

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

**Coincidental Maximum Load**

<b>Date:</b>	<b>January 21, 2023</b>
<b>Hours:</b>	<b>18:00 Hours</b>

<b>Date</b>	<b>Time</b>	<b>Load(MW)</b>
28-Dec-22	18:03:26hrs	629.23

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 & II under Shutdown. Unit-III & V on Standby. 400kV THP- Siliguri Line I on Standby.
		Unit- II	0.00	400kV THP - Siliguri Line - II	52.01	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	48.91	
		Unit- IV	105.02	400kV THP - Malbase Line - III	145.36	
		Unit- V	0.00	400kV Malbase - Siliguri Line	29.12	
		Unit- VI	144.34	-	-	
		<b>Total</b>	<b>249.36</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.24%</b>	
2	720MW MHP	Unit-I	84.84	400kV MHP - Jigmeling Line - I	0.00	Unit-II on standby. 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- II (Direct) on Standby. 400kV JLG_ALI Line- I (Interim) 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	95.07	400kV MHP - Jigmeling Line - IV	96.92	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	82.27	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	130.80	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-21.27	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-13.09	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	4.90	
		-	-	80MVA, 220/132kV ICT - II (HV)	4.90	
		-	-	220kV Tsirang - Jigmeling Line	-55.70	
-	-	132kV Gelephu - Salakati Line	-12.67			
<b>Total</b>	<b>179.91</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.40%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	-16.70	Unit-I on Standby. Unit-II under Shutdown. 220kV CHP_Birpara Line II on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	0.00	
		Unit- III	56.24	220kV CHP - Malbase Line- III	28.82	
		Unit- IV	63.41	220kV CHP - Semtokha Line- IV	74.42	
		-	-	220kV Malbase - Birpara Line	-49.07	
		-	-	66kV CHP - Chumdo Line	23.25	
		-	-	66kV CHP - Gedu Line	7.34	
		-	-	3x3MVA, 66/11kV TFR	1.02	
<b>Total</b>	<b>119.65</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.25%</b>			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	69.88	L/S & U/S Unit-I on Standby.
		Unit- II	6.38	66kV BHP - Lobeyasa Line	26.81	
		<b>Total</b>	<b>6.38</b>	220kV BHP - Tsirang Line	-71.99	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.74	L/S & U/S Unit-I on Standby.
		Unit- II	18.59	30MVA ICT, 220/66kV (HV)	20.91	
		<b>Total</b>	<b>18.59</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-1.88%</b>	
6	126MW DHP	Unit-I	21.20	220kV DHP - Tsirang Line	20.96	Unit-II under shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	65.90	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>21.20</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.19%</b>			
7	60MW KHP	Unit- I	15.02	132kV KHP - Nangkhoh Line	10.83	Unit-III under Shutdown. Unit-IV on Standby.
		Unit-II	15.11	132kV KHP - Kilikhar Line	18.13	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.80	
		Unit- IV	0.00	132kV Motanga - Rangia Line	6.04	
		<b>Total</b>	<b>30.13</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.23%</b>	

**Note: Generation-Load Summary (MW) for January 21, 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	415.18	406.61	402.46	64.27	4.15
2	Eastern Grid	210.04	195.33	194.24	-40.99	1.09
<b>Total</b>		<b>625.22</b>	<b>601.94</b>	<b>596.70</b>	<b>23.28</b>	<b>5.24</b>

**Note: Generation-Load Summary for January 21, 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	232.60	372.28	370.91	-85.65	1.37
2	Eastern Grid	245.58	97.27	95.82	94.28	1.45
<b>Total</b>		<b>478.18</b>	<b>469.55</b>	<b>466.73</b>	<b>8.63</b>	<b>2.82</b>

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 22, 2023  
**Hours:** 09:00 Hours

**Date**      **Time**      **Load(MW)**  
 28-Dec-22      18:03:26hrs      629.23

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 under Shutdown. Unit- III, IV & V on Standby. 400kV THP- Siliguri Line I and IV on Standby.
		Unit- II	116.46	400kV THP - Siliguri Line - II	76.97	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	154.96	
		Unit- V	0.00	400kV Malbase - Siliguri Line	53.74	
		Unit- VI	119.16	-	-	
		<b>Total</b>	<b>235.62</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.57%</b>	
2	720MW MHP	Unit-I	80.13	400kV MHP - Jigmeling Line - I	0.00	Unit-II under standby. 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- II (Direct) on Standby. 400kV JLG_ALI Line- I (Interim) 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	80.35	400kV MHP - Jigmeling Line - IV	82.20	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	77.87	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	115.60	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-13.09	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-20.40	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	4.00	
		-	-	80MVA, 220/132kV ICT - II (HV)	4.20	
		-	-	220kV Tsirang - Jigmeling Line	-42.66	
-	-	132kV Gelephu - Salakati Line	-12.08			
<b>Total</b>	<b>160.48</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.26%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	-7.55	Unit-I on Standby. Unit-II under Shutdown. 220kV CHP_Birpara Line II on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	0.00	
		Unit- III	69.66	220kV CHP - Malbase Line- III	32.18	
		Unit- IV	65.13	220kV CHP - Semtokha Line- IV	79.43	
		-	-	220kV Malbase - Birpara Line	-36.53	
		-	-	66kV CHP - Chumdo Line	21.25	
		-	-	66kV CHP - Gedu Line	7.27	
		-	-	3x3MVA, 66/11kV TFR	0.90	
<b>Total</b>	<b>134.79</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.97%</b>			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	55.79	L/S & U/S unit-I on Standby
		Unit- II	6.30	66kV BHP - Lobeyasa Line	24.52	
		<b>Total</b>	<b>6.30</b>	<b>220kV BHP - Tsirang Line</b>	<b>-60.18</b>	
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	14.00	30MVA ICT, 220/66kV (HV)	18.80	
		<b>Total</b>	<b>14.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-2.12%</b>	
6	126MW DHP	Unit-I	21.68	220kV DHP - Tsirang Line	21.47	Unit-II under Shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	65.10	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>21.68</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.05%</b>			
7	60MW KHP	Unit- I	12.54	132kV KHP - Nangkhoh Line	8.30	Unit-III under Shutdown. Unit-IV on Standby.
		Unit-II	12.56	132kV KHP - Kilikhar Line	15.77	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.80	
		Unit- IV	0.00	132kV Motanga - Rangia Line	4.47	
		<b>Total</b>	<b>25.10</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.92%</b>	

**Note: Generation-Load Summary (MW) for January 22, 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	412.39	368.42	363.84	86.63	4.58
2	Eastern Grid	185.58	184.02	183.38	-41.10	0.64
<b>Total</b>		<b>597.97</b>	<b>552.44</b>	<b>547.22</b>	<b>45.53</b>	<b>5.22</b>

**Note: Generation-Load Summary for January 22, 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	199.60	325.72	325.05	-83.83	0.67
2	Eastern Grid	234.34	83.08	81.78	108.97	1.30
<b>Total</b>		<b>433.94</b>	<b>408.80</b>	<b>406.83</b>	<b>25.14</b>	<b>1.97</b>

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- 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.

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