

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>January 11, 2021</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	71.10	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	45.17	+	
		Unit- IV	99.32	400kV THP - Malbase Fdr- III	123.27	+	
		Unit- V	0.00	400kV Malbase - Siliguri	27.00	+	
		Unit- VI	0.00	-	-	-	
		<b>Total</b>	<b>170.42</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.162%</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	119.21	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	120.17	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>120.17</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.799%</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	-3.68	-	Unit-I under Annual Maintenance Unit-IV under standby.
		Unit- II	50.37	220kV CHP - Birpara Fdr- II	-3.52	-	
		Unit- III	46.93	220kV CHP - Malbase Fdr- III	24.45	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	56.44	+	
		-	-	220kV Malbase - Birpara Fdr.	-28.00	-	
		-	-	66kV CHP - Chumdo Fdr.	16.30	+	
		-	-	66kV CHP - Gedu Fdr.	3.17	+	
		-	-	3x3MVA, 66/11kV TFR	2.10	+	
		<b>Total</b>	<b>97.30</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.097%</b>		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	7.99	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	6.96	66kV BHP - Lobeysa Fdr.	15.33	+	
		<b>Total</b>	<b>6.96</b>	220kV BHP - Tsirang Fdr.	-2.61	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.80	+	
		Unit- II	14.51	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>14.51</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.186%</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	23.47	+	Unit-I on standby.
		Unit-II	23.71	220kV Jigmeling - Dagapela Fdr.	2.70	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>23.71</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.012%</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	7.06	+	Unit-I standby Unit-II under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	13.70	+	
		Unit- III	10.50	5MVA, 132/11kV TFR	0.42	+	
		Unit- IV	10.93	132kV Gelephu - Salakati Fdr.	-20.40	-	
		-	-	132kV Motanga - Rangia Fdr.	0.25	+	
		-	-	220kV Tsirang - Jigmeling	17.80	+	
		<b>Total</b>	<b>21.43</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.167%</b>		

**Note: Generation-Load Summary for January 11, 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	312.90	258.13	256.61	36.97	1.52
2	Eastern Grid	141.60	60.34	59.13	99.06	1.21
	<b>Total</b>	<b>454.50</b>	<b>318.47</b>	<b>315.74</b>	<b>136.03</b>	<b>2.73</b>

**Note: Generation-Load Summary for January 11, 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	418.54	262.46	252.28	130.78	10.18
2	Eastern Grid	131.17	69.18	66.59	87.29	2.59
	<b>Total</b>	<b>549.71</b>	<b>331.64</b>	<b>318.87</b>	<b>218.07</b>	<b>12.77</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.

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

Maximum Load/Demand till Date

Date:	January 12, 2021
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	70.68	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	45.58	+	
		Unit- IV	101.26	400kV THP - Malbase Fdr- III	121.02	+	
		Unit- V	0.00	400kV Malbase - Siliguri	33.00	+	
		Unit- VI	0.00	-	-	-	
		<b>Total</b>	<b>171.94</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>3.106%</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	116.77	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	117.55	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>117.55</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.664%</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.99	+	Unit-I under Annual Maintenance Unit-IV under standby.
		Unit- II	46.84	220kV CHP - Birpara Fdr- II	1.02	+	
		Unit- III	45.68	220kV CHP - Malbase Fdr- III	47.00	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	27.50	+	
		-	-	220kV Malbase - Birpara Fdr.	-33.00	-	
		-	-	66kV CHP - Chumdo Fdr.	10.72	+	
		-	-	66kV CHP - Gedu Fdr.	2.47	+	
		-	-	3x3MVA, 66/11kV TFR	1.60	+	
		<b>Total</b>	<b>92.52</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.319%</b>		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	15.83	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	6.96	66kV BHP - Lobeysa Fdr.	12.28	+	
		<b>Total</b>	<b>6.96</b>	220kV BHP - Tsirang Fdr.	-6.89	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.80	+	
		Unit- II	14.67	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>14.67</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-1.803%</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	24.01	+	Unit-I on standby.
		Unit-II	24.20	220kV Jigmeling - Dagapela Fdr.	1.80	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>24.20</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.785%</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	7.89	+	Unit-I standby Unit-II under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	11.53	+	
		Unit- III	10.10	5MVA, 132/11kV TFR	0.37	+	
		Unit- IV	10.08	132kV Gelephu - Salakati Fdr.	-15.30	-	
		-	-	132kV Motanga - Rangia Fdr.	-2.46	-	
		-	-	220kV Tsirang - Jigmeling	14.33	+	
		<b>Total</b>	<b>20.18</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.947%</b>		

Note: Generation-Load summary for January 12, 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	310.29	248.37	243.81	47.59	4.56
2	Eastern Grid	137.73	53.05	51.88	99.01	1.17
	<b>Total</b>	<b>448.02</b>	<b>301.42</b>	<b>295.69</b>	<b>146.60</b>	<b>5.73</b>

Note: Generation-Load Summary for January 12, 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	191.39	242.03	237.64	-56.94	4.39
2	Eastern Grid	125.06	69.39	66.60	61.97	2.79
	<b>Total</b>	<b>316.45</b>	<b>311.42</b>	<b>304.24</b>	<b>5.03</b>	<b>7.18</b>

NOTE: MHP,KHP & Motanga data 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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