

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>December 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	99.59	400kV THP - Siliguri Fdr- I	75.45	+	Unit-II&V under shutdown. Unit-III & IV on standby. 400kV THP-SIL Fdr II & IV on Standby.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	160.15	+	
		Unit- V	0.00	400kV Malbase - Siliguri	54.00	+	
		Unit- VI	139.55	-	-	-	
		<b>Total</b>	<b>239.14</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.480%</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 under shutdown.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	67.24	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	135.74	400kV MHP - Jigmeling Fdr - IV	67.42	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>135.74</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.796%</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	3.92	+	Unit I & II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	3.98	+	
		Unit- III	52.55	220kV CHP - Malbase Fdr- III	20.30	+	
		Unit- IV	62.01	220kV CHP - Semtokha Fdr- IV	64.03	+	
		-	-	220kV Malbase - Birpara Fdr.	-6.00	-	
		-	-	66kV CHP - Chumdo Fdr.	17.10	+	
		-	-	66kV CHP - Gedu Fdr.	2.62	+	
		-	-	3x3MVA, 66/11kV TFR	2.20	+	
		<b>Total</b>	<b>114.56</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.358%</b>		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	5.12	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	8.39	66kV BHP - Lobeysa Fdr.	16.13	+	
	<b>Total</b>	<b>8.39</b>	220kV BHP - Tsirang Fdr.	3.40	+		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	1.00	+	
Unit- II		17.41	30MVA ICT, 220/66kV				
		<b>Total</b>	<b>17.41</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.581%</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	27.96	+	Unit-I on standby.
		Unit-II	28.22	220kV Jigmeling - Dagapela Fdr.	2.60	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>28.22</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.921%</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	10.45	+	Unit-I under Annual Maintenance. Unit-II on standby.
		Unit-II	0.00	132kV KHP - Kilihar Fdr- II	13.05	+	
		Unit- III	12.11	5MVA, 132/11kV TFR	0.44	+	
		Unit- IV	12.08	132kV Gelephu - Salakati Fdr.	-17.04	-	
		-	-	132kV Motanga - Rangia Fdr.	2.40	+	
		-	-	220kV Tsirang - Jigmeling	28.70	+	
		<b>Total</b>	<b>24.19</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.033%</b>		

**Note: Generation-Load Summary for December 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	407.72	247.67	245.91	131.35	1.76
2	Eastern Grid	159.93	68.61	67.28	120.02	1.33
	<b>Total</b>	<b>567.65</b>	<b>316.28</b>	<b>313.19</b>	<b>251.37</b>	<b>3.09</b>

**Note: Generation-Load Summary for December 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	472.80	294.92	282.23	161.8	12.69
2	Eastern Grid	154.88	72.56	68.71	98.4	3.85
	<b>Total</b>	<b>627.68</b>	<b>367.48</b>	<b>350.94</b>	<b>260.20</b>	<b>16.54</b>

**NOTE- ALL 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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<b>Date:</b>	<b>December 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	70.00	400kV THP - Siliguri Fdr- I	72.41		Unit-II & V under shutdown. Unit-III & IV on standby. 400kV THP-SIL Fdr II & IV under standby.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00	+	
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	132.22	+	
		Unit- V	0.00	400kV Malbase - Siliguri	54.00	+	
		Unit- VI	140.00	-	-	-	
		<b>Total</b>	<b>210.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.557%</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 on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	69.56	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	140.32	400kV MHP - Jigmeling Fdr - IV	69.77	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>140.32</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.706%</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	8.76	+	Unit-I & II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	8.76	+	
		Unit- III	50.77	220kV CHP - Malbase Fdr- III	48.38	+	
		Unit- IV	61.35	220kV CHP - Semtokha Fdr- IV	28.40	+	
		-	-	220kV Malbase - Birpara Fdr.	-21.82	-	
		-	-	66kV CHP - Chumdo Fdr.	12.08	+	
		-	-	66kV CHP - Gedu Fdr.	3.80	+	
		-	-	3x3MVA, 66/11kV TFR	1.74	+	
		<b>Total</b>	<b>112.12</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.178%</b>		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	24.53	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	8.23	66kV BHP - Lobeysa Fdr.	14.55	+	
	<b>Total</b>	<b>8.23</b>	220kV BHP - Tsirang Fdr.	-14.01	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.70	+	
Unit- II		17.16	30MVA ICT, 220/66kV				
		<b>Total</b>	<b>17.16</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-1.497%</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	29.02	+	Unit-I on standby.
		Unit-II	29.23	220kV Jigmeling - Dagapela Fdr.	1.70	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>29.23</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.718%</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	11.67	+	Unit-I under Annual Maintenance. Unit-II under shutdown.
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	10.80	+	
		Unit- III	11.05	5MVA, 132/11kV TFR	0.27	+	
		Unit- IV	12.13	132kV Gelephu - Salakati Fdr.	-15.95	-	
		-	-	132kV Motanga - Rangia Fdr.	-1.01	+	
		-	-	220kV Tsirang - Jigmeling	13.12	+	
		<b>Total</b>	<b>23.18</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.885%</b>		

**Note: Generation-Load summary for December 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	376.74	241.51	237.81	122.11	3.70
2	Eastern Grid	163.50	54.25	52.82	122.37	1.43
	<b>Total</b>	<b>540.24</b>	<b>295.76</b>	<b>290.63</b>	<b>244.48</b>	<b>5.13</b>

**Note: Generation-Load Summary for December 19, 2019 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	338.54	276.04	265.06	52.5	10.98
2	Eastern Grid	152.08	57.15	55.25	104.93	1.90
	<b>Total</b>	<b>490.62</b>	<b>333.19</b>	<b>320.31</b>	<b>157.43</b>	<b>12.88</b>

**NOTE: All Datas 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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