

**BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT**

Maximum Load/Demand till Date

Date:	August 10, 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	187.52	400kV THP - Siliguri Fdr- I	269.23	+	
		Unit- II	187.77	400kV THP - Siliguri Fdr- II	265.43	+	
		Unit- III	186.99	400kV THP - Siliguri Fdr- IV	259.14	+	
		Unit- IV	188.38	400kV THP - Malbase Fdr- III	311.08	+	
		Unit- V	186.59	400kV Malbase - Siliguri	242.64	+	
		Unit- VI	185.74	-	-	-	
		<b>Total</b>	<b>1,122.99</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.613%</b>		
2	720MW MHP	Unit-I	197.76	400kV MHP - Jigmeling Fdr - I	259.66	+	400kV MHP-JLG IV Standby.
		Unit-II	197.92	400kV MHP - Jigmeling Fdr - II	260.57	+	
		Unit-III	191.76	400kV MHP - Jigmeling Fdr - III	253.35	+	
		Unit-IV	190.76	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>778.20</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.594%</b>		
3	336MW CHP	Unit- I	91.70	220kV CHP - Birpara Fdr- I	120.56	+	
		Unit- II	90.97	220kV CHP - Birpara Fdr- II	120.48	+	
		Unit- III	91.49	220kV CHP - Malbase Fdr- III	149.84	+	
		Unit- IV	91.35	220kV CHP - Semtokha Fdr- IV	-40.03	-	
		-	-	220kV Malbase - Birpara Fdr.	84.48	+	
		-	-	66kV CHP - Chumdo Fdr.	4.71	+	
		-	-	66kV CHP - Gedu Fdr.	6.84	+	
		-	-	3x3MVA, 66/11kV TFR	1.31	+	
		<b>Total</b>	<b>365.51</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.492%</b>		
4	24MW BHP (U/S)	Unit- I	11.83	220kV BHP - Semtokha Fdr.	66.81	+	
		Unit- II	11.83	66kV BHP - Lobeysa Fdr.	17.71	+	
		<b>Total</b>	<b>23.66</b>	220kV BHP - Tsirang Fdr.	-19.68	-	
	40MW BHP (L/S)	Unit- I	21.01	5MVA, 66/11kV TFR	0.65	+	
		Unit- II	20.08	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>41.09</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-1.143%</b>		
5	126MW DHPC	Unit-I	63.39	220kV DHPC - Tsirang Fdr.	126.22	+	
		Unit-II	63.48	220kV Jigmeling - Dagapela Fdr.	1.80	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>126.87</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.512%</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	36.62	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	28.42	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.32	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	47.36	+	
		-	-	132kV Motanga - Rangia Fdr.	53.65	+	
		-	-	220kV Tsirang - Jigmeling	104.00	+	
		<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.970%</b>		

**Note: Generation-Load Summary for August 10, 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	1,680.12	214.16	196.14	1,361.96	18.02
2	Eastern Grid	844.20	73.61	68.35	874.59	5.26
	<b>Total</b>	<b>2,524.32</b>	<b>287.77</b>	<b>264.49</b>	<b>2,236.55</b>	<b>23.28</b>

**Note: Generation-Load Summary for August 10, 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	1,478.14	235.28	224.78	1,158.65	10.50
2	Eastern Grid	479.93	72.49	70.97	491.65	1.52
	<b>Total</b>	<b>1,958.07</b>	<b>307.77</b>	<b>295.75</b>	<b>1,650.30</b>	<b>12.02</b>

**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.

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**Maximum Load/Demand till Date**

<b>Date:</b>	<b>August 11, 2020</b>
<b>Hours:</b>	<b>09:00 Hours</b>

<b>Date</b>	<b>Time</b>	<b>Load(MW)</b>
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	187.24	400kV THP - Siliguri Fdr- I	277.81	+	
		Unit- II	187.83	400kV THP - Siliguri Fdr- II	274.96	+	
		Unit- III	187.49	400kV THP - Siliguri Fdr- IV	266.11	+	
		Unit- IV	188.82	400kV THP - Malbase Fdr- III	284.08	+	
		Unit- V	187.75	400kV Malbase - Siliguri	259.68	+	
		Unit- VI	186.22	-	-	-	
		<b>Total</b>	<b>1,125.35</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.990%</b>		
2	720MW MHP	Unit-I	197.46	400kV MHP - Jigmeling Fdr - I	261.70	+	400kV MHP-JLG IV Standby.
		Unit-II	197.25	400kV MHP - Jigmeling Fdr - II	242.80	+	
		Unit-III	190.40	400kV MHP - Jigmeling Fdr - III	272.20	+	
		Unit-IV	190.94	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>776.05</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.084%</b>		
3	336MW CHP	Unit- I	91.63	220kV CHP - Birpara Fdr- I	124.13	+	
		Unit- II	91.01	220kV CHP - Birpara Fdr- II	124.12	+	
		Unit- III	91.38	220kV CHP - Malbase Fdr- III	179.65	+	
		Unit- IV	91.25	220kV CHP - Semtokha Fdr- IV	-72.12	-	
		-	-	220kV Malbase - Birpara Fdr.	66.04	+	
		-	-	66kV CHP - Chumdo Fdr.	0.82	+	
		-	-	66kV CHP - Gedu Fdr.	6.73	+	
		-	-	3x3MVA, 66/11kV TFR	0.77	+	
		<b>Total</b>	<b>365.27</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.320%</b>		
4	24MW BHP (U/S)	Unit- I	11.84	220kV BHP - Semtokha Fdr.	86.98	+	
		Unit- II	11.84	66kV BHP - Lobeysa Fdr.	14.77	+	
		<b>Total</b>	<b>23.68</b>	220kV BHP - Tsirang Fdr.	-36.21	-	
	40MW BHP (L/S)	Unit- I	20.96	5MVA, 66/11kV TFR	0.39	+	
		Unit- II	20.15	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>41.11</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-2.773%</b>		
5	126MW DHPC	Unit-I	63.50	220kV DHPC - Tsirang Fdr.	126.42	+	
		Unit-II	63.56	220kV Jigmeling - Dagapela Fdr.	1.10	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>127.06</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.504%</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Fdr- I	40.58	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	23.93	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.09	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	53.21	+	
		-	-	132kV Motanga - Rangia Fdr.	57.96	+	
		-	-	220kV Tsirang - Jigmeling	81.82	+	
		<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.120%</b>		

**Note: Generation-Load summary for August 11, 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	1,682.47	207.80	185.84	1,392.85	21.96
2	Eastern Grid	842.05	36.00	35.25	887.87	0.75
	<b>Total</b>	<b>2,524.52</b>	<b>243.80</b>	<b>221.09</b>	<b>2,280.72</b>	<b>22.71</b>

**Note: Generation-Load Summary for August 11, 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	1384.01	226.73	214.00	1,076.61	12.73
2	Eastern Grid	440.6	53.25	49.89	468.02	3.36
	<b>Total</b>	<b>1,824.61</b>	<b>279.98</b>	<b>263.89</b>	<b>1,544.63</b>	<b>16.09</b>

**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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