

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

**Coincidental Maximum Load**

**Date:** March 17, 2022  
**Hours:** 18:00 Hours

**Date**      **Time**      **Load(MW)**  
 12-Jan-22      18:00hrs      492.25

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	0.00	Unit I,II,III and V on Standby. Unit IV&VI took emergency shutdown at 17:16hrs. 400kV THP- Siliguri - I under Shutdown. 400kV THP- Siliguri - II tripped at 16:42hrs.400kV THP- Siliguri IV & 400kV THP_Malbase on Standby.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-69.23	
		Unit- VI	0.00	-	-	
		<b>Total</b>	<b>0.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.00%</b>	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	216.34	Unit-I & II under Annual Maintenance. 400kV MHP-JLG Line II,III & IV on standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG-ALI I ( Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	70.09	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	147.16	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	72.81	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	54.54	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	85.42	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	18.59	
		-	-	80MVA, 220/132kV ICT - II (HV)	18.55	
		-	-	220kV Tsirang - Jigmeling Line	-53.50	
-	-	132kV Gelephu - Salakati Line	2.45			
<b>Total</b>	<b>217.25</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.42%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	18.02	Unit-I under maintenance. Unit-II on standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	17.90	
		Unit- III	90.45	220kV CHP - Malbase Line- III	75.47	
		Unit- IV	89.79	220kV CHP - Semtokha Line- IV	48.81	
		-	-	220kV Malbase - Birpara Line	-28.21	
		-	-	66kV CHP - Chumdo Line	12.86	
		-	-	66kV CHP - Gedu Line	4.62	
		-	-	3x3MVA, 66/11kV TFR	1.18	
<b>Total</b>	<b>180.24</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.77%</b>			
4	24MW BHP (U/S)	Unit- I	7.60	220kV BHP - Semtokha Line	57.60	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	21.20	
		<b>Total</b>	<b>7.60</b>	<b>220kV BHP - Tsirang Line</b>	<b>-51.24</b>	
5	40MW BHP (L/S)	Unit- I	20.10	5MVA, 66/11kV TFR	0.45	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	13.98	
		<b>Total</b>	<b>20.10</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-1.12%</b>	
6	126MW DHP	Unit-I	26.20	220kV DHP - Tsirang Line	0.00	Unit-II under Annual Maintenance. 220kV DHP_Tsirang Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	25.98	
		-	-	220kV Jigmeling - Dagapela Line	-18.53	
		-	-	5MVA, 220/33kV TFR	0.15	
<b>Total</b>	<b>26.20</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.27%</b>			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	26.25	Unit-I under AMP.
		Unit-II	15.09	132kV KHP - Kilikhar Line	17.86	
		Unit- III	15.17	5MVA, 132/11kV TFR	0.74	
		Unit- IV	15.00	132kV Motanga - Rangia Line	8.74	
		<b>Total</b>	<b>45.26</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.91%</b>	

**Note: Generation-Load Summary (MW) for March 17, 2022 at 18:00hrs.**

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	234.14	349.16	348.02	-61.52	1.14
2	Eastern Grid	262.51	57.86	56.54	151.15	1.32
<b>Total</b>		<b>496.65</b>	<b>407.02</b>	<b>404.56</b>	<b>89.63</b>	<b>2.46</b>

**Note: Generation-Load Summary for March 17, 2021 at 18:00hrs.**

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	325.77	259.95	254.80	46.74	5.15
2	Eastern Grid	144.45	78.88	78.11	84.65	0.77
<b>Total</b>		<b>470.22</b>	<b>338.83</b>	<b>332.91</b>	<b>131.39</b>	<b>5.92</b>

**NOTE- BHP data collected from site.**

- The Instantaneous load balance,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**

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**Date:** March 18, 2022  
**Hours:** 09:00 Hours

**Date:** 12-Jan-22      **Time:** 18:00hrs      **Load(MW):** 492.25

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	0.00	Unit I,II,III and V on Standby. 400kV THP- Siliguri - I under Shutdown. 400kV THP- Siliguri - II under Breakdown & 400kV THP- Siliguri - IV on Standby.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	118.91	400kV THP - Malbase Line - III	255.78	
		Unit- V	0.00	400kV Malbase - Siliguri Line	137.06	
		Unit- VI	139.27	-	-	
		<b>Total</b>	<b>258.18</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.93%</b>	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	234.35	Unit-I & II under Annual Maintenance. 400kV MHP-JLG Line II,III & IV on standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG-ALI I ( Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	85.07	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	150.03	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	68.63	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	63.99	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	98.07	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	24.57	
		-	-	80MVA, 220/132kV ICT - II (HV)	24.93	
		-	-	220kV Tsirang - Jigmeling Line	-43.51	
-	-	132kV Gelephu - Salakati Line	7.91			
<b>Total</b>	<b>235.10</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.32%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	15.66	Unit-II on standby. Unit-I under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Line- II	15.66	
		Unit- III	74.18	220kV CHP - Malbase Line- III	38.01	
		Unit- IV	69.32	220kV CHP - Semtokha Line- IV	55.03	
		-	-	220kV Malbase - Birpara Line	-4.03	
		-	-	66kV CHP - Chumdo Line	12.82	
		-	-	66kV CHP - Gedu Line	3.72	
		-	-	3x3MVA, 66/11kV TFR	1.12	
<b>Total</b>	<b>143.50</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.03%</b>			
4	24MW BHP (U/S)	Unit- I	9.00	220kV BHP - Semtokha Line	48.60	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeysa Line	20.63	
		<b>Total</b>	<b>9.00</b>	<b>220kV BHP - Tsirang Line</b>	<b>-40.34</b>	
5	40MW BHP (L/S)	Unit- I	20.20	5MVA, 66/11kV TFR	0.39	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	12.17	
		<b>Total</b>	<b>20.20</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-0.27%</b>	
6	126MW DHP	Unit-I	32.26	220kV DHP - Tsirang Line	0.00	Unit-II under Annual maintenance. 220kV DHP_Tsirang Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	32.04	
		-	-	220kV Jigmeling - Dagapela Line	-24.55	
		-	-	5MVA, 220/33kV TFR	-	
<b>Total</b>	<b>32.26</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.68%</b>			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	26.21	Unit-I under AMP.
		Unit-II	15.25	132kV KHP - Kilikhar Line	18.66	
		Unit- III	15.31	5MVA, 132/11kV TFR	0.51	
		Unit- IV	15.31	132kV Motanga - Rangia Line	16.41	
		<b>Total</b>	<b>45.87</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.07%</b>	

**Note: Generation-Load Summary (MW) for March 18, 2022 at 09:00hrs.**

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	463.14	342.30	338.28	164.35	4.02
2	Eastern Grid	280.97	51.08	49.84	186.38	1.24
<b>Total</b>		<b>744.11</b>	<b>393.38</b>	<b>388.12</b>	<b>350.73</b>	<b>5.26</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)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	270.95	237.16	233.01	19.09	4.15
2	Eastern Grid	155.41	59.01	58.24	111.10	0.77
<b>Total</b>		<b>426.36</b>	<b>296.17</b>	<b>291.25</b>	<b>130.19</b>	<b>4.92</b>

**NOTE-BHP 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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