.81	241.09	236.76	511.60	4.33
2	Eastern Grid	66.05	33.50	31.55	63.67	1.95
	Total	849.86	274.59	268.31	575.27	6.28

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 30, 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	187.74	400kV THP - Siliguri Fdr- I	271.45	+	
		Unit- II	186.49	400kV THP - Siliguri Fdr- II	267.09	+	
		Unit- III	188.13	400kV THP - Siliguri Fdr- IV	260.84	+	
		Unit- IV	186.40	400kV THP - Malbase Fdr- III	304.93	+	
		Unit- V	187.76	400kV Malbase - Siliguri	245.17	+	
		Unit- VI	185.78	-	-	-	
		Total	1,122.30	Error at Station/Auxiliary Consumption/Losses	17.99		
2	720MW MHP	Unit-I	197.87	400kV MHP - Jigmeling Fdr - I	252.85	+	400kV MHP-JLG IV Standby.
		Unit-II	196.53	400kV MHP - Jigmeling Fdr - II	254.02	+	
		Unit-III	181.17	400kV MHP - Jigmeling Fdr - III	247.24	+	
		Unit-IV	181.18	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		Total	756.75	Error at Station/Auxiliary Consumption/Losses	2.64		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	93.71	+	Unit-I under shutdown till 30th June, 2020.
		Unit- II	91.95	220kV CHP - Birpara Fdr- II	93.56	+	
		Unit- III	91.79	220kV CHP - Malbase Fdr- III	138.99	+	
		Unit- IV	92.15	220kV CHP - Semtokha Fdr- IV	-58.72	-	
		-	-	220kV Malbase - Birpara Fdr.	47.33	+	
		-	-	66kV CHP - Chumdo Fdr.	1.53	+	
		-	-	66kV CHP - Gedu Fdr.	6.14	+	
		-	-	3x3MVA, 66/11kV TFR	0.79	+	
		Total	275.89	Error at Station/Auxiliary Consumption/Losses	-0.11		
4	24MW BHP (U/S)	Unit- I	11.85	220kV BHP - Semtokha Fdr.	76.60	+	
		Unit- II	11.85	66kV BHP - Lobeysa Fdr.	15.69	+	
		Total	23.70	220kV BHP - Tsirang Fdr.	-26.89	-	
	40MW BHP (L/S)	Unit- I	20.95	5MVA, 66/11kV TFR	0.41	+	
		Unit- II	20.15	30MVA ICT, 220/66kV			
		Total	41.10	Error at Station/Auxiliary Consumption/Losses	-1.01		
5	126MW DHPC	Unit-I	53.30	220kV DHPC - Tsirang Fdr.	106.00	+	
		Unit-II	53.27	220kV Jigmeling - Dagapela Fdr.	1.30	+	
		-	-	5MVA, 220/33kV TFR			
		Total	106.57	Error at Station/Auxiliary Consumption/Losses	0.57		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	39.79	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	24.69	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.25	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	45.17	+	
		-	-	132kV Motanga - Rangia Fdr.	52.76	+	
		-	-	220kV Tsirang - Jigmeling	76.27	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.27		

Note: Generation-Load summary for June 30, 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	1,569.56	214.14	198.00	1,279.15	16.14
2	Eastern Grid	822.75	46.98	43.07	852.04	3.91
	Total	2,392.31	261.12	241.07	2,131.19	20.05

Note: Generation-Load Summary for June 30, 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	761.17	233.27	223.48	495.92	9.79
2	Eastern Grid	66.05	35.92	35.22	62.11	0.70
	Total	827.22	269.19	258.70	558.03	10.49

NOTES: KHP, MHP & 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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