

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

Maximum Load/Demand till Date

Date:	August 8, 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	189.58	400kV THP - Siliguri Fdr- I	265.07	+	
		Unit- II	179.59	400kV THP - Siliguri Fdr- II	263.88	+	
		Unit- III	185.75	400kV THP - Siliguri Fdr- IV	255.13	+	
		Unit- IV	185.53	400kV THP - Malbase Fdr- III	312.53	+	
		Unit- V	186.10	400kV Malbase - Siliguri	240.15	+	
		Unit- VI	187.47	-	-	-	
		<b>Total</b>	<b>1,114.02</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.563%</b>		
2	720MW MHP	Unit-I	197.69	400kV MHP - Jigmeling Fdr - I	260.24	+	400kV MHP-JLG IV Standby.
		Unit-II	196.06	400kV MHP - Jigmeling Fdr - II	242.00	+	
		Unit-III	191.72	400kV MHP - Jigmeling Fdr - III	272.30	+	
		Unit-IV	190.61	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>776.08</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.198%</b>		
3	336MW CHP	Unit- I	91.29	220kV CHP - Birpara Fdr- I	124.13	+	
		Unit- II	91.09	220kV CHP - Birpara Fdr- II	124.24	+	
		Unit- III	91.53	220kV CHP - Malbase Fdr- III	153.81	+	
		Unit- IV	91.79	220kV CHP - Semtokha Fdr- IV	-51.23	-	
		-	-	220kV Malbase - Birpara Fdr.	87.40	+	
		-	-	66kV CHP - Chumdo Fdr.	4.43	+	
		-	-	66kV CHP - Gedu Fdr.	7.57	+	
		-	-	3x3MVA, 66/11kV TFR	1.37	+	
		<b>Total</b>	<b>365.70</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.377%</b>		
4	24MW BHP (U/S)	Unit- I	11.83	220kV BHP - Semtokha Fdr.	78.84	+	
		Unit- II	11.83	66kV BHP - Lobeysa Fdr.	18.23	+	
		<b>Total</b>	<b>23.66</b>	220kV BHP - Tsirang Fdr.	-32.16	-	
	40MW BHP (L/S)	Unit- I	20.84	5MVA, 66/11kV TFR	0.69	+	
		Unit- II	19.95	30MVA ICT, 220/66kV			
<b>Total</b>	<b>40.79</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-1.784%</b>				
5	126MW DHPC	Unit-I	63.39	220kV DHPC - Tsirang Fdr.	126.37	+	
		Unit-II	63.46	220kV Jigmeling - Dagapela Fdr.	1.90	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>126.85</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.378%</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	40.75	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	23.95	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.25	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	55.83	+	
		-	-	132kV Motanga - Rangia Fdr.	34.09	+	
		-	-	220kV Tsirang - Jigmeling	89.61	+	
		<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.591%</b>		

**Note: Generation-Load Summary for August 08, 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	1,671.02	221.41	205.19	1,360.00	16.22
2	Eastern Grid	842.08	67.23	64.64	864.46	2.59
	<b>Total</b>	<b>2,513.10</b>	<b>288.64</b>	<b>269.83</b>	<b>2,224.46</b>	<b>18.81</b>

**Note: Generation-Load Summary for August 08, 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	1,591.67	247.50	226.17	1,251.24	21.33
2	Eastern Grid	439.1	57.50	57.79	474.53	-0.29
	<b>Total</b>	<b>2,030.77</b>	<b>305.00</b>	<b>283.96</b>	<b>1,725.77</b>	<b>21.04</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.

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

Maximum Load/Demand till Date

Date:	August 9, 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	187.36	400kV THP - Siliguri Fdr- I	275.92	+	
		Unit- II	186.87	400kV THP - Siliguri Fdr- II	276.67	+	
		Unit- III	188.13	400kV THP - Siliguri Fdr- IV	267.28	+	
		Unit- IV	188.59	400kV THP - Malbase Fdr- III	283.67	+	
		Unit- V	185.60	400kV Malbase - Siliguri	258.66	+	
		Unit- VI	186.14	-	-	-	
		<b>Total</b>	<b>1,122.69</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.706%</b>		
2	720MW MHP	Unit-I	197.41	400kV MHP - Jigmeling Fdr - I	261.20	+	400kV MHP-JLG IV Standby.
		Unit-II	195.83	400kV MHP - Jigmeling Fdr - II	242.20	+	
		Unit-III	190.34	400kV MHP - Jigmeling Fdr - III	271.60	+	
		Unit-IV	190.86	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>774.44</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.072%</b>		
3	336MW CHP	Unit- I	91.51	220kV CHP - Birpara Fdr- I	124.96	+	
		Unit- II	91.09	220kV CHP - Birpara Fdr- II	125.16	+	
		Unit- III	91.71	220kV CHP - Malbase Fdr- III	173.81	+	
		Unit- IV	91.47	220kV CHP - Semtokha Fdr- IV	-68.59	-	
		-	-	220kV Malbase - Birpara Fdr.	71.59	+	
		-	-	66kV CHP - Chumdo Fdr.	1.20	+	
		-	-	66kV CHP - Gedu Fdr.	7.29	+	
		-	-	3x3MVA, 66/11kV TFR	0.54	+	
		<b>Total</b>	<b>365.78</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.385%</b>		
4	24MW BHP (U/S)	Unit- I	11.83	220kV BHP - Semtokha Fdr.	87.59	+	
		Unit- II	11.83	66kV BHP - Lobeysa Fdr.	15.99	+	
		<b>Total</b>	<b>23.66</b>	220kV BHP - Tsirang Fdr.	-38.11	-	
	40MW BHP (L/S)	Unit- I	21.08	5MVA, 66/11kV TFR	0.45	+	
		Unit- II	20.16	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>41.24</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-2.473%</b>		
5	126MW DHPC	Unit-I	63.39	220kV DHPC - Tsirang Fdr.	126.26	+	
		Unit-II	63.40	220kV Jigmeling - Dagapela Fdr.	1.40	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>126.79</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.418%</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Fdr- I	0.00	+	132kV KHP-NKO under shutdown.
		Unit-II	16.50	132kV KHP - Kilihar Fdr- II	64.90	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.27	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	59.81	+	
		-	-	132kV Motanga - Rangia Fdr.	37.90	+	
		-	-	220kV Tsirang - Jigmeling	83.49	+	
		<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.258%</b>		

Note: Generation-Load summary for August 09, 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	1,680.16	196.43	177.76	1,400.24	18.67
2	Eastern Grid	840.44	51.22	50.95	872.71	0.27
	<b>Total</b>	<b>2,520.60</b>	<b>247.65</b>	<b>228.71</b>	<b>2,272.95</b>	<b>18.94</b>

Note: Generation-Load Summary for August 09, 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	1589.42	240.71	222.96	1,262.32	17.75
2	Eastern Grid	439	41.23	40.71	484.16	0.52
	<b>Total</b>	<b>2,028.42</b>	<b>281.94</b>	<b>263.67</b>	<b>1,746.48</b>	<b>18.27</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.
  - 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.