

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

**Coincidental Maximum Load**

**Date:** November 19, 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	165.58	
		Unit- III	80.10	400kV THP - Siliguri Line- IV	158.92	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	108.76	400kV Malbase - Siliguri Line	-78.82	
		Unit- VI	139.01	-	-	
		<b>Total</b>	<b>327.87</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.03%</b>	
2	720MW MHP	Unit-I	100.19	400kV MHP - Jigmeling Line - I	0.00	Unit-III & IV 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.132kV Gel-Sal under shutdown by NLDC India.
		Unit-II	100.17	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	114.14	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	84.84	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	104.79	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	3.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	5.28	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	10.07	
		-	-	80MVA, 220/132kV ICT - II (HV)	10.30	
		-	-	220kV Tsirang - Jigmeling Line	-21.29	
-	-	132kV Gelephu - Salakati Line	-1.52			
<b>Total</b>	<b>200.36</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.69%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	-1.23	Unit-I under Shutdown.
		Unit- II	60.14	220kV CHP - Birpara Line- II	-1.66	
		Unit- III	58.64	220kV CHP - Malbase Line- III	55.70	
		Unit- IV	43.75	220kV CHP - Semtokha Line- IV	78.75	
		-	-	220kV Malbase - Birpara Line	-46.50	
		-	-	66kV CHP - Chumdo Line	23.02	
		-	-	66kV CHP - Gedu Line	5.98	
		-	-	3x3MVA, 66/11kV TFR	1.89	
<b>Total</b>	<b>162.53</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.05%</b>			
4	24MW BHP (U/S)	Unit- I	6.00	220kV BHP - Semtokha Line	63.10	
		Unit- II	5.70	66kV BHP - Lobeyasa Line	27.70	
		<b>Total</b>	<b>11.70</b>	220kV BHP - Tsirang Line	-55.58	
5	40MW BHP (L/S)	Unit- I	12.00	5MVA, 66/11kV TFR	0.88	
		Unit- II	12.00	30MVA ICT, 220/66kV (HV)	17.03	
		<b>Total</b>	<b>24.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-1.12%</b>	
6	126MW DHP	Unit-I	39.82	220kV DHP - Tsirang Line	39.59	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.64	
		-	-	5MVA, 220/33kV TFR	0.22	
<b>Total</b>	<b>39.82</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.03%</b>			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	17.85	Unit I on Standby.
		Unit-II	13.09	132kV KHP - Kilikhar Line	20.47	
		Unit- III	13.11	5MVA, 132/11kV TFR	0.50	
		Unit- IV	13.07	132kV Motanga - Rangia Line	9.86	
		<b>Total</b>	<b>39.27</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.15%</b>	

**Note: Generation-Load Summary (MW) for November 19, 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	565.92	390.92	387.86	196.29	3.06
2	Eastern Grid	239.63	201.72	199.89	16.62	1.83
<b>Total</b>		<b>805.55</b>	<b>592.64</b>	<b>587.75</b>	<b>212.91</b>	<b>4.89</b>

**Note: Generation-Load Summary for November 19, 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	694.72	333.05	341.58	367.89	-8.53
2	Eastern Grid	241.29	87.60	73.27	147.47	14.33
<b>Total</b>		<b>936.01</b>	<b>420.65</b>	<b>414.85</b>	<b>515.36</b>	<b>5.80</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:** November 20, 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	164.98	
		Unit- III	79.11	400kV THP - Siliguri Line- IV	157.48	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	108.50	400kV Malbase - Siliguri Line	-58.27	
		Unit- VI	138.83	-	-	
		<b>Total</b>	<b>326.44</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.22%</b>	
2	720MW MHP	Unit-I	104.87	400kV MHP - Jigmeling Line - I	0.00	Unit-III & IV 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	100.22	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	129.60	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	74.25	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	86.93	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	16.28	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	25.16	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	6.16	
		-	-	80MVA, 220/132kV ICT - II (HV)	6.34	
		-	-	220kV Tsirang - Jigmeling Line	-13.06	
-	-	132kV Gelephu - Salakati Line	-1.92			
<b>Total</b>	<b>205.09</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.60%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	2.77	Unit-I under shutdown.
		Unit- II	59.74	220kV CHP - Birpara Line- II	2.74	
		Unit- III	58.44	220kV CHP - Malbase Line- III	63.36	
		Unit- IV	43.52	220kV CHP - Semtokha Line- IV	65.98	
		-	-	220kV Malbase - Birpara Line	-44.96	
		-	-	66kV CHP - Chumdo Line	18.66	
		-	-	66kV CHP - Gedu Line	6.86	
		-	-	3x3MVA, 66/11kV TFR	1.50	
<b>Total</b>	<b>161.70</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-0.11%</b>			
4	24MW BHP (U/S)	Unit- I	5.63	220kV BHP - Semtokha Line	60.14	
		Unit- II	5.63	66kV BHP - Lobeysa Line	24.56	
		<b>Total</b>	<b>11.26</b>	220kV BHP - Tsirang Line	-49.52	
5	40MW BHP (L/S)	Unit- I	12.08	5MVA, 66/11kV TFR	0.49	
		Unit- II	11.92	30MVA ICT, 220/66kV (HV)	13.70	
		<b>Total</b>	<b>24.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-1.16%</b>	
6	126MW DHP	Unit-I	39.37	220kV DHP - Tsirang Line	39.14	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.66	
		-	-	5MVA, 220/33kV TFR	0.15	
<b>Total</b>	<b>39.37</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.20%</b>			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	19.67	Unit-I on standby.
		Unit-II	12.20	132kV KHP - Kilikhar Line	16.24	
		Unit- III	12.15	5MVA, 132/11kV TFR	0.40	
		Unit- IV	12.24	132kV Motanga - Rangia Line	7.83	
		<b>Total</b>	<b>36.59</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.77%</b>	

**Note: Generation-Load Summary (MW) for November 20, 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	562.77	351.09	347.61	224.74	3.48
2	Eastern Grid	241.68	181.27	179.75	47.35	1.52
<b>Total</b>		<b>804.45</b>	<b>532.36</b>	<b>527.36</b>	<b>272.09</b>	<b>5.00</b>

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1	Western Grid	725.54	343.49	352.56	373.14	-9.07
2	Eastern Grid	257.50	82.36	80.94	184.05	1.42
<b>Total</b>		<b>983.04</b>	<b>425.85</b>	<b>433.50</b>	<b>557.19</b>	<b>-7.65</b>

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