

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>July 18, 2020</b>
<b>Hours:</b>	<b>19:00 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	188.07	400kV THP - Siliguri Fdr- I	271.41	+	
		Unit- II	186.94	400kV THP - Siliguri Fdr- II	268.08	+	
		Unit- III	186.63	400kV THP - Siliguri Fdr- IV	262.25	+	
		Unit- IV	187.03	400kV THP - Malbase Fdr- III	301.79	+	
		Unit- V	186.73	400kV Malbase - Siliguri	248.10	+	
		Unit- VI	186.68	-	-	-	
		<b>Total</b>	<b>1,122.08</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.653%</b>		
2	720MW MHP	Unit-I	197.35	400kV MHP - Jigmeling Fdr - I	265.70	+	400kV MHP-JLG IV Standby.
		Unit-II	197.84	400kV MHP - Jigmeling Fdr - II	247.80	+	
		Unit-III	197.01	400kV MHP - Jigmeling Fdr - III	277.10	+	
		Unit-IV	198.53	400kV MHP - Jigmeling Fdr - IV			
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>790.73</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.016%</b>		
3	336MW CHP	Unit- I	92.00	220kV CHP - Birpara Fdr- I	120.88	+	
		Unit- II	92.00	220kV CHP - Birpara Fdr- II	121.39	+	
		Unit- III	92.00	220kV CHP - Malbase Fdr- III	161.90	+	
		Unit- IV	92.00	220kV CHP - Semtokha Fdr- IV	-53.15	-	
		-	-	220kV Malbase - Birpara Fdr.	75.96	+	
		-	-	66kV CHP - Chumdo Fdr.	3.58	+	
		-	-	66kV CHP - Gedu Fdr.	7.42	+	
		-	-	3x3MVA, 66/11kV TFR	1.19	+	
		<b>Total</b>	<b>368.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.302%</b>		
4	24MW BHP (U/S)	Unit- I	11.85	220kV BHP - Semtokha Fdr.	74.85	+	
		Unit- II	11.85	66kV BHP - Lobeysa Fdr.	16.94	+	
		<b>Total</b>	<b>23.70</b>	220kV BHP - Tsirang Fdr.	-26.56	-	
	40MW BHP (L/S)	Unit- I	20.96	5MVA, 66/11kV TFR	0.66	+	
		Unit- II	20.14	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>41.10</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-1.682%</b>		
5	126MW DHPC	Unit-I	63.46	220kV DHPC - Tsirang Fdr.	126.23	+	
		Unit-II	63.44	220kV Jigmeling - Dagapela Fdr.	1.27	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>126.90</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.528%</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	37.49	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	27.25	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.26	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	48.79	+	
		-	-	132kV Motanga - Rangia Fdr.	55.76	+	
		-	-	220kV Tsirang - Jigmeling	95.02	+	
		<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.515%</b>		

**Note: Generation-Load Summary for July 18, 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	1,681.78	218.69	197.04	1,368.07	21.65
2	Eastern Grid	856.73	56.60	55.47	895.15	1.13
	<b>Total</b>	<b>2,538.51</b>	<b>275.29</b>	<b>252.51</b>	<b>2,263.22</b>	<b>22.78</b>

**Note: Generation-Load Summary for July 18, 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	1,630.22	253.08	229.77	1,293.60	23.31
2	Eastern Grid	250.34	62.43	60.18	271.45	2.25
	<b>Total</b>	<b>1,880.56</b>	<b>315.51</b>	<b>289.95</b>	<b>1,565.05</b>	<b>25.56</b>

**NOTE: 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.

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**Maximum Load/Demand till Date**

<b>Date:</b>	<b>July 19, 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	187.33	400kV THP - Siliguri Fdr- I	278.00	+	
		Unit- II	186.53	400kV THP - Siliguri Fdr- II	276.00	+	
		Unit- III	187.04	400kV THP - Siliguri Fdr- IV	267.06	+	
		Unit- IV	185.85	400kV THP - Malbase Fdr- III	283.84	+	
		Unit- V	187.04	400kV Malbase - Siliguri	259.48	+	
		Unit- VI	185.35	-	-	-	
		<b>Total</b>	<b>1,119.14</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.272%</b>		
2	720MW MHP	Unit-I	197.90	400kV MHP - Jigmeling Fdr - I	264.65	+	400kV MHP-JLG IV Standby.
		Unit-II	197.87	400kV MHP - Jigmeling Fdr - II	265.71	+	
		Unit-III	197.33	400kV MHP - Jigmeling Fdr - III	258.33	+	
		Unit-IV	197.81	400kV MHP - Jigmeling Fdr - IV			
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>790.91</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.281%</b>		
3	336MW CHP	Unit- I	90.49	220kV CHP - Birpara Fdr- I	124.27	+	
		Unit- II	91.40	220kV CHP - Birpara Fdr- II	124.11	+	
		Unit- III	90.71	220kV CHP - Malbase Fdr- III	184.67	+	
		Unit- IV	91.61	220kV CHP - Semtokha Fdr- IV	-78.35	-	
		-	-	220kV Malbase - Birpara Fdr.	61.74	+	
		-	-	66kV CHP - Chumdo Fdr.	0.78	+	
		-	-	66kV CHP - Gedu Fdr.	7.51	+	
		-	-	3x3MVA, 66/11kV TFR	0.89	+	
		<b>Total</b>	<b>364.21</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.091%</b>		
4	24MW BHP (U/S)	Unit- I	11.84	220kV BHP - Semtokha Fdr.	96.02	+	
		Unit- II	11.84	66kV BHP - Lobeysa Fdr.	14.71	+	
		<b>Total</b>	<b>23.68</b>	220kV BHP - Tsirang Fdr.	-45.11	-	
	40MW BHP (L/S)	Unit- I	20.92	5MVA, 66/11kV TFR	0.40	+	
		Unit- II	20.17	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>41.09</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-3.042%</b>		
5	126MW DHPC	Unit-I	63.42	220kV DHPC - Tsirang Fdr.	126.30	+	
		Unit-II	63.41	220kV Jigmeling - Dagapela Fdr.	1.20	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>126.83</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.418%</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Fdr- I	42.20	+	
		Unit-II	16.50	132kV KHP - Kilihar Fdr- II	22.60	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.11	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	58.16	+	
		-	-	132kV Motanga - Rangia Fdr.	42.79	+	
		-	-	220kV Tsirang - Jigmeling	75.09	+	
		<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.648%</b>		

**Note: Generation-Load summary for July 19, 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	1,674.95	209.20	196.55	1,390.66	12.65
2	Eastern Grid	856.91	42.36	39.05	889.64	3.31
	<b>Total</b>	<b>2,531.86</b>	<b>251.56</b>	<b>235.60</b>	<b>2,280.30</b>	<b>15.96</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	1634.73	206.44	222.71	1,364.00	-16.27
2	Eastern Grid	434.01	56.52	55.83	441.78	0.69
	<b>Total</b>	<b>2,068.74</b>	<b>262.96</b>	<b>278.54</b>	<b>1,805.78</b>	<b>-15.58</b>

**NOTES: KHP & MHP 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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