

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

Maximum Load/Demand till Date

Date:	January 10, 2021
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	70.76	400kV THP - Siliguri Fdr- I	0.00		Unit-II, V & VI under shutdown. Unit-III on standby. 400kV THP-SIL Fdr I on Standby. 400kV THP-SIL Fdr II under AMP.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	47.43	+	
		Unit- IV	100.39	400kV THP - Malbase Fdr- III	118.75	+	
		Unit- V	0.00	400kV Malbase - Siliguri	34.00	+	
		Unit- VI	0.00	-	-	-	
		<b>Total</b>	<b>171.15</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.904%</b>		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-I on standby. Unit-II under shutdown. Unit-III under breakdown. 400kV MHP-JLG Fdr I,III & IV on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	117.66	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	118.11	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>118.11</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.381%</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	-4.44	-	Unit-I under Annual Maintenance Unit-IV under standby.
		Unit- II	52.64	220kV CHP - Birpara Fdr- II	-4.41	-	
		Unit- III	44.00	220kV CHP - Malbase Fdr- III	30.32	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	52.08	+	
		-	-	220kV Malbase - Birpara Fdr.	-31.00	-	
		-	-	66kV CHP - Chumdo Fdr.	16.56	+	
		-	-	66kV CHP - Gedu Fdr.	2.25	+	
		-	-	3x3MVA, 66/11kV TFR	2.20	+	
		<b>Total</b>	<b>96.64</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.152%</b>		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	12.45	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	7.01	66kV BHP - Lobeysa Fdr.	15.60	+	
	<b>Total</b>	<b>7.01</b>	220kV BHP - Tsirang Fdr.	-7.52	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.90	+	
Unit- II		14.52	30MVA ICT, 220/66kV				
		<b>Total</b>	<b>14.52</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.464%</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	23.47	+	Unit-I on standby.
		Unit-II	23.70	220kV Jigmeling - Dagapela Fdr.	2.70	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>23.70</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.970%</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	6.13	+	Unit-I standby Unit-II under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	13.77	+	
		Unit- III	10.31	5MVA, 132/11kV TFR	0.43	+	
		Unit- IV	10.35	132kV Gelephu - Salakati Fdr.	-21.81	-	
		-	-	132kV Motanga - Rangia Fdr.	-2.25	-	
		-	-	220kV Tsirang - Jigmeling	12.80	+	
		<b>Total</b>	<b>20.66</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.597%</b>		

**Note: Generation-Load Summary for January 10, 2021 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	313.02	258.64	253.96	41.58	4.68
2	Eastern Grid	138.77	57.97	57.19	93.60	0.78
	<b>Total</b>	<b>451.79</b>	<b>316.61</b>	<b>311.15</b>	<b>135.18</b>	<b>5.46</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	299.52	225.11	217.48	52.54	7.63
2	Eastern Grid	127.02	59.16	55.55	89.73	3.61
	<b>Total</b>	<b>426.54</b>	<b>284.27</b>	<b>273.03</b>	<b>142.27</b>	<b>11.24</b>

**NOTE- KHP,MHP & Motanga data 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>January 11, 2021</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	71.21	400kV THP - Siliguri Fdr- I	0.00		Unit-II, V & VI under shutdown. Unit-III on standby. 400kV THP-SIL Fdr I on Standby. 400kV THP-SIL Fdr II under AMP.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	46.81	+	
		Unit- IV	100.95	400kV THP - Malbase Fdr- III	119.24	+	
		Unit- V	0.00	400kV Malbase - Siliguri	32.00	+	
		Unit- VI	0.00	-	-	-	
		<b>Total</b>	<b>172.16</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>3.549%</b>		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-I on standby. Unit-II under shutdown. Unit-III under breakdown. 400kV MHP-JLG Fdr I, III & IV on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	119.22	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	120.09	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>120.09</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.724%</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	2.74	+	Unit-I under Annual Maintenance Unit-IV under standby.
		Unit- II	45.59	220kV CHP - Birpara Fdr- II	2.89	+	
		Unit- III	46.76	220kV CHP - Malbase Fdr- III	44.04	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	29.50	+	
		-	-	220kV Malbase - Birpara Fdr.	-27.00	-	
		-	-	66kV CHP - Chumdo Fdr.	10.62	+	
		-	-	66kV CHP - Gedu Fdr.	2.04	+	
		-	-	3x3MVA, 66/11kV TFR	0.00	+	
		<b>Total</b>	<b>92.35</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.563%</b>		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	15.47	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	6.97	66kV BHP - Lobeysa Fdr.	12.30	+	
	<b>Total</b>	<b>6.97</b>	220kV BHP - Tsirang Fdr.	-6.56	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.50	+	
Unit- II		14.75	30MVA ICT, 220/66kV				
		<b>Total</b>	<b>14.75</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.046%</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	22.94	+	Unit-I on standby.
		Unit-II	23.15	220kV Jigmeling - Dagapela Fdr.	1.94	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>23.15</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.907%</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	10.01	+	Unit-I standby Unit-II under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	12.00	+	
		Unit- III	11.11	5MVA, 132/11kV TFR	0.32	+	
		Unit- IV	11.09	132kV Gelephu - Salakati Fdr.	-11.60	-	
		-	-	132kV Motanga - Rangia Fdr.	1.41	+	
		-	-	220kV Tsirang - Jigmeling	15.56	+	
		<b>Total</b>	<b>22.20</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.586%</b>		

**Note: Generation-Load summary for January 11, 2021 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	309.38	236.38	231.47	57.44	4.91
2	Eastern Grid	142.29	48.82	48.08	109.03	0.74
	<b>Total</b>	<b>451.67</b>	<b>285.20</b>	<b>279.55</b>	<b>166.47</b>	<b>5.65</b>

**Note: Generation-Load Summary for January 11, 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	334.23	241.23	233.45	74.66	7.78
2	Eastern Grid	143.26	59.87	53.95	101.73	5.92
	<b>Total</b>	<b>477.49</b>	<b>301.10</b>	<b>287.40</b>	<b>176.39</b>	<b>13.70</b>

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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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