

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

**Coincidental Maximum Load**

**Date:** November 26, 2022  
**Hours:** 18:00 Hours

**Date:** 17-Nov-22      **Time:** 18:39:09hrs      **Load(MW):** 616.55

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	151.37	
		Unit- III	80.40	400kV THP - Siliguri Line- IV	143.96	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	108.01	400kV Malbase - Siliguri Line	-79.23	
		Unit- VI	109.21	-	-	
		<b>Total</b>	<b>297.62</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.77%</b>	
2	720MW MHP	Unit-I	90.14	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 I (Interim) on Standby.
		Unit-II	90.26	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	90.85	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	88.23	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	110.20	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-8.73	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-12.89	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	10.80	
		-	-	80MVA, 220/132kV ICT - II (HV)	11.00	
		-	-	220kV Tsirang - Jigmeling Line	-25.86	
-	-	132kV Gelephu - Salakati Line	-1.52			
<b>Total</b>	<b>180.40</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.73%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	-5.30	Unit-I under Shutdown. Unit-II on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-5.42	
		Unit- III	81.18	220kV CHP - Malbase Line- III	45.07	
		Unit- IV	65.15	220kV CHP - Semtokha Line- IV	82.72	
		-	-	220kV Malbase - Birpara Line	-44.05	
		-	-	66kV CHP - Chumdo Line	24.62	
		-	-	66kV CHP - Gedu Line	1.99	
		-	-	3x3MVA, 66/11kV TFR	1.20	
<b>Total</b>	<b>146.33</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.99%</b>			
4	24MW BHP (U/S)	Unit- I	5.16	220kV BHP - Semtokha Line	61.17	
		Unit- II	5.16	66kV BHP - Lobeyasa Line	27.13	
		<b>Total</b>	<b>10.32</b>	220kV BHP - Tsirang Line	-57.27	
5	40MW BHP (L/S)	Unit- I	10.78	5MVA, 66/11kV TFR	0.81	
		Unit- II	10.81	30MVA ICT, 220/66kV (HV)	18.30	
		<b>Total</b>	<b>21.59</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.22%</b>	
6	126MW DHP	Unit-I	38.29	220kV DHP - Tsirang Line	38.06	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	63.10	
		-	-	5MVA, 220/33kV TFR	0.15	
<b>Total</b>	<b>38.29</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.21%</b>			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Line	11.06	Unit- I under Shutdown. Unit- II on standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	17.27	
		Unit- III	14.51	5MVA, 132/11kV TFR	0.60	
		Unit- IV	14.51	132kV Motanga - Rangia Line	0.04	
		<b>Total</b>	<b>29.02</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.31%</b>	

**Note: Generation-Load Summary (MW) for November 26, 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	514.15	378.68	374.79	161.33	3.89
2	Eastern Grid	209.42	206.66	205.25	-23.10	1.41
<b>Total</b>		<b>723.57</b>	<b>585.34</b>	<b>580.04</b>	<b>138.23</b>	<b>5.30</b>

**Note: Generation-Load Summary for November 26, 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	640.62	372.06	367.23	283.24	4.83
2	Eastern Grid	238.14	93.20	92.16	130.26	1.04
<b>Total</b>		<b>878.76</b>	<b>465.26</b>	<b>459.39</b>	<b>413.50</b>	<b>5.87</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 27, 2022  
**Hours:** 09:00 Hours

Date	Time	Load(MW)
17-Nov-22	18:39:09hrs	616.55

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	150.34	
		Unit- III	79.03	400kV THP - Siliguri Line- IV	144.74	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	108.11	400kV Malbase - Siliguri Line	-67.01	
		Unit- VI	108.91	-	-	
		<b>Total</b>	<b>296.05</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.33%</b>	
2	720MW MHP	Unit-I	90.12	400kV MHP - Jigmeling Line - I	101.61	Unit-III & IV under shutdown. 400kV MHP-JLG Line II, III & IV on Standby. 132kV MHP_Yurmoo line I not in service. 400kV JLG_ALI Direct line II Standby. 400kV JLG_ALI Line I (Interim) on Standby.
		Unit-II	90.17	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	76.90	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	93.40	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	1.45	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	4.80	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	7.60	
		-	-	80MVA, 220/132kV ICT - II (HV)	7.60	
		-	-	220kV Tsirang - Jigmeling Line	-16.80	
-	-	132kV Gelephu - Salakati Line	-1.75			
<b>Total</b>	<b>180.29</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.99%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	-2.18	Unit-I under shutdown. Unit-II on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-2.46	
		Unit- III	82.13	220kV CHP - Malbase Line- III	56.67	
		Unit- IV	68.05	220kV CHP - Semtokha Line- IV	70.22	
		-	-	220kV Malbase - Birpara Line	-47.72	
		-	-	66kV CHP - Chumdo Line	19.05	
		-	-	66kV CHP - Gedu Line	7.11	
		-	-	3x3MVA, 66/11kV TFR	1.40	
<b>Total</b>	<b>150.18</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.25%</b>			
4	24MW BHP (U/S)	Unit- I	5.38	220kV BHP - Semtokha Line	57.30	
		Unit- II	5.48	66kV BHP - Lobeyasa Line	24.47	
		<b>Total</b>	<b>10.86</b>	220kV BHP - Tsirang Line	-49.63	
5	40MW BHP (L/S)	Unit- I	10.81	5MVA, 66/11kV TFR	0.50	
		Unit- II	11.04	30MVA ICT, 220/66kV (HV)	14.60	
		<b>Total</b>	<b>21.85</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.21%</b>	
6	126MW DHP	Unit-I	38.29	220kV DHP - Tsirang Line	38.06	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.00	
		-	-	5MVA, 220/33kV TFR	0.15	
<b>Total</b>	<b>38.29</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.21%</b>			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	14.77	Unit I under Shutdown. Unit-II on standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	13.79	
		Unit- III	14.61	5MVA, 132/11kV TFR	0.40	
		Unit- IV	14.63	132kV Motanga - Rangia Line	0.00	
		<b>Total</b>	<b>29.24</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.96%</b>	

**Note: Generation-Load Summary (MW) for November 27, 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	517.23	358.32	356.83	175.71	1.49
2	Eastern Grid	209.53	188.23	186.17	4.50	2.06
<b>Total</b>		<b>726.76</b>	<b>546.55</b>	<b>543.00</b>	<b>180.21</b>	<b>3.55</b>

**Note: Generation-Load Summary for November 27, 2021 at 09:00hrs.**

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1	Western Grid	653.27	333.26	327.06	248.65	6.20
2	Eastern Grid	231.18	76.06	74.38	226.48	1.68
<b>Total</b>		<b>884.45</b>	<b>409.32</b>	<b>401.44</b>	<b>475.13</b>	<b>7.88</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.
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