

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	July 31, 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	187.29	400kV THP - Siliguri Fdr- I	268.80	+	
		Unit- II	186.93	400kV THP - Siliguri Fdr- II	265.85	+	
		Unit- III	187.20	400kV THP - Siliguri Fdr- IV	260.06	+	
		Unit- IV	186.24	400kV THP - Malbase Fdr- III	308.36	+	
		Unit- V	187.36	400kV Malbase - Siliguri	243.19	+	
		Unit- VI	186.07	-	-	-	
		Total	1,121.09	Error at Station/Auxiliary Consumption/Losses	1.607%		
2	720MW MHP	Unit-I	197.62	400kV MHP - Jigmeling Fdr - I	198.02	+	400kV MHP-JLG IV Standby. Unit-III under shutdown till 4th August,2020.
		Unit-II	197.76	400kV MHP - Jigmeling Fdr - II	198.87	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	193.29	+	
		Unit-IV	198.21	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	593.59	Error at Station/Auxiliary Consumption/Losses	0.574%		
3	336MW CHP	Unit- I	91.60	220kV CHP - Birpara Fdr- I	123.09	+	
		Unit- II	91.22	220kV CHP - Birpara Fdr- II	122.91	+	
		Unit- III	91.50	220kV CHP - Malbase Fdr- III	152.33	+	
		Unit- IV	91.47	220kV CHP - Semtokha Fdr- IV	-45.68	-	
		-	-	220kV Malbase - Birpara Fdr.	85.62	+	
		-	-	66kV CHP - Chumdo Fdr.	3.55	+	
		-	-	66kV CHP - Gedu Fdr.	7.61	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
		Total	365.79	Error at Station/Auxiliary Consumption/Losses	0.213%		
4	24MW BHP (U/S)	Unit- I	11.80	220kV BHP - Semtokha Fdr.	70.57	+	
		Unit- II	11.80	66kV BHP - Lobeysa Fdr.	17.08	+	
		Total	23.60	220kV BHP - Tsirang Fdr.	-23.38	-	
	40MW BHP (L/S)	Unit- I	19.91	5MVA, 66/11kV TFR	0.60	+	
		Unit- II	19.16	30MVA ICT, 220/66kV			
		Total	39.07	Error at Station/Auxiliary Consumption/Losses	-3.510%		
5	126MW DHPC	Unit-I	63.47	220kV DHPC - Tsirang Fdr.	126.25	+	
		Unit-II	63.40	220kV Jigmeling - Dagapela Fdr.	1.50	+	
		-	-	5MVA, 220/33kV TFR			
		Total	126.87	Error at Station/Auxiliary Consumption/Losses	0.489%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	36.24	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	28.30	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	53.52	+	
		-	-	132kV Motanga - Rangia Fdr.	61.00	+	
		-	-	220kV Tsirang - Jigmeling	97.67	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.603%		

Note: Generation-Load Summary for July 31, 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	1,676.42	209.23	193.51	1,369.52	15.72
2	Eastern Grid	659.59	52.56	48.09	704.70	4.47
	Total	2,336.01	261.79	241.60	2,074.22	20.19

Note: Generation-Load Summary for July 31, 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	1634.21	260.37	250.13	1288.82	10.24
2	Eastern Grid	439	66.88	65.85	457.14	1.03
	Total	2,073.21	327.25	315.98	1,745.96	11.27

NOTE: KHP loads 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:	August 1, 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	188.06	400kV THP - Siliguri Fdr- I	275.04	+	
		Unit- II	186.98	400kV THP - Siliguri Fdr- II	271.97	+	
		Unit- III	187.09	400kV THP - Siliguri Fdr- IV	264.59	+	
		Unit- IV	186.14	400kV THP - Malbase Fdr- III	291.16	+	
		Unit- V	187.16	400kV Malbase - Siliguri	253.63	+	
		Unit- VI	185.84	-	-	-	
		Total	1,121.27	Error at Station/Auxiliary Consumption/Losses	1.651%		
2	720MW MHP	Unit-I	197.51	400kV MHP - Jigmeling Fdr - I	199.90	+	400kV MHP-JLG IV Standby. Unit III under shutdown till 4th August,2020.
		Unit-II	198.24	400kV MHP - Jigmeling Fdr - II	180.00	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	212.70	+	
		Unit-IV	198.50	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	594.25	Error at Station/Auxiliary Consumption/Losses	0.278%		
3	336MW CHP	Unit- I	91.60	220kV CHP - Birpara Fdr- I	121.73	+	
		Unit- II	91.22	220kV CHP - Birpara Fdr- II	121.73	+	
		Unit- III	91.50	220kV CHP - Malbase Fdr- III	180.18	+	
		Unit- IV	91.47	220kV CHP - Semtokha Fdr- IV	-69.17	-	
		-	-	220kV Malbase - Birpara Fdr.	61.48	+	
		-	-	66kV CHP - Chumdo Fdr.	1.18	+	
		-	-	66kV CHP - Gedu Fdr.	7.88	+	
		-	-	3x3MVA, 66/11kV TFR	0.78	+	
		Total	365.79	Error at Station/Auxiliary Consumption/Losses	0.405%		
4	24MW BHP (U/S)	Unit- I	11.84	220kV BHP - Semtokha Fdr.	88.96	+	
		Unit- II	11.84	66kV BHP - Lobeysa Fdr.	16.31	+	
		Total	23.68	220kV BHP - Tsirang Fdr.	-39.92	-	
	40MW BHP (L/S)	Unit- I	20.92	5MVA, 66/11kV TFR	0.49	+	
		Unit- II	20.24	30MVA ICT, 220/66kV			
		Total	41.16	Error at Station/Auxiliary Consumption/Losses	-2.430%		
5	126MW DHPC	Unit-I	63.52	220kV DHPC - Tsirang Fdr.	126.39	+	
		Unit-II	63.49	220kV Jigmeling - Dagapela Fdr.	1.10	+	
		-	-	5MVA, 220/33kV TFR			
		Total	127.01	Error at Station/Auxiliary Consumption/Losses	0.488%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	39.81	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	24.57	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	53.18	+	
		-	-	132kV Motanga - Rangia Fdr.	56.50	+	
		-	-	220kV Tsirang - Jigmeling	83.32	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	2.000%		

Note: Generation-Load summary for August 01, 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	1,678.91	225.42	206.91	1,370.17	18.51
2	Eastern Grid	660.25	41.29	38.32	702.28	2.97
	Total	2,339.16	266.71	245.23	2,072.45	21.48

Note: Generation-Load Summary for August 01, 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	1646.01	227.50	217.26	1,347.49	10.24
2	Eastern Grid	438.5	44.51	42.69	465.01	1.82
	Total	2,084.51	272.01	259.95	1,812.50	12.06

NOTES: KHP 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.
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