

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

**Coincidental Maximum Load**

<b>Date:</b>	<b>February 9, 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	-50.70	
		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	226.59	Unit-I 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 II (Interim) on Standby. 400kV JLG_ALI Line I (Direct) tripped at 16:59hrs.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	118.34	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	110.04	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)	101.85	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	48.63	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	73.70	
		-	-	80MVA, 220/132kV ICT - I (HV)	16.30	
		-	-	80MVA, 220/132kV ICT - II (HV)	16.57	
		-	-	220kV Tsirang - Jigmeling Line	-77.53	
-	-	132kV Gelephu - Salakati Line	-10.01			
<b>Total</b>	<b>228.38</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.78%</b>			
3	336MW CHP	Unit- I	81.69	220kV CHP - Birpara Line- I	4.35	Unit-II on Standby. Unit-III under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Line- II	4.33	
		Unit- III	0.00	220kV CHP - Malbase Line- III	67.18	
		Unit- IV	85.22	220kV CHP - Semtokha Line- IV	63.90	
		-	-	220kV Malbase - Birpara Line	-44.40	
		-	-	66kV CHP - Chumdo Line	20.16	
		-	-	66kV CHP - Gedu Line	2.08	
		-	-	3x3MVA, 66/11kV TFR	1.88	
<b>Total</b>	<b>166.91</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.82%</b>			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	74.40	U/S and L/S Unit-I under maintenance.
		Unit- II	7.90	66kV BHP - Lobeyasa Line	25.81	
		<b>Total</b>	<b>7.90</b>	<b>220kV BHP - Tsirang Line</b>	<b>-72.89</b>	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.92	U/S and L/S Unit-I under maintenance.
		Unit- II	20.10	30MVA ICT, 220/66kV (HV)	17.55	
		<b>Total</b>	<b>20.10</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-0.86%</b>	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	0.00	Unit-I under Annual Maintenance. 220kV DHP-Tsirang Line on Standby.
		Unit-II	25.97	220kV DHP - Dagapela Line	25.76	
		-	-	220kV Jigmeling - Dagapela Line	-9.01	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>25.97</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.04%</b>			
7	60MW KHP	Unit- I	15.09	132kV KHP - Nangkhoh Line	10.61	Unit-III & IV on Standby.
		Unit-II	15.06	132kV KHP - Kilikhar Line	18.40	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.90	
		Unit- IV	0.00	132kV Motanga - Rangia Line	7.03	
		<b>Total</b>	<b>30.15</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.80%</b>	

**Note: Generation-Load Summary (MW) for February 09, 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	220.88	384.83	382.03	-86.42	2.80
2	Eastern Grid	258.53	61.65	59.62	119.35	2.03
<b>Total</b>		<b>479.41</b>	<b>446.48</b>	<b>441.65</b>	<b>32.93</b>	<b>4.83</b>

**Note: Generation-Load Summary for February 09, 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	244.90	289.81	281.64	-34.37	8.17
2	Eastern Grid	105.24	45.46	44.46	49.24	1.00
<b>Total</b>		<b>350.14</b>	<b>335.27</b>	<b>326.10</b>	<b>14.87</b>	<b>9.17</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 10, 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	-59.99	
		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	217.63	Unit I 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 II (Interim) on Standby. 400kV JLG_ALI Line I (Direct) under Breakdown.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	125.44	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	94.05	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)	91.09	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	49.62	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	74.93	
		-	-	80MVA, 220/132kV ICT - I (HV)	14.79	
		-	-	80MVA, 220/132kV ICT - II (HV)	15.04	
		-	-	220kV Tsirang - Jigmeling Line	-71.97	
-	-	132kV Gelephu - Salakati Line	-4.93			
<b>Total</b>	<b>219.49</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.85%</b>			
3	336MW CHP	Unit- I	80.86	220kV CHP - Birpara Line- I	7.32	Unit-II on Standby. Unit-III under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Line- II	7.36	
		Unit- III	0.00	220kV CHP - Malbase Line- III	72.88	
		Unit- IV	78.89	220kV CHP - Semtokha Line- IV	49.51	
		-	-	220kV Malbase - Birpara Line	-43.54	
		-	-	66kV CHP - Chumdo Line	16.55	
		-	-	66kV CHP - Gedu Line	2.50	
		-	-	3x3MVA, 66/11kV TFR	1.55	
<b>Total</b>	<b>159.75</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.30%</b>			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	66.80	U/S and L/S Unit-I under maintenance.
		Unit- II	7.60	66kV BHP - Lobeyssa Line	23.30	
		<b>Total</b>	<b>7.60</b>	<b>220kV BHP - Tsirang Line</b>	<b>-68.25</b>	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.58	
		Unit- II	14.40	30MVA ICT, 220/66kV (HV)	16.24	
		<b>Total</b>	<b>14.40</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-1.95%</b>	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	0.00	Unit-I under Annual Maintenance. 220kV DHP_Tsirang Line on Standby.
		Unit-II	27.20	220kV DHP - Dagapela Line	26.95	
		-	-	220kV Jigmeling - Dagapela Line	-10.91	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>27.20</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.18%</b>			
7	60MW KHP	Unit- I	14.21	132kV KHP - Nangkhor Line	11.97	Unit-II & III on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	15.50	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.76	
		Unit- IV	14.21	132kV Motanga - Rangia Line	1.81	
		<b>Total</b>	<b>28.42</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.68%</b>	

**Note: Generation-Load Summary (MW) for February 10, 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	208.95	369.77	368.07	-88.85	1.70
2	Eastern Grid	247.91	54.51	52.46	121.43	2.05
<b>Total</b>		<b>456.86</b>	<b>424.28</b>	<b>420.53</b>	<b>32.58</b>	<b>3.75</b>

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1	Western Grid	240.70	268.52	262.67	-14.52	5.85
2	Eastern Grid	121.17	43.18	42.65	64.69	0.53
<b>Total</b>		<b>361.87</b>	<b>311.70</b>	<b>305.32</b>	<b>50.17</b>	<b>6.38</b>

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

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