

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

**Coincidental Maximum Load**

**Date:** November 12, 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 under Shutdown. Unit-II & IV on Standby. 400kV Tala-Malbase line under Shutdown. 400kV THP- Siliguri Line- I under emergency shutdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	169.53	
		Unit- III	127.61	400kV THP - Siliguri Line- IV	163.22	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	108.10	400kV Malbase - Siliguri Line	-77.00	
		Unit- VI	100.13	-	-	
		<b>Total</b>	<b>335.84</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.92%</b>	
2	720MW MHP	Unit-I	115.10	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	109.80	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	131.66	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	91.12	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	97.51	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	12.87	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	19.31	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	13.26	
		-	-	80MVA, 220/132kV ICT - II (HV)	13.69	
		-	-	220kV Tsirang - Jigmeling Line	-8.72	
-	-	132kV Gelephu - Salakati Line	3.00			
<b>Total</b>	<b>224.90</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.94%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	10.96	Unit-I under Shutdown.
		Unit- II	67.74	220kV CHP - Birpara Line- II	10.82	
		Unit- III	70.09	220kV CHP - Malbase Line- III	69.17	
		Unit- IV	69.57	220kV CHP - Semtokha Line- IV	85.20	
		-	-	220kV Malbase - Birpara Line	-36.04	
		-	-	66kV CHP - Chumdo Line	22.93	
		-	-	66kV CHP - Gedu Line	6.26	
		-	-	3x3MVA, 66/11kV TFR	1.76	
<b>Total</b>	<b>207.40</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.14%</b>			
4	24MW BHP (U/S)	Unit- I	6.50	220kV BHP - Semtokha Line	58.60	
		Unit- II	6.30	66kV BHP - Lobeyssa Line	28.70	
		<b>Total</b>	<b>12.80</b>	220kV BHP - Tsirang Line	-49.20	
5	40MW BHP (L/S)	Unit- I	13.00	5MVA, 66/11kV TFR	0.80	
		Unit- II	12.90	30MVA ICT, 220/66kV (HV)	16.80	
		<b>Total</b>	<b>25.90</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-0.52%</b>	
6	126MW DHP	Unit-I	43.40	220kV DHP - Tsirang Line	43.10	
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	63.42	
		-	-	5MVA, 220/33kV TFR	0.29	
<b>Total</b>	<b>43.40</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.02%</b>			
7	60MW KHP	Unit- I	12.39	132kV KHP - Nangkhoh Line	15.12	Unit III on Standby.
		Unit-II	12.35	132kV KHP - Kilikhar Line	21.13	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.43	
		Unit- IV	12.39	132kV Motanga - Rangia Line	15.64	
		<b>Total</b>	<b>37.13</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.21%</b>	

**Note: Generation-Load Summary (MW) for November 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	625.34	392.57	389.37	241.49	3.20
2	Eastern Grid	262.03	202.49	199.92	50.82	2.57
<b>Total</b>		<b>887.37</b>	<b>595.06</b>	<b>589.29</b>	<b>292.31</b>	<b>5.77</b>

**Note: Generation-Load Summary for November 12, 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	890.09	315.02	319.89	566.45	-4.87
2	Eastern Grid	269.62	84.48	82.84	193.76	1.64
<b>Total</b>		<b>1,159.71</b>	<b>399.50</b>	<b>402.73</b>	<b>760.21</b>	<b>-3.23</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 13, 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	184.39	
		Unit- III	88.50	400kV THP - Siliguri Line- IV	178.50	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	138.21	400kV Malbase - Siliguri Line	-59.44	
		Unit- VI	138.50	-	-	
		<b>Total</b>	<b>365.21</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.64%</b>	
2	720MW MHP	Unit-I	115.24	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	110.31	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	146.85	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	76.98	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	79.97	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	25.78	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	39.13	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	8.16	
		-	-	80MVA, 220/132kV ICT - II (HV)	8.36	
		-	-	220kV Tsirang - Jigmeling Line	-2.32	
-	-	132kV Gelephu - Salakati Line	3.60			
<b>Total</b>	<b>225.55</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.76%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	6.85	Unit-I under shutdown.
		Unit- II	63.84	220kV CHP - Birpara Line- II	6.88	
		Unit- III	70.72	220kV CHP - Malbase Line- III	75.64	
		Unit- IV	50.15	220kV CHP - Semtokha Line- IV	68.33	
		-	-	220kV Malbase - Birpara Line	-47.23	
		-	-	66kV CHP - Chumdo Line	18.82	
		-	-	66kV CHP - Gedu Line	6.21	
		-	-	3x3MVA, 66/11kV TFR	1.70	
<b>Total</b>	<b>184.71</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.15%</b>			
4	24MW BHP (U/S)	Unit- I	6.60	220kV BHP - Semtokha Line	57.06	
		Unit- II	6.30	66kV BHP - Lobeyasa Line	25.14	
		<b>Total</b>	<b>12.90</b>	220kV BHP - Tsirang Line	-42.81	
5	40MW BHP (L/S)	Unit- I	13.40	5MVA, 66/11kV TFR	0.41	
		Unit- II	13.60	30MVA ICT, 220/66kV (HV)	13.00	
		<b>Total</b>	<b>27.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.25%</b>	
6	126MW DHP	Unit-I	43.63	220kV DHP - Tsirang Line	43.44	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.72	
		-	-	5MVA, 220/33kV TFR	0.15	
<b>Total</b>	<b>43.63</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.09%</b>			
7	60MW KHP	Unit- I	12.78	132kV KHP - Nangkhoh Line	20.06	Unit III under standby.
		Unit-II	12.74	132kV KHP - Kilikhar Line	17.44	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.33	
		Unit- IV	12.79	132kV Motanga - Rangia Line	15.92	
		<b>Total</b>	<b>38.31</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.25%</b>	

**Note: Generation-Load Summary (MW) for November 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	633.45	365.82	363.08	269.95	2.74
2	Eastern Grid	263.86	177.11	174.91	84.43	2.20
<b>Total</b>		<b>897.31</b>	<b>542.93</b>	<b>537.99</b>	<b>354.38</b>	<b>4.94</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	829.90	312.66	316.01	507.36	-3.35
2	Eastern Grid	266.96	74.92	73.31	201.92	1.61
<b>Total</b>		<b>1,096.86</b>	<b>387.58</b>	<b>389.32</b>	<b>709.28</b>	<b>-1.74</b>

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