

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

**Coincidental Maximum Load**

**Date:** February 19, 2022  
**Hours:** 18:00 Hours

**Date:** 12-Jan-22      **Time:** 18:00hrs      **Load(MW):** 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	-51.50	
		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	236.05	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 Line I & II (Direct) under Breakdown.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	100.68	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	136.38	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)	100.92	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	64.72	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	66.77	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	15.40	
		-	-	80MVA, 220/132kV ICT - II (HV)	15.64	
		-	-	220kV Tsirang - Jigmeling Line	-85.26	
-	-	132kV Gelephu - Salakati Line	-4.00			
<b>Total</b>	<b>237.06</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.43%</b>			
3	336MW CHP	Unit- I	57.33	220kV CHP - Birpara Line- I	-0.35	Unit-IV on Standby. Unit-III under Annual Maintenance.
		Unit- II	91.95	220kV CHP - Birpara Line- II	-0.22	
		Unit- III	0.00	220kV CHP - Malbase Line- III	63.35	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	60.62	
		-	-	220kV Malbase - Birpara Line	-49.65	
		-	-	66kV CHP - Chumdo Line	19.54	
		-	-	66kV CHP - Gedu Line	2.39	
		-	-	3x3MVA, 66/11kV TFR	1.82	
<b>Total</b>	<b>149.28</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.43%</b>			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	80.10	U/S Unit-I under maintenance. L/S Unit-II on Standby.
		Unit- II	7.00	66kV BHP - Lobeyssa Line	26.80	
		<b>Total</b>	<b>7.00</b>	<b>220kV BHP - Tsirang Line</b>	<b>-80.17</b>	
5	40MW BHP (L/S)	Unit- I	20.10	5MVA, 66/11kV TFR	0.75	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	20.70	
		<b>Total</b>	<b>20.10</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-1.40%</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	25.58	220kV DHP - Dagapela Line	25.37	
		-	-	220kV Jigmeling - Dagapela Line	-17.25	
		-	-	5MVA, 220/33kV TFR	0.15	
<b>Total</b>	<b>25.58</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.23%</b>			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	9.65	Unit-I under AMP. Unit-IV on Standby.
		Unit-II	13.57	132kV KHP - Kilikhar Line	16.35	
		Unit- III	13.58	5MVA, 132/11kV TFR	0.89	
		Unit- IV	0.00	132kV Motanga - Rangia Line	5.12	
		<b>Total</b>	<b>27.15</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.96%</b>	

**Note: Generation-Load Summary (MW) for February 19, 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	201.96	388.94	387.13	-101.72	1.81
2	Eastern Grid	264.21	46.34	45.07	132.61	1.27
<b>Total</b>		<b>466.17</b>	<b>435.28</b>	<b>432.20</b>	<b>30.89</b>	<b>3.08</b>

**Note: Generation-Load Summary for February 19, 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	248.71	226.93	223.63	12.53	3.30
2	Eastern Grid	115.57	53.01	52.56	71.81	0.45
<b>Total</b>		<b>364.28</b>	<b>279.94</b>	<b>276.19</b>	<b>84.34</b>	<b>3.75</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.

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

**Coincidental Maximum Load**

**Date:** February 20, 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	-46.67	
		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	194.99	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 Line I & II (Direct) under Breakdown.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	87.34	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	108.34	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)	79.79	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	55.27	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	56.93	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	13.47	
		-	-	80MVA, 220/132kV ICT - II (HV)	13.67	
		-	-	220kV Tsirang - Jigmeling Line	-71.58	
-	-	132kV Gelephu - Salakati Line	-3.72			
<b>Total</b>	<b>195.68</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.35%</b>			
3	336MW CHP	Unit- I	79.03	220kV CHP - Birpara Line- I	8.21	Unit-IV on Standby. Unit-III under Annual Maintenance.
		Unit- II	83.97	220kV CHP - Birpara Line- II	8.10	
		Unit- III	0.00	220kV CHP - Malbase Line- III	73.36	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	50.78	
		-	-	220kV Malbase - Birpara Line	-43.06	
		-	-	66kV CHP - Chumdo Line	16.25	
		-	-	66kV CHP - Gedu Line	2.14	
		-	-	3x3MVA, 66/11kV TFR	1.58	
<b>Total</b>	<b>163.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.58%</b>			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	71.20	U/S Unit-I under Annual maintenance. L/S Unit-II on Standby.
		Unit- II	7.50	66kV BHP - Lobeysa Line	23.83	
		<b>Total</b>	<b>7.50</b>	220kV BHP - Tsirang Line	-67.90	
5	40MW BHP (L/S)	Unit- I	20.10	5MVA, 66/11kV TFR	0.58	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	17.14	
		<b>Total</b>	<b>20.10</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-0.40%</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	27.78	220kV DHP - Dagapela Line	27.58	
		-	-	220kV Jigmeling - Dagapela Line	-19.66	
		-	-	5MVA, 220/33kV TFR	0.19	
<b>Total</b>	<b>27.78</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	13.51	Unit-I under AMP. Unit-IV on Standby.
		Unit-II	15.10	132kV KHP - Kilikhar Line	15.56	
		Unit- III	15.10	5MVA, 132/11kV TFR	0.50	
		Unit- IV	0.00	132kV Motanga - Rangia Line	0.00	
		<b>Total</b>	<b>30.20</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>2.09%</b>	

**Note: Generation-Load Summary (MW) for February 20, 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	218.38	363.38	360.90	-73.42	2.48
2	Eastern Grid	225.88	45.82	44.50	108.48	1.32
<b>Total</b>		<b>444.26</b>	<b>409.20</b>	<b>405.40</b>	<b>35.06</b>	<b>3.80</b>

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1	Western Grid	246.85	180.08	178.27	53.40	1.81
2	Eastern Grid	111.36	56.63	56.45	68.10	0.18
<b>Total</b>		<b>358.21</b>	<b>236.71</b>	<b>234.72</b>	<b>121.50</b>	<b>1.99</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.