

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	August 18, 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	187.16	400kV THP - Siliguri Fdr- I	269.95	+	
		Unit- II	187.73	400kV THP - Siliguri Fdr- II	267.81	+	
		Unit- III	187.16	400kV THP - Siliguri Fdr- IV	260.52	+	
		Unit- IV	187.50	400kV THP - Malbase Fdr- III	308.73	+	
		Unit- V	187.32	400kV Malbase - Siliguri	243.67	+	
		Unit- VI	187.44	-	-	-	
		Total	1,124.31	Error at Station/Auxiliary Consumption/Losses	1.539%		
2	720MW MHP	Unit-I	197.38	400kV MHP - Jigmeling Fdr - I	264.70	+	400kV MHP-JLG IV Standby
		Unit-II	197.82	400kV MHP - Jigmeling Fdr - II	246.80	+	
		Unit-III	195.50	400kV MHP - Jigmeling Fdr - III	275.70	+	
		Unit-IV	196.85	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	787.55	Error at Station/Auxiliary Consumption/Losses	0.044%		
3	336MW CHP	Unit- I	91.30	220kV CHP - Birpara Fdr- I	124.96	+	
		Unit- II	90.99	220kV CHP - Birpara Fdr- II	125.06	+	
		Unit- III	91.64	220kV CHP - Malbase Fdr- III	159.13	+	
		Unit- IV	91.62	220kV CHP - Semtokha Fdr- IV	-57.85	-	
		-	-	220kV Malbase - Birpara Fdr.	85.09	+	
		-	-	66kV CHP - Chumdo Fdr.	4.72	+	
		-	-	66kV CHP - Gedu Fdr.	6.13	+	
		-	-	3x3MVA, 66/11kV TFR	1.27	+	
		Total	365.55	Error at Station/Auxiliary Consumption/Losses	0.583%		
4	24MW BHP (U/S)	Unit- I	11.83	220kV BHP - Semtokha Fdr.	84.85	+	
		Unit- II	11.83	66kV BHP - Lobeysa Fdr.	17.60	+	
		Total	23.66	220kV BHP - Tsirang Fdr.	-37.47	-	
	40MW BHP (L/S)	Unit- I	21.03	5MVA, 66/11kV TFR	0.77	+	
		Unit- II	20.16	30MVA ICT, 220/66kV			
		Total	41.19	Error at Station/Auxiliary Consumption/Losses	-1.388%		
5	126MW DHPC	Unit-I	63.46	220kV DHPC - Tsirang Fdr.	126.36	+	
		Unit-II	63.54	220kV Jigmeling - Dagapela Fdr.	1.80	+	
		-	-	5MVA, 220/33kV TFR			
		Total	127.00	Error at Station/Auxiliary Consumption/Losses	0.504%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Fdr- I	40.73	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	24.18	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.31	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	64.78	+	
		-	-	132kV Motanga - Rangia Fdr.	33.53	+	
		-	-	220kV Tsirang - Jigmeling	85.61	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	1.182%		

Note: Generation-Load Summary for August 18, 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	1,681.71	219.04	201.67	1,377.06	17.37
2	Eastern Grid	853.55	53.65	52.52	885.51	1.13
	Total	2,535.26	272.69	254.19	2,262.57	18.50

Note: Generation-Load Summary for August 18, 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	1,642.86	249.86	231.31	1301.98	18.55
2	Eastern Grid	614.36	55.03	68.10	650.35	-13.07
	Total	2,257.22	304.89	299.41	1,952.33	5.48

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 19, 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	186.71	400kV THP - Siliguri Fdr- I	276.60	+	
		Unit- II	186.46	400kV THP - Siliguri Fdr- II	273.69	+	
		Unit- III	188.14	400kV THP - Siliguri Fdr- IV	266.53	+	
		Unit- IV	185.72	400kV THP - Malbase Fdr- III	285.09	+	
		Unit- V	187.76	400kV Malbase - Siliguri	256.16	+	
		Unit- VI	186.47	-	-	-	
		Total	1,121.26	Error at Station/Auxiliary Consumption/Losses	1.726%		
2	720MW MHP	Unit-I	197.62	400kV MHP - Jigmeling Fdr - I	265.00	+	400kV MHP-JLG IV Standby.
		Unit-II	197.97	400kV MHP - Jigmeling Fdr - II	246.90	+	
		Unit-III	195.63	400kV MHP - Jigmeling Fdr - III	275.80	+	
		Unit-IV	196.85	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		Total	788.07	Error at Station/Auxiliary Consumption/Losses	0.047%		
3	336MW CHP	Unit- I	91.52	220kV CHP - Birpara Fdr- I	114.64	+	
		Unit- II	90.95	220kV CHP - Birpara Fdr- II	114.92	+	
		Unit- III	91.58	220kV CHP - Malbase Fdr- III	167.37	+	
		Unit- IV	91.16	220kV CHP - Semtokha Fdr- IV	-41.56	-	
		-	-	220kV Malbase - Birpara Fdr.	61.20	+	
		-	-	66kV CHP - Chumdo Fdr.	2.20	+	
		-	-	66kV CHP - Gedu Fdr.	5.57	+	
		-	-	3x3MVA, 66/11kV TFR	0.78	+	
		Total	365.21	Error at Station/Auxiliary Consumption/Losses	0.353%		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	59.88	+	US & LS unit I under MTC
		Unit- II	11.86	66kV BHP - Lobeysa Fdr.	10.57	+	
		Total	11.86	220kV BHP - Tsirang Fdr.	-37.65	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.43	+	
		Unit- II	20.97	30MVA ICT, 220/66kV			
Total	20.97	Error at Station/Auxiliary Consumption/Losses	-1.907%				
5	126MW DHPC	Unit-I	63.52	220kV DHPC - Tsirang Fdr.	126.59	+	
		Unit-II	63.53	220kV Jigmeling - Dagapela Fdr.	1.00	+	
		-	-	5MVA, 220/33kV TFR			
		Total	127.05	Error at Station/Auxiliary Consumption/Losses	0.362%		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	40.25	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	24.22	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.10	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	54.90	+	
		-	-	132kV Motanga - Rangia Fdr.	53.10	+	
		-	-	220kV Tsirang - Jigmeling	85.01	+	
		Total	66.00	Error at Station/Auxiliary Consumption/Losses	2.167%		

Note: Generation-Load summary for August 19, 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	1,646.35	197.60	177.90	1,363.74	19.70
2	Eastern Grid	854.07	43.38	41.58	895.70	1.80
	Total	2,500.42	240.98	219.48	2,259.44	21.50

Note: Generation-Load Summary for August 19, 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	1638.85	232.39	210.44	1,333.33	21.95
2	Eastern Grid	615.62	40.05	51.54	648.70	-11.49
	Total	2,254.47	272.44	261.98	1,982.03	10.46

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.
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