

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

Maximum Load/Demand till Date

Date:	July 9, 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	187.33	400kV THP - Siliguri Fdr- I	271.28	+	
		Unit- II	187.09	400kV THP - Siliguri Fdr- II	269.15	+	
		Unit- III	187.78	400kV THP - Siliguri Fdr- IV	262.15	+	
		Unit- IV	187.50	400kV THP - Malbase Fdr- III	301.67	+	
		Unit- V	187.12	400kV Malbase - Siliguri	247.05	+	
		Unit- VI	186.47	-	-	-	
		<b>Total</b>	<b>1,123.29</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>19.04</b>		
2	720MW MHP	Unit-I	197.86	400kV MHP - Jigmeling Fdr - I	264.21	+	400kV MHP-JLG IV Standby.
		Unit-II	197.42	400kV MHP - Jigmeling Fdr - II	265.57	+	
		Unit-III	197.93	400kV MHP - Jigmeling Fdr - III	258.30	+	
		Unit-IV	197.66	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		<b>Total</b>	<b>790.87</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.79</b>		
3	336MW CHP	Unit- I	91.10	220kV CHP - Birpara Fdr- I	120.00	+	
		Unit- II	91.51	220kV CHP - Birpara Fdr- II	120.01	+	
		Unit- III	91.59	220kV CHP - Malbase Fdr- III	167.89	+	
		Unit- IV	91.65	220kV CHP - Semtokha Fdr- IV	-55.58	-	
		-	-	220kV Malbase - Birpara Fdr.	68.82	+	
		-	-	66kV CHP - Chumdo Fdr.	3.55	+	
		-	-	66kV CHP - Gedu Fdr.	7.02	+	
		-	-	3x3MVA, 66/11kV TFR	1.15	+	
		<b>Total</b>	<b>365.85</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.81</b>		
4	24MW BHP (U/S)	Unit- I	11.83	220kV BHP - Semtokha Fdr.	79.49	+	
		Unit- II	11.83	66kV BHP - Lobeysa Fdr.	17.07	+	
		<b>Total</b>	<b>23.66</b>	220kV BHP - Tsirang Fdr.	-31.19	-	
	40MW BHP (L/S)	Unit- I	21.00	5MVA, 66/11kV TFR	0.55	+	
		Unit- II	20.17	30MVA ICT, 220/66kV	0.00		
		<b>Total</b>	<b>41.17</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.09</b>		
5	126MW DHPC	Unit-I	63.47	220kV DHPC - Tsirang Fdr.	126.32	+	
		Unit-II	63.35	220kV Jigmeling - Dagapela Fdr.	1.57	+	
		-	-	5MVA, 220/33kV TFR	0.00		
		<b>Total</b>	<b>126.82</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.50</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Fdr- I	37.44	+	
		Unit-II	16.50	132kV KHP - Kilihar Fdr- II	27.22	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.35	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	48.80	+	
		-	-	132kV Motanga - Rangia Fdr.	58.25	+	
		-	-	220kV Tsirang - Jigmeling	92.83	+	
<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.99</b>				

**Note: Generation-Load Summary for July 09, 2020 at 19:00hrs.**

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	1,680.79	229.50	210.81	1,358.46	18.69
2	Eastern Grid	856.87	54.57	50.79	895.13	3.78
	<b>Total</b>	<b>2,537.66</b>	<b>284.07</b>	<b>261.60</b>	<b>2,253.59</b>	<b>22.47</b>

**Note: Generation-Load Summary for July 09, 2019 at 19:00hrs.**

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	1550.89	243.19	230.24	1,231.04	12.95
2	Eastern Grid	431.83	47.55	47.92	460.94	-0.37
	<b>Total</b>	<b>1,982.72</b>	<b>290.74</b>	<b>278.16</b>	<b>1,691.98</b>	<b>12.58</b>

**NOTE: KHP, MHEP & Motanga datas 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>July 10, 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	188.27	400kV THP - Siliguri Fdr- I	275.23	+	
		Unit- II	186.63	400kV THP - Siliguri Fdr- II	271.77	+	
		Unit- III	187.52	400kV THP - Siliguri Fdr- IV	265.78	+	
		Unit- IV	187.91	400kV THP - Malbase Fdr- III	290.82	+	
		Unit- V	187.89	400kV Malbase - Siliguri	253.32	+	
		Unit- VI	186.91	-	-	-	
		<b>Total</b>	<b>1,125.13</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>21.53</b>		
2	720MW MHP	Unit-I	197.63	400kV MHP - Jigmeling Fdr - I	265.50	+	400kV MHP-JLG IV Standby.
		Unit-II	197.52	400kV MHP - Jigmeling Fdr - II	247.80	+	
		Unit-III	197.18	400kV MHP - Jigmeling Fdr - III	276.50	+	
		Unit-IV	198.58	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		<b>Total</b>	<b>790.91</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.11</b>		
3	336MW CHP	Unit- I	91.91	220kV CHP - Birpara Fdr- I	126.31	+	
		Unit- II	91.30	220kV CHP - Birpara Fdr- II	126.31	+	
		Unit- III	91.85	220kV CHP - Malbase Fdr- III	181.16	+	
		Unit- IV	91.43	220kV CHP - Semtokha Fdr- IV	-77.88	-	
		-	-	220kV Malbase - Birpara Fdr.	68.49	+	
		-	-	66kV CHP - Chumdo Fdr.	0.98	+	
		-	-	66kV CHP - Gedu Fdr.	7.23	+	
		-	-	3x3MVA, 66/11kV TFR	0.80	+	
		<b>Total</b>	<b>366.49</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.58</b>		
4	24MW BHP (U/S)	Unit- I	11.83	220kV BHP - Semtokha Fdr.	96.87	+	
		Unit- II	11.83	66kV BHP - Lobeysa Fdr.	16.13	+	
		<b>Total</b>	<b>23.66</b>	220kV BHP - Tsirang Fdr.	-47.32	-	
	40MW BHP (L/S)	Unit- I	21.04	5MVA, 66/11kV TFR	0.37	+	
		Unit- II	20.21	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>41.25</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-1.14</b>		
5	126MW DHPC	Unit-I	63.50	220kV DHPC - Tsirang Fdr.	126.33	+	
		Unit-II	63.42	220kV Jigmeling - Dagapela Fdr.	1.33	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>126.92</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.59</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	40.35	+	
		Unit-II	16.50	132kV KHP - Kilihar Fdr- II	24.29	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.28	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	47.78	+	
		-	-	132kV Motanga - Rangia Fdr.	55.00	+	
		-	-	220kV Tsirang - Jigmeling	75.47	+	
		<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.08</b>		

**Note: Generation-Load summary for July 10, 2020 at 09:00hrs.**

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	1,683.45	220.77	199.54	1,387.21	21.23
2	Eastern Grid	856.91	39.80	37.61	892.58	2.19
	<b>Total</b>	<b>2,540.36</b>	<b>260.57</b>	<b>237.15</b>	<b>2,279.79</b>	<b>23.42</b>

**Note: Generation-Load Summary for July 10, 2019 at 09:00hrs**

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	1670.28	242.44	224.88	1,358.59	17.56
2	Eastern Grid	429.81	47.74	37.92	451.32	9.82
	<b>Total</b>	<b>2,100.09</b>	<b>290.18</b>	<b>262.80</b>	<b>1,809.91</b>	<b>27.38</b>

**NOTES: KHP & Motanga datas 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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