

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

**Coincidental Maximum Load**

**Date:** January 12, 2023  
**Hours:** 18:00 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	76.39	Unit-I, II & III under Shutdown. Unit-V on Standby. 400kV THP- Siliguri Line II on Standby 400kV Tala-Siliguri line IV under 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	114.19	400kV THP - Malbase Line - III	154.43	
		Unit- V	0.00	400kV Malbase - Siliguri Line	54.46	
		Unit- VI	119.73	-	-	
		<b>Total</b>	<b>233.92</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.33%</b>	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	Unit-I under Breakdown. Unit-III under Shutdown. 400kV MHP-JLG Line I & II under Shutdown. 400kV MHP-JLG Line III on Standby. 132kV MHP_Yurmoo Line- I not in service. 400kV JLG_ALI line- II (Direct) on Standby. 400kV JLG_ALI Line- I (Interim) on Standby.
		Unit-II	84.86	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	80.03	400kV MHP - Jigmeling Line - IV	80.29	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	83.08	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	123.99	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-17.45	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-26.57	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	4.23	
		-	-	80MVA, 220/132kV ICT - II (HV)	4.37	
		-	-	220kV Tsirang - Jigmeling Line	-52.61	
-	-	132kV Gelephu - Salakati Line	-16.86			
<b>Total</b>	<b>164.89</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.92%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I on Standby. Unit-II under Shutdown. 220kV CHP_Birpara Line I on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-6.82	
		Unit- III	75.78	220kV CHP - Malbase Line- III	38.66	
		Unit- IV	71.29	220kV CHP - Semtokha Line- IV	81.69	
		-	-	220kV Malbase - Birpara Line	-40.90	
		-	-	66kV CHP - Chumdo Line	23.68	
		-	-	66kV CHP - Gedu Line	7.36	
		-	-	3x3MVA, 66/11kV TFR	1.08	
<b>Total</b>	<b>147.07</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	65.10	L/S & U/S Unit-I on Standby.
		Unit- II	7.00	66kV BHP - Lobeyssa Line	26.62	
		<b>Total</b>	<b>7.00</b>	<b>220kV BHP - Tsirang Line</b>	<b>-70.93</b>	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.84	L/S & U/S Unit-I on Standby.
		Unit- II	14.40	30MVA ICT, 220/66kV (HV)	20.74	
		<b>Total</b>	<b>14.40</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-1.07%</b>	
6	126MW DHP	Unit-I	22.88	220kV DHP - Tsirang Line	22.65	Unit-II under standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.73	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>22.88</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.13%</b>			
7	60MW KHP	Unit- I	15.14	132kV KHP - Nangkhoh Line	11.81	Unit-III under Shutdown. Unit-IV on Standby.
		Unit-II	15.12	132kV KHP - Kilikhar Line	17.22	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.87	
		Unit- IV	0.00	132kV Motanga - Rangia Line	5.90	
		<b>Total</b>	<b>30.26</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.19%</b>	

**Note: Generation-Load Summary (MW) for January 12, 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	425.27	394.75	390.43	83.13	4.32
2	Eastern Grid	195.15	197.52	195.64	-54.98	1.88
<b>Total</b>		<b>620.42</b>	<b>592.27</b>	<b>586.07</b>	<b>28.15</b>	<b>6.20</b>

**Note: Generation-Load Summary for January 12, 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	234.92	389.06	389.16	-103.32	-0.10
2	Eastern Grid	282.61	106.12	103.09	125.67	3.03
<b>Total</b>		<b>517.53</b>	<b>495.18</b>	<b>492.25</b>	<b>22.35</b>	<b>2.93</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**

<b>Date:</b>	<b>January 13, 2023</b>
<b>Hours:</b>	<b>09:00 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	83.01	Unit-I, II & III under Shutdown. Unit-V on Standby. 400kV THP- Siliguri Line II on Standby 400kV Tala-Siliguri line IV under 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	134.01	400kV THP - Malbase Line - III	157.18	
		Unit- V	0.00	400kV Malbase - Siliguri Line	61.10	
		Unit- VI	110.03	-	-	
		<b>Total</b>	<b>244.04</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.58%</b>	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	Unit-I under Breakdown. Unit-III under Shutdown. 400kV MHP-JLG Line II, III & IV 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	79.86	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	80.06	400kV MHP - Jigmeling Line - IV	76.30	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	82.73	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	115.15	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-15.27	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-24.49	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	5.68	
		-	-	80MVA, 220/132kV ICT - II (HV)	5.83	
		-	-	220kV Tsirang - Jigmeling Line	-42.58	
-	-	132kV Gelephu - Salakati Line	-14.79			
<b>Total</b>	<b>159.92</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	0.00	Unit-I on Standby. Unit-II under Shutdown. 220kV CHP_Birpara Line I on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-11.46	
		Unit- III	59.30	220kV CHP - Malbase Line- III	26.18	
		Unit- IV	60.70	220kV CHP - Semtokha Line- IV	75.60	
		-	-	220kV Malbase - Birpara Line	-38.71	
		-	-	66kV CHP - Chumdo Line	21.16	
		-	-	66kV CHP - Gedu Line	7.07	
		-	-	3x3MVA, 66/11kV TFR	0.82	
<b>Total</b>	<b>120.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.53%</b>			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	58.91	L/S & U/S unit-I on Standby
		Unit- II	6.79	66kV BHP - Lobeyasa Line	24.04	
		<b>Total</b>	<b>6.79</b>	<b>220kV BHP - Tsirang Line</b>	<b>-62.34</b>	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.63	L/S & U/S unit-I on Standby
		Unit- II	14.00	30MVA ICT, 220/66kV (HV)	18.30	
		<b>Total</b>	<b>14.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-2.16%</b>	
6	126MW DHP	Unit-I	22.81	220kV DHP - Tsirang Line	22.59	Unit-II under Shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.66	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>22.81</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.09%</b>			
7	60MW KHP	Unit- I	12.06	132kV KHP - Nangkhoh Line	9.94	Unit-III under Shutdown. Unit-IV on Standby.
		Unit-II	12.08	132kV KHP - Kilikhar Line	13.26	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.72	
		Unit- IV	0.00	132kV Motanga - Rangia Line	0.00	
		<b>Total</b>	<b>24.14</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.91%</b>	

**Note: Generation-Load Summary (MW) for January 13, 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	407.64	356.28	352.23	93.94	4.05
2	Eastern Grid	184.06	196.03	194.92	-54.55	1.11
<b>Total</b>		<b>591.70</b>	<b>552.31</b>	<b>547.15</b>	<b>39.39</b>	<b>5.16</b>

**Note: Generation-Load Summary for January 13, 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	218.74	367.13	367.04	-110.96	0.09
2	Eastern Grid	269.29	93.03	90.80	138.83	2.23
<b>Total</b>		<b>488.03</b>	<b>460.16</b>	<b>457.84</b>	<b>27.87</b>	<b>2.32</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.

2. This report is generated to give an idea of the generation & load flow for the system at a particular instant.