

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

**Coincidental Maximum Load**

<b>Date:</b>	<b>February 5, 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	-17.80	
		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	141.73	400kV MHP - Jigmeling Line - I	285.17	Unit-III on Standby. Unit-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 Line 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	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	145.47	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)	59.94	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	87.84	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	132.65	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	12.24	
		-	-	80MVA, 220/132kV ICT - II (HV)	12.44	
		-	-	220kV Tsirang - Jigmeling Line	-54.26	
-	-	132kV Gelephu - Salakati Line	-2.29			
<b>Total</b>	<b>287.20</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.71%</b>			
3	336MW CHP	Unit- I	91.08	220kV CHP - Birpara Line- I	37.14	Unit-II under Annual Maintenance. Unit-III under Annual Maintenance. 220kV CHP_Birpara Line II under Shutdown. 66kV CHP-Chumdo Line declared as Faulty.
		Unit- II	0.00	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	98.38	
		Unit- IV	91.54	220kV CHP - Semtokha Line- IV	35.79	
		-	-	220kV Malbase - Birpara Line	-16.32	
		-	-	66kV CHP - Chumdo Line	0.00	
		-	-	66kV CHP - Gedu Line	7.57	
		-	-	3x3MVA, 66/11kV TFR	1.63	
<b>Total</b>	<b>182.62</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.16%</b>			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	70.50	U/S and L/S Unit-I under maintenance.
		Unit- II	8.20	66kV BHP - Lobeyasa Line	7.61	
		<b>Total</b>	<b>8.20</b>	<b>220kV BHP - Tsirang Line</b>	<b>-50.39</b>	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	1.07	U/S and L/S Unit-I under maintenance.
		Unit- II	20.14	30MVA ICT, 220/66kV (HV)	0.54	
		<b>Total</b>	<b>20.14</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-1.59%</b>	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	0.00	Unit-I under Annual Maintenance. 220kV DHP-Tsirang Line on maintenance.
		Unit-II	37.97	220kV DHP - Dagapela Line	37.76	
		-	-	220kV Jigmeling - Dagapela Line	-20.79	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>37.97</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.03%</b>			
7	60MW KHP	Unit- I	15.13	132kV KHP - Nangkhoh Line	24.98	Unit-II under Annual Maintenance. Unit-III on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	4.02	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.69	
		Unit- IV	15.12	132kV Motanga - Rangia Line	1.22	
		<b>Total</b>	<b>30.25</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.85%</b>	

**Note: Generation-Load Summary (MW) for February 05, 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	248.93	300.17	298.50	3.02	1.67
2	Eastern Grid	317.45	43.77	41.18	219.42	2.59
<b>Total</b>		<b>566.38</b>	<b>343.94</b>	<b>339.68</b>	<b>222.44</b>	<b>4.26</b>

**Note: Generation-Load Summary for February 05, 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	277.73	268.34	264.94	-3.80	3.40
2	Eastern Grid	105.84	77.93	76.39	41.10	1.54
<b>Total</b>		<b>383.57</b>	<b>346.27</b>	<b>341.33</b>	<b>37.30</b>	<b>4.94</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:** February 6, 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	-31.13	
		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	80.20	400kV MHP - Jigmeling Line - I	139.18	Unit IV on Standby. Unit-II under Annual Maintenance. 400kV MHP-JLG Line II, III & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line 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	60.44	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)	54.25	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	33.31	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	50.51	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	1.32	
		-	-	80MVA, 220/132kV ICT - II (HV)	1.33	
		-	-	220kV Tsirang - Jigmeling Line	-63.62	
-	-	132kV Gelephu - Salakati Line	-3.96			
<b>Total</b>	<b>140.64</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.04%</b>			
3	336MW CHP	Unit- I	87.12	220kV CHP - Birpara Line- I	24.35	Unit-II under maintenance. Unit-III under Annual Maintenance. 220kV CHP_Birpara Line I and II under Shutdown. 66kV CHP-Chumdo Line declared as Faulty.
		Unit- II	0.00	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	84.89	
		Unit- IV	88.98	220kV CHP - Semtokha Line- IV	57.36	
		-	-	220kV Malbase - Birpara Line	-27.33	
		-	-	66kV CHP - Chumdo Line	0.00	
		-	-	66kV CHP - Gedu Line	6.06	
		-	-	3x3MVA, 66/11kV TFR	1.18	
<b>Total</b>	<b>176.10</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.28%</b>			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	59.70	U/S and L/S Unit-I under maintenance.
		Unit- II	7.50	66kV BHP - Lobeyasa Line	22.28	
		<b>Total</b>	<b>7.50</b>	<b>220kV BHP - Tsirang Line</b>	<b>-59.66</b>	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.72	
		Unit- II	15.40	30MVA ICT, 220/66kV (HV)	15.78	
		<b>Total</b>	<b>15.40</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-0.61%</b>	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	0.00	Unit-I under Annual Maintenance. 220kV DHP_Tsirang Line under maintenance.
		Unit-II	28.98	220kV DHP - Dagapela Line	28.78	
		-	-	220kV Jigmeling - Dagapela Line	-12.76	
		-	-	5MVA, 220/33kV TFR	0.19	
<b>Total</b>	<b>28.98</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.03%</b>			
7	60MW KHP	Unit- I	15.11	132kV KHP - Nangkhoh Line	26.03	Unit-II under Annual Maintenance. Unit-III on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	3.08	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.76	
		Unit- IV	15.10	132kV Motanga - Rangia Line	-11.42	
		<b>Total</b>	<b>30.21</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.13%</b>	

**Note: Generation-Load Summary (MW) for February 06, 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	227.98	325.71	323.58	-34.11	2.13
2	Eastern Grid	170.85	38.79	36.99	68.44	1.80
<b>Total</b>		<b>398.83</b>	<b>364.50</b>	<b>360.57</b>	<b>34.33</b>	<b>3.93</b>

**Note: Generation-Load Summary for February 06, 2021 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	269.80	244.77	240.38	15.33	4.39
2	Eastern Grid	101.52	63.91	63.26	47.31	0.65
<b>Total</b>		<b>371.32</b>	<b>308.68</b>	<b>303.64</b>	<b>62.64</b>	<b>5.04</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.