

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

Maximum Load/Demand till Date

Date:	September 23, 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	187.12	400kV THP - Siliguri Fdr- I	272.6	+	
		Unit- II	185.12	400kV THP - Siliguri Fdr- II	270.99	+	
		Unit- III	188.74	400kV THP - Siliguri Fdr- IV	264.2	+	
		Unit- IV	187.56	400kV THP - Malbase Fdr- III	295.51	+	
		Unit- V	187.32	400kV Malbase - Siliguri	249.85	+	
		Unit- VI	186.69	-	-	-	
		<b>Total</b>	<b>1,122.55</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.715%</b>		
2	720MW MHP	Unit-I	197.83	400kV MHP - Jigmeling Fdr - I	294.90	+	Unit-III under Shutdown (22/09/20-17/10/2020). 400kV MHP-JLG Fdr II under Breakdown. 400kV MHP-JLG Fdr IV under shutdown.
		Unit-II	197.91	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	295.63	+	
		Unit-IV	197.33	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>593.07</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.428%</b>		
3	336MW CHP	Unit- I	91.66	220kV CHP - Birpara Fdr- I	124.44	+	
		Unit- II	91.24	220kV CHP - Birpara Fdr- II	124.34	+	
		Unit- III	91.31	220kV CHP - Malbase Fdr- III	158.93	+	
		Unit- IV	91.59	220kV CHP - Semtokha Fdr- IV	-55.08	-	
		-	-	220kV Malbase - Birpara Fdr.	83.98	+	
		-	-	66kV CHP - Chumdo Fdr.	3.67	+	
		-	-	66kV CHP - Gedu Fdr.	7.02	+	
		-	-	3x3MVA, 66/11kV TFR	1.25	+	
		<b>Total</b>	<b>365.80</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.336%</b>		
4	24MW BHP (U/S)	Unit- I	11.83	220kV BHP - Semtokha Fdr.	81.97	+	
		Unit- II	11.83	66kV BHP - Lobeysa Fdr.	17.31	+	
		<b>Total</b>	<b>23.66</b>	220kV BHP - Tsirang Fdr.	-34.28	-	
	40MW BHP (L/S)	Unit- I	20.18	5MVA, 66/11kV TFR	0.59	+	
		Unit- II	20.53	30MVA ICT, 220/66kV			
<b>Total</b>	<b>40.71</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-1.895%</b>				
5	126MW DHPC	Unit-I	63.47	220kV DHPC - Tsirang Fdr.	126.32	+	
		Unit-II	63.30	220kV Jigmeling - Dagapela Fdr.	1.40	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>126.77</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.355%</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkor Fdr- I	38.09	+	
		Unit-II	16.20	132kV KHP - Kilikhar Fdr- II	26.34	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	49.01	+	
		-	-	132kV Motanga - Rangia Fdr.	54.86	+	
		-	-	220kV Tsirang - Jigmeling	89.30	+	
		<b>Total</b>	<b>65.70</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.476%</b>		

**Note: Generation-Load Summary for September 23, 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	1,679.49	199.79	181.48	1,390.40	18.31
2	Eastern Grid	658.77	53.67	50.16	694.40	3.51
	<b>Total</b>	<b>2,338.26</b>	<b>253.46</b>	<b>231.64</b>	<b>2,084.80</b>	<b>21.82</b>

**Note: Generation-Load Summary for September 23, 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	1540.42	288.94	271.44	1180.12	17.50
2	Eastern Grid	453.81	64.25	63.76	460.92	0.49
	<b>Total</b>	<b>1,994.23</b>	<b>353.19</b>	<b>335.20</b>	<b>1,641.04</b>	<b>17.99</b>

**NOTES: KHP & MHEP,JLG 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**

<b>Date:</b>	<b>September 24, 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	187.59	400kV THP - Siliguri Fdr- I	279.68	+	
		Unit- II	186.54	400kV THP - Siliguri Fdr- II	277.16	+	
		Unit- III	188.91	400kV THP - Siliguri Fdr- IV	270.53	+	
		Unit- IV	188.94	400kV THP - Malbase Fdr- III	280.74	+	
		Unit- V	186.80	400kV Malbase - Siliguri	261.29	+	
		Unit- VI	186.96	-	-	-	
		<b>Total</b>	<b>1,125.74</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.566%</b>		
2	720MW MHP	Unit-I	197.79	400kV MHP - Jigmeling Fdr - I	294.78	+	Unit III under Shutdown (22/09/2020-17/10/2020) 400kV MHP-JLG Fdr II under Breakdown. 400kV MHP-JLG Fdr IV under shutdown
		Unit-II	198.02	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	295.54	+	
		Unit-IV	197.28	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>593.09</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.467%</b>		
3	336MW CHP	Unit- I	91.65	220kV CHP - Birpara Fdr- I	125.63	+	
		Unit- II	91.15	220kV CHP - Birpara Fdr- II	125.46	+	
		Unit- III	91.49	220kV CHP - Malbase Fdr- III	176.80	+	
		Unit- IV	91.68	220kV CHP - Semtokha Fdr- IV	-72.25	-	
		-	-	220kV Malbase - Birpara Fdr.	70.46	+	
		-	-	66kV CHP - Chumdo Fdr.	1.35	+	
		-	-	66kV CHP - Gedu Fdr.	7.20	+	
		-	-	3x3MVA, 66/11kV TFR	0.77	+	
		<b>Total</b>	<b>365.97</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.276%</b>		
4	24MW BHP (U/S)	Unit- I	11.84	220kV BHP - Semtokha Fdr.	91.27	+	
		Unit- II	11.84	66kV BHP - Lobeysa Fdr.	15.98	+	
		<b>Total</b>	<b>23.68</b>	220kV BHP - Tsirang Fdr.	-41.63	-	
	40MW BHP (L/S)	Unit- I	20.49	5MVA, 66/11kV TFR	0.38	+	
		Unit- II	20.66	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>41.15</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-2.843%</b>		
5	126MW DHPC	Unit-I	63.51	220kV DHPC - Tsirang Fdr.	126.28	+	
		Unit-II	63.39	220kV Jigmeling - Dagapela Fdr.	0.80	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>126.90</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	40.58	+	
		Unit-II	16.50	132kV KHP - Kilihar Fdr- II	23.76	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	53.37	+	
		-	-	132kV Motanga - Rangia Fdr.	49.48	+	
		-	-	220kV Tsirang - Jigmeling	82.97	+	
		<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.909%</b>		

**Note: Generation-Load summary for September 24, 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	1,683.44	190.26	172.97	1,410.21	17.29
2	Eastern Grid	659.09	48.89	44.86	693.17	4.03
	<b>Total</b>	<b>2,342.53</b>	<b>239.15</b>	<b>217.83</b>	<b>2,103.38</b>	<b>21.32</b>

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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	1569.7	277.01	258.65	1,232.40	18.36
2	Eastern Grid	626.79	57.03	54.98	630.05	2.05
	<b>Total</b>	<b>2,196.49</b>	<b>334.04</b>	<b>313.63</b>	<b>1,862.45</b>	<b>20.41</b>

**NOTES: KHP, MHP load collected from site.**

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  - 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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