

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

**Coincidental Maximum Load**

**Date:** February 27, 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	-64.29	
		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	230.01	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) on standby. 400kV JLG_ALI Line II (Direct) on standby
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	119.37	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	111.88	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)	83.98	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	55.27	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	86.01	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	16.45	
		-	-	80MVA, 220/132kV ICT - II (HV)	16.69	
		-	-	220kV Tsirang - Jigmeling Line	-66.36	
-	-	132kV Gelephu - Salakati Line	-8.20			
<b>Total</b>	<b>231.25</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.54%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	31.23	220kV CHP-MAL line under shutdown. Unit-I Under maintenance. Unit IV on standby
		Unit- II	83.89	220kV CHP - Birpara Line- II	31.27	
		Unit- III	83.01	220kV CHP - Malbase Line- III	0.00	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	76.27	
		-	-	220kV Malbase - Birpara Line	-99.18	
		-	-	66kV CHP - Chumdo Line	19.51	
		-	-	66kV CHP - Gedu Line	5.12	
		-	-	3x3MVA, 66/11kV TFR		
<b>Total</b>	<b>166.90</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>2.10%</b>			
4	24MW BHP (U/S)	Unit- I	6.70	220kV BHP - Semtokha Line	60.92	
		Unit- II	0.00	66kV BHP - Lobeyasa Line	21.43	
		<b>Total</b>	<b>6.70</b>	220kV BHP - Tsirang Line	-61.79	
5	40MW BHP (L/S)	Unit- I	14.00	5MVA, 66/11kV TFR	0.78	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	19.32	
		<b>Total</b>	<b>14.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-3.09%</b>	
6	126MW DHP	Unit-I	24.70	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	24.50	
		-	-	220kV Jigmeling - Dagapela Line	-14.61	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>24.70</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.00%</b>			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	8.77	Unit-I under AMP & Unit-IV on Standby.
		Unit-II	12.57	132kV KHP - Kilikhar Line	15.58	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.60	
		Unit- IV	12.62	132kV Motanga - Rangia Line	-0.48	
		<b>Total</b>	<b>25.19</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.95%</b>	

**Note: Generation-Load Summary (MW) for February 27, 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	212.30	379.63	376.77	-100.97	2.86
2	Eastern Grid	256.44	57.48	56.00	132.60	1.48
<b>Total</b>		<b>468.74</b>	<b>437.11</b>	<b>432.77</b>	<b>31.63</b>	<b>4.34</b>

**Note: Generation-Load Summary for February 27, 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	239.58	227.69	226.06	1.47	1.63
2	Eastern Grid	110.63	68.69	68.06	52.36	0.63
<b>Total</b>		<b>350.21</b>	<b>296.38</b>	<b>294.12</b>	<b>53.83</b>	<b>2.26</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 28, 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	-53.78	
		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	199.48	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) on standby. 400kV JLG_ALI Line II (Direct) on standby
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	85.25	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	115.17	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)	82.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	45.09	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	69.48	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	13.63	
		-	-	80MVA, 220/132kV ICT - II (HV)	13.85	
		-	-	220kV Tsirang - Jigmeling Line	-69.35	
-	-	132kV Gelephu - Salakati Line	-4.46			
<b>Total</b>	<b>200.42</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.47%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	7.68	Unit-IV standby. Unit-I under Annual Maintenance.
		Unit- II	83.11	220kV CHP - Birpara Line- II	7.92	
		Unit- III	83.17	220kV CHP - Malbase Line- III	75.04	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	53.90	
		-	-	220kV Malbase - Birpara Line	-46.01	
		-	-	66kV CHP - Chumdo Line	15.59	
		-	-	66kV CHP - Gedu Line	2.79	
		-	-	3x3MVA, 66/11kV TFR	1.46	
<b>Total</b>	<b>166.28</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.14%</b>			
4	24MW BHP (U/S)	Unit- I	6.70	220kV BHP - Semtokha Line	63.50	U/S Unit-I under Annual maintenance. L/S Unit-II on Standby.
		Unit- II	0.00	66kV BHP - Lobeysa Line	22.88	
		<b>Total</b>	<b>6.70</b>	220kV BHP - Tsirang Line	-65.90	
5	40MW BHP (L/S)	Unit- I	14.00	5MVA, 66/11kV TFR	0.65	
		Unit- II	1.00	30MVA ICT, 220/66kV (HV)	16.85	
		<b>Total</b>	<b>15.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>2.63%</b>	
6	126MW DHP	Unit-I	25.24	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	25.02	
		-	-	220kV Jigmeling - Dagapela Line	-15.99	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>25.24</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.08%</b>			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	13.80	Unit-I under AMP. Unit-IV on Standby.
		Unit-II	15.06	132kV KHP - Kilikhar Line	15.35	
		Unit- III	15.08	5MVA, 132/11kV TFR	0.54	
		Unit- IV	0.00	132kV Motanga - Rangia Line	2.80	
		<b>Total</b>	<b>30.14</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.49%</b>	

**Note: Generation-Load Summary (MW) for February 28, 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	213.22	366.76	364.27	-84.19	2.49
2	Eastern Grid	230.56	48.30	46.91	112.91	1.39
<b>Total</b>		<b>443.78</b>	<b>415.06</b>	<b>411.18</b>	<b>28.72</b>	<b>3.88</b>

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1	Western Grid	292.06	196.53	189.54	85.60	6.99
2	Eastern Grid	126.50	63.63	60.37	72.80	3.26
<b>Total</b>		<b>418.56</b>	<b>260.16</b>	<b>249.91</b>	<b>158.40</b>	<b>10.25</b>

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  - 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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