

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	May 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	137.96	400kV THP - Siliguri Fdr- I	235.62	+	Unit III standby. 400kV Malbase-Siliguri under shutdown from 28.05.2020 to 29.05.2020
		Unit- II	149.62	400kV THP - Siliguri Fdr- II	233.41	+	
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	228.31	+	
		Unit- IV	168.81	400kV THP - Malbase Fdr- III	86.64	+	
		Unit- V	169.76	400kV Malbase - Siliguri	0.00	+	
		Unit- VI	169.67	-	-	-	
		Total	795.82	Error at Station/Auxiliary Consumption/Losses	11.84		
2	720MW MHP	Unit-I	159.60	400kV MHP - Jigmeling Fdr - I	167.30	+	Unit II & 400kV MHP-JLG IV Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	166.10	+	
		Unit-III	159.50	400kV MHP - Jigmeling Fdr - III	140.40	+	
		Unit-IV	155.88	400kV MHP - Jigmeling Fdr - IV	0.00	+	
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		Total	474.98	Error at Station/Auxiliary Consumption/Losses	1.18		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	68.47	+	Unit-I under shutdown till 30th June, 2020.
		Unit- II	90.67	220kV CHP - Birpara Fdr- II	68.34	+	
		Unit- III	90.80	220kV CHP - Malbase Fdr- III	98.11	+	
		Unit- IV	91.08	220kV CHP - Semtokha Fdr- IV	24.15	+	
		-	-	220kV Malbase - Birpara Fdr.	37.83	+	
		-	-	66kV CHP - Chumdo Fdr.	8.58	+	
		-	-	66kV CHP - Gedu Fdr.	4.47	+	
		-	-	3x3MVA, 66/11kV TFR	1.39	+	
		Total	272.55	Error at Station/Auxiliary Consumption/Losses	-0.96		
4	24MW BHP (U/S)	Unit- I	9.48	220kV BHP - Semtokha Fdr.	10.88	+	U/S unit II standby
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	12.00	+	
		Total	9.48	220kV BHP - Tsirang Fdr.	6.59	+	
	40MW BHP (L/S)	Unit- I	10.75	5MVA, 66/11kV TFR	0.93	+	
		Unit- II	10.27	30MVA ICT, 220/66kV	0.00		
		Total	21.02	Error at Station/Auxiliary Consumption/Losses	0.10		
5	126MW DHPC	Unit-I	45.28	220kV DHPC - Tsirang Fdr.	0.00	+	DHP Unit-II standby. 220kV DHP-TSI line under breakdown.
		Unit-II	0.00	220kV DHP - Dagapela Fdr.	41.97		
		-	-	5MVA, 220/33kV TFR	0.00		
		Total	45.28	Error at Station/Auxiliary Consumption/Losses	3.31		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	56.98	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	7.60	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.25	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	20.58	+	
		-	-	132kV Motanga - Rangia Fdr.	44.38	+	
		-	-	220kV Tsirang - Jigmeling	4.70	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.17		

Note: Generation-Load Summary for May 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	1,144.15	222.19	211.21	871.98	10.98
2	Eastern Grid	540.98	48.89	46.54	538.76	2.35
	Total	1,685.13	271.08	257.75	1,410.74	13.33

Note: Generation-Load Summary for May 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	685.66	261.81	269.32	390.65	-7.51
2	Eastern Grid	65.62	57.72	57.22	41.10	0.50
	Total	751.28	319.53	326.54	431.75	-7.01

NOTE: KHP & Motanga 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:	May 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	138.11	400kV THP - Siliguri Fdr- I	212.15	+	Unit III standby. 400kV Malbase-Siliguri under shutdown from 28.05.2020 to 29.05.2020
		Unit- II	150.70	400kV THP - Siliguri Fdr- II	207.65	+	
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	205.46	+	
		Unit- IV	170.71	400kV THP - Malbase Fdr- III	62.65	+	
		Unit- V	119.97	400kV Malbase - Siliguri	0.00	+	
		Unit- VI	120.69	-	-	-	
		Total	700.18	Error at Station/Auxiliary Consumption/Losses	12.27		
2	720MW MHP	Unit-I	160.00	400kV MHP - Jigmeling Fdr - I	109.00	+	MHP unit-II & 400kV MHP-JLG IV Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	109.00	+	
		Unit-III	80.00	400kV MHP - Jigmeling Fdr - III	103.00	+	
		Unit-IV	81.00	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		Total	321.00	Error at Station/Auxiliary Consumption/Losses	0.00		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	72.12	+	Unit-I under shutdown till 30th June, 2020.
		Unit- II	92.00	220kV CHP - Birpara Fdr- II	71.87	+	
		Unit- III	92.00	220kV CHP - Malbase Fdr- III	113.64	+	
		Unit- IV	92.00	220kV CHP - Semtokha Fdr- IV	4.88	-	
		-	-	220kV Malbase - Birpara Fdr.	31.37	+	
		-	-	66kV CHP - Chumdo Fdr.	5.24	+	
		-	-	66kV CHP - Gedu Fdr.	4.78	+	
		-	-	3x3MVA, 66/11kV TFR	0.84	+	
		Total	276.00	Error at Station/Auxiliary Consumption/Losses	2.63		
4	24MW BHP (U/S)	Unit- I	9.00	220kV BHP - Semtokha Fdr.	29.27	+	U/S Unit-II Standby
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	10.05	+	
		Total	9.00	220kV BHP - Tsirang Fdr.	-7.07	-	
	40MW BHP (L/S)	Unit- I	9.74	5MVA, 66/11kV TFR	0.39	+	
		Unit- II	9.35	30MVA ICT, 220/66kV			
		Total	19.09	Error at Station/Auxiliary Consumption/Losses	-4.55		
5	126MW DHPC	Unit-I	42.24	220kV DHPC - Tsirang Fdr.	0.00	+	DHP Unit-II standby. 220kV DHP-TSI line under breakdown.
		Unit-II	0.00	220kV DHP - Dagapela Fdr.	41.00		
		-	-	5MVA, 220/33kV TFR			
		Total	42.24	Error at Station/Auxiliary Consumption/Losses	1.24		
6	60MW KHP	Unit- I	16.49	132kV KHP - Nangkhon Fdr- I	61.51	+	
		Unit-II	16.34	132kV KHP - Kilihar Fdr- II	2.86	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.21	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	19.25	+	
		-	-	132kV Motanga - Rangia Fdr.	42.00	+	
		-	-	220kV Tsirang - Jigmeling	-4.50	+	
		Total	65.83	Error at Station/Auxiliary Consumption/Losses	1.25		

Note: Generation-Load summary for May 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	1,046.51	208.15	197.80	800.62	10.35
2	Eastern Grid	386.83	41.08	39.83	382.25	1.25
	Total	1,433.34	249.23	237.63	1,182.87	11.60

Note: Generation-Load Summary for May 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	470.06	235.05	229.10	216.51	5.95
2	Eastern Grid	65.68	43.08	42.42	41.10	0.66
	Total	535.74	278.13	271.52	257.61	6.61

NOTES: KHP & Motanga 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.
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