

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

**Coincidental Maximum Load**

**Date:** November 13, 2022  
**Hours:** 18:00 Hours

Date	Time	Load(MW)
7-Nov-22	18:11hrs	609.06

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-IV on Standby. 400kV Tala-Malbase line under Shutdown. 400kV THP - Siliguri Line- I on Standby.
		Unit- II	0.00	400kV THP - Siliguri Line - II	185.85	
		Unit- III	89.57	400kV THP - Siliguri Line- IV	177.88	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	138.32	400kV Malbase - Siliguri Line	-71.89	
		Unit- VI	137.67	-	-	
		<b>Total</b>	<b>365.56</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.50%</b>	
2	720MW MHP	Unit-I	115.17	400kV MHP - Jigmeling Line - I	0.00	Unit-IV on standby. Unit-III under shutdown. 400kV MHP-JLG Line I, II & IV on Standby. 132kV MHP_Yurmoo line I not in service. 400kV JLG_ALI Direct line II Standby. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	110.12	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	140.27	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	82.96	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	101.36	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	17.28	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	25.59	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	10.31	
		-	-	80MVA, 220/132kV ICT - II (HV)	10.56	
		-	-	220kV Tsirang - Jigmeling Line	-17.50	
-	-	132kV Gelephu - Salakati Line	2.00			
<b>Total</b>	<b>225.29</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.91%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	2.60	Unit-I under Shutdown.
		Unit- II	62.24	220kV CHP - Birpara Line- II	2.72	
		Unit- III	71.10	220kV CHP - Malbase Line- III	63.40	
		Unit- IV	50.20	220kV CHP - Semtokha Line- IV	82.75	
		-	-	220kV Malbase - Birpara Line	-44.70	
		-	-	66kV CHP - Chumdo Line	23.20	
		-	-	66kV CHP - Gedu Line	5.83	
		-	-	3x3MVA, 66/11kV TFR	2.32	
<b>Total</b>	<b>183.54</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.39%</b>			
4	24MW BHP (U/S)	Unit- I	6.23	220kV BHP - Semtokha Line	64.48	
		Unit- II	6.23	66kV BHP - Lobeyasa Line	29.02	
		<b>Total</b>	<b>12.46</b>	220kV BHP - Tsirang Line	-56.82	
5	40MW BHP (L/S)	Unit- I	12.43	5MVA, 66/11kV TFR	0.83	
		Unit- II	12.61	30MVA ICT, 220/66kV (HV)	17.30	
		<b>Total</b>	<b>25.04</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-0.03%</b>	
6	126MW DHP	Unit-I	43.08	220kV DHP - Tsirang Line	42.85	
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	63.19	
		-	-	5MVA, 220/33kV TFR	0.15	
<b>Total</b>	<b>43.08</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.19%</b>			
7	60MW KHP	Unit- I	13.35	132kV KHP - Nangkhoh Line	16.85	Unit III on Standby.
		Unit-II	13.33	132kV KHP - Kilikhar Line	22.21	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.36	
		Unit- IV	13.36	132kV Motanga - Rangia Line	14.70	
		<b>Total</b>	<b>40.04</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.54%</b>	

**Note: Generation-Load Summary (MW) for November 13, 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	629.68	394.72	392.10	252.46	2.62
2	Eastern Grid	265.33	188.26	185.58	59.57	2.68
<b>Total</b>		<b>895.01</b>	<b>582.98</b>	<b>577.68</b>	<b>312.03</b>	<b>5.30</b>

**Note: Generation-Load Summary for November 13, 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	822.57	346.33	350.37	477.30	-4.04
2	Eastern Grid	262.88	85.19	82.64	176.63	2.55
<b>Total</b>		<b>1,085.45</b>	<b>431.52</b>	<b>433.01</b>	<b>653.93</b>	<b>-1.49</b>

**NOTE- All Eastern 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:** November 14, 2022  
**Hours:** 09:00 Hours

Date	Time	Load(MW)
7-Nov-22	18:11hrs	609.06

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-IV on Standby. 400kV Tala-Malbase line under Shutdown. 400kV THP - Siliguri Line- I on Standby.
		Unit- II	0.00	400kV THP - Siliguri Line - II	189.68	
		Unit- III	99.04	400kV THP - Siliguri Line- IV	182.55	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	138.32	400kV Malbase - Siliguri Line	-60.09	
		Unit- VI	139.00	-	-	
		<b>Total</b>	<b>376.36</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.10%</b>	
2	720MW MHP	Unit-I	114.88	400kV MHP - Jigmeling Line - I	0.00	Unit-IV on standby. Unit-III under shutdown. 400kV MHP-JLG Line I, II & IV on Standby. 132kV MHP_Yurmoo line I not in service. 400kV JLG_ALI Direct line II Standby. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	114.80	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	149.32	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	78.29	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	82.36	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	26.07	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	39.42	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	-8.05	
		-	-	80MVA, 220/132kV ICT - II (HV)	-8.20	
		-	-	220kV Tsirang - Jigmeling Line	4.77	
-	-	132kV Gelephu - Salakati Line	3.00			
<b>Total</b>	<b>229.68</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.90%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	6.33	Unit-I under shutdown.
		Unit- II	61.61	220kV CHP - Birpara Line- II	6.26	
		Unit- III	71.28	220kV CHP - Malbase Line- III	75.51	
		Unit- IV	50.10	220kV CHP - Semtokha Line- IV	68.68	
		-	-	220kV Malbase - Birpara Line	-48.40	
		-	-	66kV CHP - Chumdo Line	18.24	
		-	-	66kV CHP - Gedu Line	6.24	
		-	-	3x3MVA, 66/11kV TFR	1.25	
<b>Total</b>	<b>182.99</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.26%</b>			
4	24MW BHP (U/S)	Unit- I	6.16	220kV BHP - Semtokha Line	58.32	
		Unit- II	6.16	66kV BHP - Lobeyssa Line	25.10	
		<b>Total</b>	<b>12.32</b>	220kV BHP - Tsirang Line	-44.94	
5	40MW BHP (L/S)	Unit- I	12.82	5MVA, 66/11kV TFR	0.44	
		Unit- II	13.37	30MVA ICT, 220/66kV (HV)		
		<b>Total</b>	<b>26.19</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-1.06%</b>	
6	126MW DHP	Unit-I	41.85	220kV DHP - Tsirang Line	41.62	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.59	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>41.85</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.07%</b>			
7	60MW KHP	Unit- I	12.71	132kV KHP - Nangkhoh Line	20.78	Unit III under standby.
		Unit-II	12.68	132kV KHP - Kilikhar Line	16.37	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.32	
		Unit- IV	12.69	132kV Motanga - Rangia Line	11.10	
		<b>Total</b>	<b>38.08</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.60%</b>	

**Note: Generation-Load Summary (MW) for November 14, 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	639.71	358.61	354.38	276.33	4.23
2	Eastern Grid	267.76	192.94	190.26	79.59	2.68
<b>Total</b>		<b>907.47</b>	<b>551.55</b>	<b>544.64</b>	<b>355.92</b>	<b>6.91</b>

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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	824.97	316.44	321.88	495.59	-5.44
2	Eastern Grid	262.91	69.93	69.47	205.92	0.46
<b>Total</b>		<b>1,087.88</b>	<b>386.37</b>	<b>391.35</b>	<b>701.51</b>	<b>-4.98</b>

**NOTE-All Eastern load collected from site.**

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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.
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