

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	June 28, 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	186.90	400kV THP - Siliguri Fdr- I	357.28	+	400kV THP_SIL II under breakdown.
		Unit- II	186.94	400kV THP - Siliguri Fdr- II	0.00	+	
		Unit- III	187.34	400kV THP - Siliguri Fdr- IV	340.20	+	
		Unit- IV	186.12	400kV THP - Malbase Fdr- III	404.86	+	
		Unit- V	186.81	400kV Malbase - Siliguri	320.29	+	
		Unit- VI	185.67	-	-	-	
		Total	1,119.78	Error at Station/Auxiliary Consumption/Losses	17.44		
2	720MW MHP	Unit-I	197.79	400kV MHP - Jigmeling Fdr - I	252.16	+	400kV MHP-JLG IV Standby.
		Unit-II	196.81	400kV MHP - Jigmeling Fdr - II	253.72	+	
		Unit-III	180.07	400kV MHP - Jigmeling Fdr - III	246.52	+	
		Unit-IV	180.32	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		Total	754.99	Error at Station/Auxiliary Consumption/Losses	2.59		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	96.53	+	Unit I under shutdown till 30th June,2020.
		Unit- II	92.07	220kV CHP - Birpara Fdr- II	96.16	+	
		Unit- III	91.40	220kV CHP - Malbase Fdr- III	122.65	+	
		Unit- IV	91.49	220kV CHP - Semtokha Fdr- IV	-52.32	-	
		-	-	220kV Malbase - Birpara Fdr.	63.92	+	
		-	-	66kV CHP - Chumdo Fdr.	2.91	+	
		-	-	66kV CHP - Gedu Fdr.	6.54	+	
		-	-	3x3MVA, 66/11kV TFR	1.15	+	
		Total	274.96	Error at Station/Auxiliary Consumption/Losses	1.34		
4	24MW BHP (U/S)	Unit- I	11.85	220kV BHP - Semtokha Fdr.	74.93	+	
		Unit- II	11.85	66kV BHP - Lobeysa Fdr.	16.89	+	
		Total	23.70	220kV BHP - Tsirang Fdr.	-26.33	-	
	40MW BHP (L/S)	Unit- I	20.98	5MVA, 66/11kV TFR	0.59	+	
		Unit- II	20.12	30MVA ICT, 220/66kV	0.00		
		Total	41.10	Error at Station/Auxiliary Consumption/Losses	1.28		
5	126MW DHPC	Unit-I	63.30	220kV DHPC - Tsirang Fdr.	125.94	+	
		Unit-II	63.27	220kV Jigmeling - Dagapela Fdr.	1.50	+	
		-	-	5MVA, 220/33kV TFR	0.00		
		Total	126.57	Error at Station/Auxiliary Consumption/Losses	0.63		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Fdr- I	38.80	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	25.84	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.24	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	50.67	+	
		-	-	132kV Motanga - Rangia Fdr.	54.20	+	
		-	-	220kV Tsirang - Jigmeling	94.83	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.12		

Note: Generation-Load Summary for June 28, 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	1,586.11	216.90	200.27	1,274.38	16.63
2	Eastern Grid	820.99	58.55	54.84	857.27	3.71
	Total	2,407.10	275.45	255.11	2,131.65	20.34

Note: Generation-Load Summary for June 28, 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	1041.02	242.60	235.55	742.83	7.05
2	Eastern Grid	66.54	38.76	38.57	83.37	0.19
	Total	1,107.56	281.36	274.12	826.20	7.24

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 29, 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	186.80	400kV THP - Siliguri Fdr- I	360.93	+	400kV THP_SIL II under breakdown.
		Unit- II	186.90	400kV THP - Siliguri Fdr- II	0.00	+	
		Unit- III	187.02	400kV THP - Siliguri Fdr- IV	345.12	+	
		Unit- IV	186.29	400kV THP - Malbase Fdr- III	399.44	+	
		Unit- V	187.08	400kV Malbase - Siliguri	325.39	+	
		Unit- VI	187.22	-	-	-	
		Total	1,121.31	Error at Station/Auxiliary Consumption/Losses	15.82		
2	720MW MHP	Unit-I	197.75	400kV MHP - Jigmeling Fdr - I	252.32	+	400kV MHP-JLG IV Standby.
		Unit-II	196.38	400kV MHP - Jigmeling Fdr - II	253.51	+	
		Unit-III	180.20	400kV MHP - Jigmeling Fdr - III	246.41	+	
		Unit-IV	180.12	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		Total	754.45	Error at Station/Auxiliary Consumption/Losses	2.21		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	95.80	+	Unit-I under shutdown till 30th June, 2020.
		Unit- II	91.03	220kV CHP - Birpara Fdr- II	95.86	+	
		Unit- III	91.86	220kV CHP - Malbase Fdr- III	132.62	+	
		Unit- IV	91.46	220kV CHP - Semtokha Fdr- IV	-60.27	-	
		-	-	220kV Malbase - Birpara Fdr.	55.87	+	
		-	-	66kV CHP - Chumdo Fdr.	1.79	+	
		-	-	66kV CHP - Gedu Fdr.	6.70	+	
		-	-	3x3MVA, 66/11kV TFR	0.83	+	
		Total	274.35	Error at Station/Auxiliary Consumption/Losses	1.02		
4	24MW BHP (U/S)	Unit- I	11.82	220kV BHP - Semtokha Fdr.	78.58	+	
		Unit- II	11.82	66kV BHP - Lobeysa Fdr.	15.76	+	
		Total	23.64	220kV BHP - Tsirang Fdr.	-28.77	-	
	40MW BHP (L/S)	Unit- I	21.06	5MVA, 66/11kV TFR	0.39	+	
		Unit- II	20.17	30MVA ICT, 220/66kV			
		Total	41.23	Error at Station/Auxiliary Consumption/Losses	-1.09		
5	126MW DHPC	Unit-I	57.24	220kV DHPC - Tsirang Fdr.	112.85	+	
		Unit-II	56.16	220kV Jigmeling - Dagapela Fdr.	1.30	+	
		-	-	5MVA, 220/33kV TFR			
		Total	113.40	Error at Station/Auxiliary Consumption/Losses	0.55		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	41.87	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	22.94	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.27	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	46.69	+	
		-	-	132kV Motanga - Rangia Fdr.	48.82	+	
		-	-	220kV Tsirang - Jigmeling	82.00	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	0.92		

Note: Generation-Load summary for June 29, 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	1,573.93	212.96	197.96	1,278.97	15.00
2	Eastern Grid	820.45	54.70	51.57	847.75	3.13
	Total	2,394.38	267.66	249.53	2,126.72	18.13

Note: Generation-Load Summary for June 29, 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	877.53	232.84	222.96	611.92	9.88
2	Eastern Grid	65.65	37.88	37.73	60.54	0.15
	Total	943.18	270.72	260.69	672.46	10.03

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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