

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

**Coincidental Maximum Load**

**Date:** February 10, 2023  
**Hours:** 18:00 Hours

Date	Time	Load(MW)
10-Feb-23	19:12:46hrs	646.17

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 & IV under Shutdown. Unit-III & V on Standby. 400kV THP- Siliguri Line I under shutdown. 400kV THP- Siliguri Line IV on standby. 400kV THP- Malbase - Siliguri Line under Breakdown.
		Unit- II	155.00	400kV THP - Siliguri Line - II	161.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	139.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	0.00	
		Unit- VI	150.00	-	-	
		<b>Total</b>	<b>305.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.64%</b>	
2	720MW MHP	Unit-I	79.78	400kV MHP - Jigmeling Line - I	0.00	Unit-II under AMP. Unit-III under Shutdown. 400kV MHP-JLG Line I, II & III on Standby. 132kV MHP_Yurmo Line-I not in service. 400kV JLG_ALI Line- I & II (Interim) under Shutdown.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	70.31	400kV MHP - Jigmeling Line - IV	65.36	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	83.11	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	139.83	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-36.04	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-37.32	
		-	-	80MVA, 220/132kV ICT - I (HV)	8.12	
		-	-	80MVA, 220/132kV ICT - II (HV)	8.30	
		-	-	220kV Tsirang - Jigmeling Line	-56.30	
-	-	132kV Gelephu - Salakati Line	-5.60			
<b>Total</b>	<b>150.09</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.08%</b>			
3	336MW CHP	Unit- I	61.32	220kV CHP - Birpara Line- I	-11.50	Unit-II & IV under AMP. 220kV CHP_Birpara II on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	0.00	
		Unit- III	67.99	220kV CHP - Malbase Line- III	26.10	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	80.60	
		-	-	220kV Malbase - Birpara Line	-39.04	
		-	-	66kV CHP - Chumdo Line	20.40	
		-	-	66kV CHP - Gedu Line	8.50	
		-	-	3x3MVA, 66/11kV TFR	2.08	
<b>Total</b>	<b>129.31</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>2.42%</b>			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	62.52	L/S & U/S Unit-I on Standby.
		Unit- II	6.28	66kV BHP - Lobeyasa Line	26.98	
		<b>Total</b>	<b>6.28</b>	<b>220kV BHP - Tsirang Line</b>	<b>-71.69</b>	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.84	L/S & U/S Unit-I on Standby.
		Unit- II	12.70	30MVA ICT, 220/66kV (HV)	21.87	
		<b>Total</b>	<b>12.70</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.74%</b>	
6	126MW DHP	Unit-I	20.20	220kV DHP - Tsirang Line	19.97	Unit-II under shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	67.23	
		-	-	5MVA, 220/33kV TFR	0.22	
<b>Total</b>	<b>20.20</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.05%</b>			
7	60MW KHP	Unit- I	10.07	132kV KHP - Nangkhoh Line	5.25	Unit-II on Standby. Unit-IV under AMP
		Unit-II	0.00	132kV KHP - Kilikhar Line	13.91	
		Unit- III	10.11	5MVA, 132/11kV TFR	0.59	
		Unit- IV	0.00	132kV Motanga - Rangia Line	-11.65	
		<b>Total</b>	<b>20.18</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>2.13%</b>	

**Note: Generation-Load Summary (MW) for February 10, 2023 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	473.49	419.33	410.86	110.46	8.47
2	Eastern Grid	170.27	204.58	202.53	-90.61	2.05
<b>Total</b>		<b>643.76</b>	<b>623.91</b>	<b>613.39</b>	<b>19.85</b>	<b>10.52</b>

**Note: Generation-Load Summary for February 10, 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	229.60	386.01	380.28	-156.41	5.73
2	Eastern Grid	255.65	68.73	66.89	186.92	1.84
<b>Total</b>		<b>485.25</b>	<b>454.74</b>	<b>447.17</b>	<b>30.51</b>	<b>7.57</b>

**Note: All data 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 11, 2023  
**Hours:** 09:00 Hours

Date	Time	Load(MW)
10-Feb-23	19:12:46hrs	646.17

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 & IV under Shutdown. Unit-III & V on Standby. 400kV THP- Siliguri Line I under shutdown and IV on standby. 400kV Malbase - Siliguri Line under Breakdown.
		Unit- II	161.82	400kV THP - Siliguri Line - II	154.35	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	135.42	
		Unit- V	0.00	400kV Malbase - Siliguri Line	0.00	
		Unit- VI	134.03	-	-	
		<b>Total</b>	<b>295.85</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>2.06%</b>	
2	720MW MHP	Unit-I	62.19	400kV MHP - Jigmeling Line - I	0.00	Unit-II under AMP. Unit-III under Shutdown. 400kV MHP-JLG Line I, II & III on Standby. 132kV MHP_Yurmo Line- I not in service. 400kV JLG_ALI Line-I & II (Interim) under Shutdown.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	60.36	400kV MHP - Jigmeling Line - IV	49.80	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	72.30	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	121.60	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-35.49	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-37.16	
		-	-	80MVA, 220/132kV ICT - I (HV)	5.10	
		-	-	80MVA, 220/132kV ICT - II (HV)	5.20	
		-	-	220kV Tsirang - Jigmeling Line	44.98	
-	-	132kV Gelephu - Salakati Line	-5.03			
<b>Total</b>	<b>122.55</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.37%</b>			
3	336MW CHP	Unit- I	57.04	220kV CHP - Birpara Line- I	-9.24	Unit-II and IV under AMP. 220kV CHP_Birpara II on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	0.00	
		Unit- III	61.98	220kV CHP - Malbase Line- III	22.02	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	76.88	
		-	-	220kV Malbase - Birpara Line	-31.06	
		-	-	66kV CHP - Chumdo Line	18.40	
		-	-	66kV CHP - Gedu Line	9.05	
		-	-	3x3MVA, 66/11kV TFR	0.80	
<b>Total</b>	<b>119.02</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.93%</b>			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	54.88	L/S & U/S unit-I on Standby
		Unit- II	6.10	66kV BHP - Lobeyasa Line	24.78	
		<b>Total</b>	<b>6.10</b>	220kV BHP - Tsirang Line	-60.96	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.60	L/S & U/S unit-I on Standby
		Unit- II	13.10	30MVA ICT, 220/66kV (HV)	19.40	
		<b>Total</b>	<b>13.10</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-0.52%</b>	
6	126MW DHP	Unit-I	20.00	220kV DHP - Tsirang Line	19.78	Unit-II under Shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	66.80	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>20.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.10%</b>			
7	60MW KHP	Unit- I	15.11	132kV KHP - Nangkhoh Line	14.94	Unit-II on Standby. Unit-IV under AMP.
		Unit-II	0.00	132kV KHP - Kilikhar Line	14.21	
		Unit- III	15.03	5MVA, 132/11kV TFR	0.70	
		Unit- IV	0.00	132kV Motanga - Rangia Line	-5.12	
		<b>Total</b>	<b>30.14</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.96%</b>	

**Note: Generation-Load Summary (MW) for February 11, 2023 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	454.07	295.04	287.93	114.05	7.11
2	Eastern Grid	152.69	280.47	279.73	-82.80	0.74
<b>Total</b>		<b>606.76</b>	<b>575.51</b>	<b>567.66</b>	<b>31.25</b>	<b>7.85</b>

**Note: Generation-Load Summary for February 11, 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	226.25	372.76	370.86	-80.09	1.90
2	Eastern Grid	232.45	60.47	58.65	105.56	1.82
<b>Total</b>		<b>458.70</b>	<b>433.23</b>	<b>429.51</b>	<b>25.47</b>	<b>3.72</b>

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