

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

**Coincidental Maximum Load**

**Date:** January 29, 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	-70.86	
		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	110.17	400kV MHP - Jigmeling Line - I	189.56	Unit-III on Standby. Unit-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 Line I (Interim) under Standby. 400kV JLG_ALI Line II (Direct) on Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	79.98	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)	119.16	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	24.72	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	40.85	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.92	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.23	
		-	-	220kV Tsirang - Jigmeling Line	-61.17	
-	-	132kV Gelephu - Salakati Line	-9.83			
<b>Total</b>	<b>190.15</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.31%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I on Standby. Unit-III under Annual Maintenance 220kV CHP_Birpara Line II under Breakdown since 29.12.21. 220kV CHP_Birpara Line I under maintenance
		Unit- II	72.74	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	46.19	
		Unit- IV	69.38	220kV CHP - Semtokha Line- IV	68.71	
		-	-	220kV Malbase - Birpara Line	-48.21	
		-	-	66kV CHP - Chumdo Line	21.12	
		-	-	66kV CHP - Gedu Line	1.79	
		-	-	3x3MVA, 66/11kV TFR	1.98	
<b>Total</b>	<b>142.12</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.64%</b>			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	72.90	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	7.40	66kV BHP - Lobeyesa Line	27.19	
		<b>Total</b>	<b>7.40</b>	<b>220kV BHP - Tsirang Line</b>	<b>-79.08</b>	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.95	
		Unit- II	14.40	30MVA ICT, 220/66kV (HV)	20.99	
		<b>Total</b>	<b>14.40</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-0.73%</b>	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	23.26	Unit-I under Annual Maintenance. 220kV DHP-Dagapela Line on standby.
		Unit-II	23.46	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	16.41	
		-	-	5MVA, 220/33kV TFR	0.10	
<b>Total</b>	<b>23.46</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.43%</b>			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	2.48	Unit-II under Annual Maintenance. Unit-III on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	16.82	
		Unit- III	10.07	5MVA, 132/11kV TFR	0.80	
		Unit- IV	10.12	132kV Motanga - Rangia Line	4.61	
		<b>Total</b>	<b>20.19</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.45%</b>	

**Note: Generation-Load Summary (MW) for January 29, 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	187.38	367.62	365.35	-119.07	2.27
2	Eastern Grid	210.34	88.82	88.14	60.35	0.68
<b>Total</b>		<b>397.72</b>	<b>456.44</b>	<b>453.49</b>	<b>-58.72</b>	<b>2.95</b>

**Note: Generation-Load Summary for January 29, 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	284.14	256.57	254.20	27.57	2.37
2	Eastern Grid	120.25	65.60	64.37	54.65	1.23
<b>Total</b>		<b>404.39</b>	<b>322.17</b>	<b>318.57</b>	<b>82.22</b>	<b>3.60</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:** January 30, 2022  
**Hours:** 09:00 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	-54.86	
		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	103.81	400kV MHP - Jigmeling Line - I	188.71	Unit III on Standby. Unit-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 Line I (Interim) under Standby. 400kV JLG_ALI Line II (Direct) on Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	85.01	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)	86.99	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	37.09	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	59.55	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	18.25	
		-	-	80MVA, 220/132kV ICT - II (HV)	18.54	
		-	-	220kV Tsirang - Jigmeling Line	-36.12	
-	-	132kV Gelephu - Salakati Line	-2.39			
<b>Total</b>	<b>188.82</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.06%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I on Standby. Unit-III under Annual Maintenance. 220kV CHP_Birpara Line II under breakdown. 220kV CHP_Birpara Line I under maintenance
		Unit- II	89.37	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	87.69	
		Unit- IV	86.87	220kV CHP - Semtokha Line- IV	65.60	
		-	-	220kV Malbase - Birpara Line	-27.65	
		-	-	66kV CHP - Chumdo Line	16.90	
		-	-	66kV CHP - Gedu Line	2.43	
		-	-	3x3MVA, 66/11kV TFR	1.57	
<b>Total</b>	<b>176.24</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.16%</b>			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	54.00	U/S Unit-I and L/S Unit-I under maintenance.
		Unit- II	7.20	66kV BHP - Lobeysa Line	23.70	
		<b>Total</b>	<b>7.20</b>	<b>220kV BHP - Tsirang Line</b>	<b>-56.72</b>	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.70	
		Unit- II	14.40	30MVA ICT, 220/66kV (HV)	17.36	
		<b>Total</b>	<b>14.40</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-0.37%</b>	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	24.29	Unit-I under Annual Maintenance. 220kV DHP_Dagapela Line on standby.
		Unit-II	24.48	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	15.69	
		-	-	5MVA, 220/33kV TFR		
<b>Total</b>	<b>24.48</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.78%</b>			
7	60MW KHP	Unit- I	15.12	132kV KHP - Nangkhoh Line	11.81	Unit-III on standby. Unit-II under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Line	17.37	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.60	
		Unit- IV	15.12	132kV Motanga - Rangia Line	11.11	
		<b>Total</b>	<b>30.24</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.52%</b>	

**Note: Generation-Load Summary (MW) for January 30, 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	222.32	340.95	338.79	-82.51	2.16
2	Eastern Grid	219.06	77.58	77.01	105.36	0.57
<b>Total</b>		<b>441.38</b>	<b>418.53</b>	<b>415.80</b>	<b>22.85</b>	<b>2.73</b>

**Note: Generation-Load Summary for January 30, 2021 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	282.11	221.35	217.13	60.76	4.22
2	Eastern Grid	123.98	58.08	56.88	65.90	1.20
<b>Total</b>		<b>406.09</b>	<b>279.43</b>	<b>274.01</b>	<b>126.66</b>	<b>5.42</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.