

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

Maximum Load/Demand till Date

Date:	July 6, 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	187.15	400kV THP - Siliguri Fdr- I	272.88	+	
		Unit- II	187.89	400kV THP - Siliguri Fdr- II	270.20	+	
		Unit- III	187.56	400kV THP - Siliguri Fdr- IV	263.60	+	
		Unit- IV	187.74	400kV THP - Malbase Fdr- III	295.87	+	
		Unit- V	187.55	400kV Malbase - Siliguri	251.15	+	
		Unit- VI	186.15	-	-	-	
		<b>Total</b>	<b>1,124.04</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>21.49</b>		
2	720MW MHP	Unit-I	197.61	400kV MHP - Jigmeling Fdr - I	264.33	+	400kV MHP-JLG IV Standby.
		Unit-II	197.81	400kV MHP - Jigmeling Fdr - II	265.65	+	
		Unit-III	197.91	400kV MHP - Jigmeling Fdr - III	258.16	+	
		Unit-IV	197.87	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		<b>Total</b>	<b>791.20</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>3.06</b>		
3	336MW CHP	Unit- I	91.70	220kV CHP - Birpara Fdr- I	113.88	+	
		Unit- II	91.16	220kV CHP - Birpara Fdr- II	113.77	+	
		Unit- III	91.39	220kV CHP - Malbase Fdr- III	157.26	+	
		Unit- IV	91.57	220kV CHP - Semtokha Fdr- IV	-32.64	-	
		-	-	220kV Malbase - Birpara Fdr.	67.57	+	
		-	-	66kV CHP - Chumdo Fdr.	4.29	+	
		-	-	66kV CHP - Gedu Fdr.	6.47	+	
		-	-	3x3MVA, 66/11kV TFR	1.19	+	
		<b>Total</b>	<b>365.82</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.60</b>		
4	24MW BHP (U/S)	Unit- I	11.83	220kV BHP - Semtokha Fdr.	56.35	+	
		Unit- II	11.83	66kV BHP - Lobeysa Fdr.	15.90	+	
		<b>Total</b>	<b>23.66</b>	220kV BHP - Tsirang Fdr.	-8.37	-	
	40MW BHP (L/S)	Unit- I	21.01	5MVA, 66/11kV TFR	1.02	+	
		Unit- II	20.11	30MVA ICT, 220/66kV	0.00		
		<b>Total</b>	<b>41.12</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.12</b>		
5	126MW DHPC	Unit-I	48.28	220kV DHPC - Tsirang Fdr.	95.04	+	
		Unit-II	47.26	220kV Jigmeling - Dagapela Fdr.	1.90	+	
		-	-	5MVA, 220/33kV TFR	0.00		
		<b>Total</b>	<b>95.54</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.50</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	38.52	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	26.29	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.20	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	40.42	+	
		-	-	132kV Motanga - Rangia Fdr.	55.56	+	
		-	-	220kV Tsirang - Jigmeling	77.91	+	
		<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 06, 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	1,650.18	219.22	197.65	1,353.05	21.57
2	Eastern Grid	857.20	50.99	46.94	884.12	4.05
	<b>Total</b>	<b>2,507.38</b>	<b>270.21</b>	<b>244.59</b>	<b>2,237.17</b>	<b>25.62</b>

**Note: Generation-Load Summary for July 06, 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	1156.14	225.15	206.76	884.19	18.39
2	Eastern Grid	250.12	52.89	51.47	244.03	1.42
	<b>Total</b>	<b>1,406.26</b>	<b>278.04</b>	<b>258.23</b>	<b>1,128.22</b>	<b>19.81</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 7, 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	187.51	400kV THP - Siliguri Fdr- I	276.69	+	
		Unit- II	186.67	400kV THP - Siliguri Fdr- II	273.13	+	
		Unit- III	187.15	400kV THP - Siliguri Fdr- IV	267.32	+	
		Unit- IV	186.16	400kV THP - Malbase Fdr- III	285.67	+	
		Unit- V	186.53	400kV Malbase - Siliguri	257.24	+	
		Unit- VI	186.33	-	-	-	
		<b>Total</b>	<b>1,120.35</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>17.54</b>		
2	720MW MHP	Unit-I	197.83	400kV MHP - Jigmeling Fdr - I	264.66	+	400kV MHP-JLG IV Standby.
		Unit-II	197.56	400kV MHP - Jigmeling Fdr - II	265.78	+	
		Unit-III	197.79	400kV MHP - Jigmeling Fdr - III	258.18	+	
		Unit-IV	197.81	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		<b>Total</b>	<b>790.99</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.37</b>		
3	336MW CHP	Unit- I	91.97	220kV CHP - Birpara Fdr- I	123.09	+	
		Unit- II	91.34	220kV CHP - Birpara Fdr- II	123.01	+	
		Unit- III	91.59	220kV CHP - Malbase Fdr- III	180.98	+	
		Unit- IV	91.76	220kV CHP - Semtokha Fdr- IV	-69.84	-	
		-	-	220kV Malbase - Birpara Fdr.	63.69	+	
		-	-	66kV CHP - Chumdo Fdr.	1.01	+	
		-	-	66kV CHP - Gedu Fdr.	7.16	+	
		-	-	3x3MVA, 66/11kV TFR	0.71	+	
		<b>Total</b>	<b>366.66</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.54</b>		
4	24MW BHP (U/S)	Unit- I	11.83	220kV BHP - Semtokha Fdr.	88.79	+	
		Unit- II	11.83	66kV BHP - Lobeysa Fdr.	16.46	+	
		<b>Total</b>	<b>23.66</b>	220kV BHP - Tsirang Fdr.	-39.64	-	
	40MW BHP (L/S)	Unit- I	20.99	5MVA, 66/11kV TFR	0.41	+	
		Unit- II	20.13	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>41.12</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-1.24</b>		
5	126MW DHPC	Unit-I	63.47	220kV DHPC - Tsirang Fdr.	126.31	+	
		Unit-II	63.40	220kV Jigmeling - Dagapela Fdr.	1.03	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>126.87</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.56</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	40.82	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	23.66	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.20	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	36.20	+	
		-	-	132kV Motanga - Rangia Fdr.	52.62	+	
		-	-	220kV Tsirang - Jigmeling	82.97	+	
		<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.32</b>		

**Note: Generation-Load summary for July 07, 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	1,678.66	211.52	195.15	1,384.17	16.37
2	Eastern Grid	856.99	62.52	58.83	877.44	3.69
	<b>Total</b>	<b>2,535.65</b>	<b>274.04</b>	<b>253.98</b>	<b>2,261.61</b>	<b>20.06</b>

**Note: Generation-Load Summary for July 07, 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	1307.81	207.92	200.59	1,022.21	7.33
2	Eastern Grid	250.03	43.77	38.80	283.94	4.97
	<b>Total</b>	<b>1,557.84</b>	<b>251.69</b>	<b>239.39</b>	<b>1,306.15</b>	<b>12.30</b>

**NOTES: 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.