

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

**Coincidental Maximum Load**

**Date:** February 23, 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	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	-43.54	
		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	235.02	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) under standby. 400kV JLG_ALI Line I & II (Direct) under Breakdown.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	118.29	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	118.05	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)	119.21	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	111.26	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	19.27	
		-	-	80MVA, 220/132kV ICT - II (HV)	19.59	
		-	-	220kV Tsirang - Jigmeling Line	-94.10	
-	-	132kV Gelephu - Salakati Line	-5.37			
<b>Total</b>	<b>236.34</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.56%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	6.00	Unit-I Under maintenance Unit II on Shutdown.
		Unit- II	0.00	220kV CHP - Birpara Line- II	6.43	
		Unit- III	84.90	220kV CHP - Malbase Line- III	77.53	
		Unit- IV	83.29	220kV CHP - Semtokha Line- IV	52.99	
		-	-	220kV Malbase - Birpara Line	-49.36	
		-	-	66kV CHP - Chumdo Line	19.44	
		-	-	66kV CHP - Gedu Line	2.28	
		-	-	3x3MVA, 66/11kV TFR	1.74	
<b>Total</b>	<b>168.19</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.06%</b>			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	88.40	U/S Unit-I under maintenance. L/S Unit-II on Standby.
		Unit- II	6.80	66kV BHP - Lobeyasa Line	26.78	
		<b>Total</b>	<b>6.80</b>	220kV BHP - Tsirang Line	-88.58	
5	40MW BHP (L/S)	Unit- I	20.00	5MVA, 66/11kV TFR	0.69	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	20.89	
		<b>Total</b>	<b>20.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-1.83%</b>	
6	126MW DHP	Unit-I	23.68	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	23.47	
		-	-	220kV Jigmeling - Dagapela Line	-14.13	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>23.68</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.04%</b>			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	10.94	Unit-I under AMP. Unit-IV on Standby.
		Unit-II	14.00	132kV KHP - Kilikhar Line	16.12	
		Unit- III	14.06	5MVA, 132/11kV TFR	0.70	
		Unit- IV	0.00	132kV Motanga - Rangia Line	-2.57	
		<b>Total</b>	<b>28.06</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.07%</b>	

**Note: Generation-Load Summary (MW) for February 23, 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	218.67	393.24	391.94	-80.47	1.30
2	Eastern Grid	264.40	66.98	65.36	103.32	1.62
<b>Total</b>		<b>483.07</b>	<b>460.22</b>	<b>457.30</b>	<b>22.85</b>	<b>2.92</b>

**Note: Generation-Load Summary for February 23, 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	386.36	218.04	210.24	158.50	7.80
2	Eastern Grid	115.90	66.39	65.98	59.33	0.41
<b>Total</b>		<b>502.26</b>	<b>284.43</b>	<b>276.22</b>	<b>217.83</b>	<b>8.21</b>

**NOTE- BHP 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 24, 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	-54.91	
		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	195.15	Unit-I & 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 I (Interim) under standby. 400kV JLG_ALI Line I & II (Direct) under Breakdown.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	99.77	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	96.48	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)	34.48	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	97.44	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	18.68	
		-	-	80MVA, 220/132kV ICT - II (HV)	18.83	
		-	-	220kV Tsirang - Jigmeling Line	-79.02	
-	-	132kV Gelephu - Salakati Line	-2.00			
<b>Total</b>	<b>196.25</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.56%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	11.67	Unit-II under shutdown.. Unit-I under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Line- II	12.15	
		Unit- III	83.45	220kV CHP - Malbase Line- III	77.51	
		Unit- IV	85.10	220kV CHP - Semtokha Line- IV	44.43	
		-	-	220kV Malbase - Birpara Line	-40.00	
		-	-	66kV CHP - Chumdo Line	15.10	
		-	-	66kV CHP - Gedu Line	2.80	
		-	-	3x3MVA, 66/11kV TFR	1.64	
<b>Total</b>	<b>168.55</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.93%</b>			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	74.30	U/S Unit-I under Annual maintenance. L/S Unit-II on Standby.
		Unit- II	6.80	66kV BHP - Lobeysa Line	23.47	
		<b>Total</b>	<b>6.80</b>	220kV BHP - Tsirang Line	-76.13	
5	40MW BHP (L/S)	Unit- I	15.10	5MVA, 66/11kV TFR	0.57	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	17.43	
		<b>Total</b>	<b>15.10</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-1.42%</b>	
6	126MW DHP	Unit-I	24.18	220kV DHP - Tsirang Line	0.00	Unit-II on Standby. 220kV DHP_Tsirang Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	23.97	
		-	-	220kV Jigmeling - Dagapela Line	-14.90	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>24.18</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	14.04	Unit-I under AMP. Unit-IV on Standby.
		Unit-II	15.13	132kV KHP - Kilikhar Line	15.23	
		Unit- III	15.09	5MVA, 132/11kV TFR	0.59	
		Unit- IV	0.00	132kV Motanga - Rangia Line	5.53	
		<b>Total</b>	<b>30.22</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.19%</b>	

**Note: Generation-Load Summary (MW) for February 24, 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	214.63	364.74	361.79	-71.09	2.95
2	Eastern Grid	226.47	46.48	45.02	100.97	1.46
<b>Total</b>		<b>441.10</b>	<b>411.22</b>	<b>406.81</b>	<b>29.88</b>	<b>4.41</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	426.37	196.43	187.90	217.20	8.53
2	Eastern Grid	116.94	48.76	47.53	80.92	1.23
<b>Total</b>		<b>543.31</b>	<b>245.19</b>	<b>235.43</b>	<b>298.12</b>	<b>9.76</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.
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