

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

Maximum Load/Demand till Date

Date:	September 15, 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	187.43	400kV THP - Siliguri Fdr- I	270.78	+	
		Unit- II	186.93	400kV THP - Siliguri Fdr- II	269.62	+	
		Unit- III	188.88	400kV THP - Siliguri Fdr- IV	263.21	+	
		Unit- IV	186.96	400kV THP - Malbase Fdr- III	301.99	+	
		Unit- V	187.32	400kV Malbase - Siliguri	247.15	+	
		Unit- VI	185.72	-	-	-	
		<b>Total</b>	<b>1,123.24</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.570%</b>		
2	720MW MHP	Unit-I	197.74	400kV MHP - Jigmeling Fdr - I	390.99	+	400kV MHP-JLG Fdr II under Breakdown 400kV MHP-JLG Fdr IV under shutdown
		Unit-II	197.55	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	195.69	400kV MHP - Jigmeling Fdr - III	391.82	+	
		Unit-IV	195.23	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>786.21</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.432%</b>		
3	336MW CHP	Unit- I	91.17	220kV CHP - Birpara Fdr- I	117.21	+	
		Unit- II	91.33	220kV CHP - Birpara Fdr- II	116.99	+	
		Unit- III	90.34	220kV CHP - Malbase Fdr- III	152.72	+	
		Unit- IV	91.43	220kV CHP - Semtokha Fdr- IV	-37.99	-	
		-	-	220kV Malbase - Birpara Fdr.	77.39	+	
		-	-	66kV CHP - Chumdo Fdr.	5.24	+	
		-	-	66kV CHP - Gedu Fdr.	6.92	+	
		-	-	3x3MVA, 66/11kV TFR	1.36	+	
		<b>Total</b>	<b>364.27</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.500%</b>		
4	24MW BHP (U/S)	Unit- I	11.84	220kV BHP - Semtokha Fdr.	68.87	+	
		Unit- II	11.84	66kV BHP - Lobeyasa Fdr.	18.22	+	
		<b>Total</b>	<b>23.68</b>	220kV BHP - Tsirang Fdr.	-22.29	-	
	40MW BHP (L/S)	Unit- I	20.45	5MVA, 66/11kV TFR	0.67	+	
		Unit- II	20.68	30MVA ICT, 220/66kV			
<b>Total</b>	<b>41.13</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-1.018%</b>				
5	126MW DHPC	Unit-I	56.31	220kV DHPC - Tsirang Fdr.	112.07	+	
		Unit-II	56.29	220kV Jigmeling - Dagapela Fdr.	2.00	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>112.60</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.471%</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	36.57	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	27.95	+	
		Unit- III	16.37	5MVA, 132/11kV TFR	0.33	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	46.70	+	
		-	-	132kV Motanga - Rangia Fdr.	56.33	+	
		-	-	220kV Tsirang - Jigmeling	87.09	+	
		<b>Total</b>	<b>65.87</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.553%</b>		

**Note: Generation-Load Summary for September 15, 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	1,664.92	215.48	198.15	1,362.35	17.33
2	Eastern Grid	852.08	53.33	48.91	885.84	4.42
	<b>Total</b>	<b>2,517.00</b>	<b>268.81</b>	<b>247.06</b>	<b>2,248.19</b>	<b>21.75</b>

**Note: Generation-Load Summary for September 15, 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	1,585.64	248.93	231.85	1265.71	17.08
2	Eastern Grid	628.98	44.84	44.01	655.14	0.83
	<b>Total</b>	<b>2,214.62</b>	<b>293.77</b>	<b>275.86</b>	<b>1,920.85</b>	<b>17.91</b>

**NOTES: KHP & MHEP 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 16, 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	187.38	400kV THP - Siliguri Fdr- I	276.72	+	
		Unit- II	186.38	400kV THP - Siliguri Fdr- II	274.56	+	
		Unit- III	187.29	400kV THP - Siliguri Fdr- IV	268.42	+	
		Unit- IV	186.97	400kV THP - Malbase Fdr- III	283.62	+	
		Unit- V	186.25	400kV Malbase - Siliguri	258.90	+	
		Unit- VI	186.59	-	-	-	
		<b>Total</b>	<b>1,120.86</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.565%</b>		
2	720MW MHP	Unit-I	197.80	400kV MHP - Jigmeling Fdr - I	295.60	+	400kV MHP-JLG II Breakdown. 400kV MHP-JLG IV under shutdown
		Unit-II	197.40	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	193.50	400kV MHP - Jigmeling Fdr - III	313.60	+	
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>588.70</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-3.482%</b>		
3	336MW CHP	Unit- I	92.09	220kV CHP - Birpara Fdr- I	127.33	+	
		Unit- II	91.21	220kV CHP - Birpara Fdr- II	127.25	+	
		Unit- III	91.40	220kV CHP - Malbase Fdr- III	174.13	+	
		Unit- IV	92.18	220kV CHP - Semtokha Fdr- IV	-70.27	-	
		-	-	220kV Malbase - Birpara Fdr.	76.73	+	
		-	-	66kV CHP - Chumdo Fdr.	1.62	+	
		-	-	66kV CHP - Gedu Fdr.	6.36	+	
		-	-	3x3MVA, 66/11kV TFR	0.76	+	
		<b>Total</b>	<b>366.88</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.082%</b>		
4	24MW BHP (U/S)	Unit- I	11.87	220kV BHP - Semtokha Fdr.	91.28	+	
		Unit- II	11.87	66kV BHP - Lobeysa Fdr.	16.99	+	
		<b>Total</b>	<b>23.74</b>	220kV BHP - Tsirang Fdr.	-42.84	-	
	40MW BHP (L/S)	Unit- I	20.37	5MVA, 66/11kV TFR	0.39	+	
		Unit- II	20.70	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>41.07</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-2.459%</b>		
5	126MW DHPC	Unit-I	63.55	220kV DHPC - Tsirang Fdr.	126.48	+	
		Unit-II	63.43	220kV Jigmeling - Dagapela Fdr.	1.30	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>126.98</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.394%</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	39.87	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	24.47	+	
		Unit- III	16.20	5MVA, 132/11kV TFR	0.24	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	55.50	+	
		-	-	132kV Motanga - Rangia Fdr.	54.27	+	
		-	-	220kV Tsirang - Jigmeling	80.02	+	
		<b>Total</b>	<b>65.70</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.705%</b>		

**Note: Generation-Load summary for September 16, 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	1,679.53	189.60	174.17	1,409.91	15.43
2	Eastern Grid	654.40	15.45	34.83	718.97	-19.38
	<b>Total</b>	<b>2,333.93</b>	<b>205.05</b>	<b>209.00</b>	<b>2,128.88</b>	<b>-3.95</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	1582.3	255.88	236.37	1,248.22	19.51
2	Eastern Grid	452.75	49.76	43.26	481.19	6.50
	<b>Total</b>	<b>2,035.05</b>	<b>305.64</b>	<b>279.63</b>	<b>1,729.41</b>	<b>26.01</b>

**NOTES: KHP 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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