

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

**Coincidental Maximum Load**

<b>Date:</b>	<b>January 17, 2022</b>
<b>Hours:</b>	<b>18:00 Hours</b>

<b>Date</b>	<b>Time</b>	<b>Load(MW)</b>
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	THP under total Shutdown.
		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	-49.26	
		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	79.72	400kV MHP - Jigmeling Line - I	228.85	Unit-IV & II on Standby. 400kV MHP-JLG Line II, III & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) under Shutdown. 400kV JLG_ALI Line I (Direct) on Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	151.01	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	0.00	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)	112.92	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	45.13	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	68.92	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.81	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.06	
		-	-	220kV Tsirang - Jigmeling Line	-55.94	
-	-	132kV Gelephu - Salakati Line	-9.41			
<b>Total</b>	<b>230.73</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.81%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I on Standby,Unit-III under Annual Maintenance 220kV CHP_Birpara Line I & II under Breakdown.
		Unit- II	83.99	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	67.28	
		Unit- IV	83.60	220kV CHP - Semtokha Line- IV	74.23	
		-	-	220kV Malbase - Birpara Line	-35.67	
		-	-	66kV CHP - Chumdo Line	21.67	
		-	-	66kV CHP - Gedu Line	2.20	
		-	-	3x3MVA, 66/11kV TFR	1.75	
<b>Total</b>	<b>167.59</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.27%</b>			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	69.40	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	7.90	66kV BHP - Lobeyasa Line	28.36	
		<b>Total</b>	<b>7.90</b>	<b>220kV BHP - Tsirang Line</b>	<b>-75.77</b>	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.96	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	14.90	30MVA ICT, 220/66kV (HV)	21.69	
		<b>Total</b>	<b>14.90</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-0.66%</b>	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	25.38	Unit-I under Annual Maintenance. 220kV DHP-Dagapela Line on standby.
		Unit-II	25.60	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	16.46	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>25.60</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.08%</b>			
7	60MW KHP	Unit- I	10.02	132kV KHP - Nangkhoh Line	10.58	Unit-III on standby
		Unit-II	10.07	132kV KHP - Kilikhar Line	17.76	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.60	
		Unit- IV	9.34	132kV Motanga - Rangia Line	5.31	
		<b>Total</b>	<b>29.43</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.66%</b>	

**Note: Generation-Load Summary (MW) for January 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	215.99	356.86	356.53	-84.93	0.33
2	Eastern Grid	260.16	94.27	91.90	109.95	2.37
<b>Total</b>		<b>476.15</b>	<b>451.13</b>	<b>448.43</b>	<b>25.02</b>	<b>2.70</b>

**Note: Generation-Load Summary for January 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	316.32	258.11	254.71	39.23	3.40
2	Eastern Grid	132.19	75.98	74.80	75.19	1.18
<b>Total</b>		<b>448.51</b>	<b>334.09</b>	<b>329.51</b>	<b>114.42</b>	<b>4.58</b>

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

1. 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:

- i) 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.
- ii) The clocks of all the locations are not synchronized.

2. 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**

**Coincidental Maximum Load**

**Date:** January 18, 2022  
**Hours:** 09:00 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	THP under total shutdown.
		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	-56.05	
		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	82.79	400kV MHP - Jigmeling Line - I	208.14	Unit-II & IV on Standby. 400kV MHP-JLG Line II, III & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) under Shutdown. 400kV JLG_ALI Line I (Direct) on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	126.34	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	0.00	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)	92.16	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	44.47	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	69.23	
		-	-	80MVA, 220/132kV ICT - I (HV)	18.10	
		-	-	80MVA, 220/132kV ICT - II (HV)	18.39	
		-	-	220kV Tsirang - Jigmeling Line	-39.38	
-	-	132kV Gelephu - Salakati Line	-4.40			
<b>Total</b>	<b>209.13</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.47%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I on Standby. Unit-III under Annual Maintenance. 220kV CHP_Birpara Line-I & II under breakdown..
		Unit- II	83.89	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	83.98	
		Unit- IV	83.46	220kV CHP - Semtokha Line- IV	61.91	
		-	-	220kV Malbase - Birpara Line	-30.91	
		-	-	66kV CHP - Chumdo Line	17.30	
		-	-	66kV CHP - Gedu Line	2.54	
		-	-	3x3MVA, 66/11kV TFR	1.45	
<b>Total</b>	<b>167.35</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.10%</b>			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	59.20	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	7.60	66kV BHP - Lobeyasa Line	-61.92	
		<b>Total</b>	<b>7.60</b>	<b>220kV BHP - Tsirang Line</b>	<b>24.82</b>	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.68	
		Unit- II	15.10	30MVA ICT, 220/66kV (HV)	18.09	
		<b>Total</b>	<b>15.10</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-0.35%</b>	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	25.24	Unit-I under Annual Maintenance. 220kV DHP_Dagapela Line on standby.
		Unit-II	25.45	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	15.66	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>25.45</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.04%</b>			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	13.83	Unit III on standby.
		Unit-II	15.11	132kV KHP - Kilikhar Line	15.36	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.59	
		Unit- IV	15.09	132kV Motanga - Rangia Line	4.12	
		<b>Total</b>	<b>30.20</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.39%</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	215.50	341.84	341.74	-86.96	0.10
2	Eastern Grid	239.33	86.53	85.12	113.42	1.41
<b>Total</b>		<b>454.83</b>	<b>428.37</b>	<b>426.86</b>	<b>26.46</b>	<b>1.51</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	308.27	227.54	221.88	60.51	5.66
2	Eastern Grid	137.36	64.06	61.66	93.52	2.40
<b>Total</b>		<b>445.63</b>	<b>291.60</b>	<b>283.54</b>	<b>154.03</b>	<b>8.06</b>

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

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- i) 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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