

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

Maximum Load/Demand till Date

Date:	September 7, 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	188.58	400kV THP - Siliguri Fdr- I	230.49	+	Unit-III tripped.
		Unit- II	189.10	400kV THP - Siliguri Fdr- II	229.42	+	
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	223.18	+	
		Unit- IV	186.30	400kV THP - Malbase Fdr- III	249.80	+	
		Unit- V	189.67	400kV Malbase - Siliguri	211.54	+	
		Unit- VI	189.49	-	-	-	
		<b>Total</b>	<b>943.14</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.087%</b>		
2	720MW MHP	Unit-I	197.87	400kV MHP - Jigmeling Fdr - I	256.50	+	400kV MHP-JLG II Breakdown
		Unit-II	197.97	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	197.80	400kV MHP - Jigmeling Fdr - III	264.71	+	
		Unit-IV	197.22	400kV MHP - Jigmeling Fdr - IV	265.05	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>790.86</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.582%</b>		
3	336MW CHP	Unit- I	91.24	220kV CHP - Birpara Fdr- I	120.76	+	
		Unit- II	91.50	220kV CHP - Birpara Fdr- II	120.72	+	
		Unit- III	91.49	220kV CHP - Malbase Fdr- III	156.22	+	
		Unit- IV	91.39	220kV CHP - Semtokha Fdr- IV	-45.63	-	
		-	-	220kV Malbase - Birpara Fdr.	79.59	+	
		-	-	66kV CHP - Chumdo Fdr.	5.32	+	
		-	-	66kV CHP - Gedu Fdr.	6.09	+	
		-	-	3x3MVA, 66/11kV TFR	1.34	+	
		<b>Total</b>	<b>365.62</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.219%</b>		
4	24MW BHP (U/S)	Unit- I	11.85	220kV BHP - Semtokha Fdr.	75.42	+	
		Unit- II	11.85	66kV BHP - Lobeysa Fdr.	18.19	+	
		<b>Total</b>	<b>23.70</b>	220kV BHP - Tsirang Fdr.	-28.23	-	
	40MW BHP (L/S)	Unit- I	20.44	5MVA, 66/11kV TFR	0.70	+	
		Unit- II	20.73	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>41.17</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-1.865%</b>		
5	126MW DHPC	Unit-I	63.60	220kV DHPC - Tsirang Fdr.	126.47	+	
		Unit-II	63.54	220kV Jigmeling - Dagapela Fdr.	2.10	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>127.14</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.527%</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Fdr- I	37.01	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	27.69	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.29	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	47.28	+	
		-	-	132kV Motanga - Rangia Fdr.	52.32	+	
		-	-	220kV Tsirang - Jigmeling	93.61	+	
		<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.530%</b>		

**Note: Generation-Load Summary for September 07, 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	1,500.77	191.46	183.05	1,215.70	8.41
2	Eastern Grid	856.86	64.61	59.00	885.86	5.61
	<b>Total</b>	<b>2,357.63</b>	<b>256.07</b>	<b>242.05</b>	<b>2,101.56</b>	<b>14.02</b>

**Note: Generation-Load Summary for September 07, 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	1,555.19	243.62	224.81	1229.85	18.81
2	Eastern Grid	249.68	65.72	64.28	265.68	1.44
	<b>Total</b>	<b>1,804.87</b>	<b>309.34</b>	<b>289.09</b>	<b>1,495.53</b>	<b>20.25</b>

**NOTES: KHP load 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:	September 8, 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	187.73	400kV THP - Siliguri Fdr- I	278.36	+	
		Unit- II	187.63	400kV THP - Siliguri Fdr- II	276.14	+	
		Unit- III	187.38	400kV THP - Siliguri Fdr- IV	270.06	+	
		Unit- IV	186.63	400kV THP - Malbase Fdr- III	280.32	+	
		Unit- V	188.33	400kV Malbase - Siliguri	259.57	+	
		Unit- VI	186.32	-	-	-	
		<b>Total</b>	<b>1,124.02</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.703%</b>		
2	720MW MHP	Unit-I	198.00	400kV MHP - Jigmeling Fdr - I	255.40	+	400kV MHP-JLG II Breakdown
		Unit-II	199.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	198.00	400kV MHP - Jigmeling Fdr - III	282.50	+	
		Unit-IV	199.00	400kV MHP - Jigmeling Fdr - IV	258.40	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>794.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.290%</b>		
3	336MW CHP	Unit- I	91.37	220kV CHP - Birpara Fdr- I	124.29	+	
		Unit- II	91.47	220kV CHP - Birpara Fdr- II	124.14	+	
		Unit- III	90.51	220kV CHP - Malbase Fdr- III	176.31	+	
		Unit- IV	91.75	220kV CHP - Semtokha Fdr- IV	-67.24	-	
		-	-	220kV Malbase - Birpara Fdr.	69.25	+	
		-	-	66kV CHP - Chumdo Fdr.	1.07	+	
		-	-	66kV CHP - Gedu Fdr.	6.24	+	
		-	-	3x3MVA, 66/11kV TFR	0.93	+	
		<b>Total</b>	<b>365.10</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.175%</b>		
4	24MW BHP (U/S)	Unit- I	11.84	220kV BHP - Semtokha Fdr.	86.18	+	
		Unit- II	11.84	66kV BHP - Lobeysa Fdr.	16.22	+	
		<b>Total</b>	<b>23.68</b>	220kV BHP - Tsirang Fdr.	-37.00	-	
	40MW BHP (L/S)	Unit- I	20.46	5MVA, 66/11kV TFR	0.38		
		Unit- II	20.72	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>41.18</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-2.234%</b>		
5	126MW DHPC	Unit-I	60.33	220kV DHPC - Tsirang Fdr.	120.02	+	
		Unit-II	60.28	220kV Jigmeling - Dagapela Fdr.	1.40	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>120.61</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.489%</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	40.90	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	23.46	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	52.14	+	
		-	-	132kV Motanga - Rangia Fdr.	46.75	+	
		-	-	220kV Tsirang - Jigmeling	80.74	+	
		<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.030%</b>		

**Note: Generation-Load summary for September 08, 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	1,674.59	192.04	175.27	1,401.81	16.77
2	Eastern Grid	860.00	45.55	46.51	895.19	-0.96
	<b>Total</b>	<b>2,534.59</b>	<b>237.59</b>	<b>221.78</b>	<b>2,297.00</b>	<b>15.81</b>

**Note: Generation-Load Summary for September 08, 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	1532.57	224.76	206.97	1,262.78	17.79
2	Eastern Grid	446.95	49.96	47.47	442.02	2.49
	<b>Total</b>	<b>1,979.52</b>	<b>274.72</b>	<b>254.44</b>	<b>1,704.80</b>	<b>20.28</b>

**NOTES: KHP load 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.