

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

**Coincidental Maximum Load**

**Date:** November 8, 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	215.78	Unit-I under Shutdown. Unit-IV on Standby. 400kV Tala-Malbase line under Shutdown. 400kV THP- Siliguri Line- II on Standby.
		Unit- II	89.73	400kV THP - Siliguri Line - II	0.00	
		Unit- III	98.31	400kV THP - Siliguri Line- IV	208.34	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	98.89	400kV Malbase - Siliguri Line	-75.20	
		Unit- VI	140.01	-	-	
		<b>Total</b>	<b>426.94</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.66%</b>	
2	720MW MHP	Unit-I	115.14	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	115.15	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	136.70	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	92.33	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	99.08	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	14.54	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	22.26	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	13.46	
		-	-	80MVA, 220/132kV ICT - II (HV)	13.76	
		-	-	220kV Tsirang - Jigmeling Line	-9.51	
-	-	132kV Gelephu - Salakati Line	4.80			
<b>Total</b>	<b>230.29</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.55%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	11.75	Unit-I under Shutdown.
		Unit- II	70.43	220kV CHP - Birpara Line- II	11.75	
		Unit- III	76.90	220kV CHP - Malbase Line- III	72.63	
		Unit- IV	55.50	220kV CHP - Semtokha Line- IV	74.19	
		-	-	220kV Malbase - Birpara Line	-35.79	
		-	-	66kV CHP - Chumdo Line	21.28	
		-	-	66kV CHP - Gedu Line	7.21	
		-	-	3x3MVA, 66/11kV TFR	1.90	
<b>Total</b>	<b>202.83</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.05%</b>			
4	24MW BHP (U/S)	Unit- I	7.00	220kV BHP - Semtokha Line	64.82	
		Unit- II	6.70	66kV BHP - Lobeyasa Line	27.81	
		<b>Total</b>	<b>13.70</b>	220kV BHP - Tsirang Line	-51.54	
5	40MW BHP (L/S)	Unit- I	13.30	5MVA, 66/11kV TFR	0.70	
		Unit- II	14.90	30MVA ICT, 220/66kV (HV)	15.10	
		<b>Total</b>	<b>28.20</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.26%</b>	
6	126MW DHP	Unit-I	46.33	220kV DHP - Tsirang Line	46.08	Unit-II on Standby 220kV DHP-Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.88	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>46.33</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.11%</b>			
7	60MW KHP	Unit- I	14.85	132kV KHP - Nangkhoh Line	21.74	Unit-III on Standby.
		Unit-II	15.35	132kV KHP - Kilikhar Line	23.78	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.60	
		Unit- IV	16.45	132kV Motanga - Rangia Line	22.10	
		<b>Total</b>	<b>46.65</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.14%</b>	

**Note: Generation-Load Summary (MW) for November 08, 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	718.00	390.88	385.78	336.63	5.10
2	Eastern Grid	276.94	203.73	201.94	63.70	1.79
<b>Total</b>		<b>994.94</b>	<b>594.61</b>	<b>587.72</b>	<b>400.33</b>	<b>6.89</b>

**Note: Generation-Load Summary for November 08, 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	942.05	339.51	338.57	581.36	0.94
2	Eastern Grid	277.84	84.05	79.74	214.97	4.31
<b>Total</b>		<b>1,219.89</b>	<b>423.56</b>	<b>418.31</b>	<b>796.33</b>	<b>5.25</b>

**NOTE-Motanga data collected from Site.**

- 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:
  - 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.
  - The clocks of all the locations are not synchronized.
- 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 9, 2022  
**Hours:** 09:00 Hours

**Date:** 7-Nov-22      **Time:** 18:11hrs      **Load(MW):** 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	199.10	Unit-I under Shutdown. Unit-IV on Standby. 400kV Tala-Malbase line under Shutdown. 400kV THP- Siliguri Line- II on Standby.
		Unit- II	88.84	400kV THP - Siliguri Line - II	0.00	
		Unit- III	109.00	400kV THP - Siliguri Line- IV	194.14	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	98.79	400kV Malbase - Siliguri Line	-51.15	
		Unit- VI	99.49	-	-	
		<b>Total</b>	<b>396.12</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.73%</b>	
2	720MW MHP	Unit-I	115.27	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	115.21	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	147.29	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	81.80	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	78.28	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	26.82	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	40.60	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	9.89	
		-	-	80MVA, 220/132kV ICT - II (HV)	10.11	
		-	-	220kV Tsirang - Jigmeling Line	19.42	
-	-	132kV Gelephu - Salakati Line	4.12			
<b>Total</b>	<b>230.48</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	17.45	Unit-I under shutdown.
		Unit- II	77.98	220kV CHP - Birpara Line- II	17.01	
		Unit- III	72.88	220kV CHP - Malbase Line- III	80.32	
		Unit- IV	54.92	220kV CHP - Semtokha Line- IV	65.40	
		-	-	220kV Malbase - Birpara Line	-33.57	
		-	-	66kV CHP - Chumdo Line	16.93	
		-	-	66kV CHP - Gedu Line	7.30	
		-	-	3x3MVA, 66/11kV TFR	1.21	
<b>Total</b>	<b>205.78</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.08%</b>			
4	24MW BHP (U/S)	Unit- I	7.00	220kV BHP - Semtokha Line	56.73	
		Unit- II	6.70	66kV BHP - Lobeysa Line	24.30	
		<b>Total</b>	<b>13.70</b>	220kV BHP - Tsirang Line	-40.69	
5	40MW BHP (L/S)	Unit- I	13.60	5MVA, 66/11kV TFR	0.41	
		Unit- II	13.50	30MVA ICT, 220/66kV (HV)	11.07	
		<b>Total</b>	<b>27.10</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.12%</b>	
6	126MW DHP	Unit-I	45.86	220kV DHP - Tsirang Line	45.56	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.37	
		-	-	5MVA, 220/33kV TFR		
<b>Total</b>	<b>45.86</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.65%</b>			
7	60MW KHP	Unit- I	13.38	132kV KHP - Nangkhoh Line	22.04	Unit-III on standby
		Unit-II	13.32	132kV KHP - Kilikhar Line	17.29	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.40	
		Unit- IV	13.37	132kV Motanga - Rangia Line	14.83	
		<b>Total</b>	<b>40.07</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.85%</b>	

**Note: Generation-Load Summary (MW) for November 09, 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	688.56	326.16	322.77	342.98	3.39
2	Eastern Grid	270.55	203.60	201.87	86.37	1.73
<b>Total</b>		<b>959.11</b>	<b>529.76</b>	<b>524.64</b>	<b>429.35</b>	<b>5.12</b>

**Note: Generation-Load Summary for November 09, 2021 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	911.74	323.18	320.28	563.68	2.90
2	Eastern Grid	279.26	76.85	75.47	227.29	1.38
<b>Total</b>		<b>1,191.00</b>	<b>400.03</b>	<b>395.75</b>	<b>790.97</b>	<b>4.28</b>

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