

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

**Coincidental Maximum Load**

**Date:** October 9, 2022  
**Hours:** 19:00 Hours

**Date:** 30-Aug-22      **Time:** 19:23 hrs      **Load(MW):** 536.69

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	185.37	400kV THP - Siliguri Line - I	265.29	
		Unit- II	185.26	400kV THP - Siliguri Line - II	262.96	
		Unit- III	185.13	400kV THP - Siliguri Line- IV	257.31	
		Unit- IV	186.88	400kV THP - Malbase Line - III	317.73	
		Unit- V	185.11	400kV Malbase - Siliguri Line	240.49	
		Unit- VI	185.50	-	-	
		<b>Total</b>	<b>1,113.25</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.89%</b>	
2	720MW MHP	Unit-I	164.79	400kV MHP - Jigmeling Line - I	268.10	400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmo line I not in service. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	159.75	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	135.44	400kV MHP - Jigmeling Line - III	269.74	
		Unit-IV	160.15	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	76.36	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	-3.06	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	133.28	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	201.08	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	200.69	
		-	-	80MVA, 220/132kV ICT - I (HV)	17.58	
		-	-	80MVA, 220/132kV ICT - II (HV)	17.90	
		-	-	220kV Tsirang - Jigmeling Line	-21.41	
-	-	132kV Gelephu - Salakati Line	21.78			
<b>Total</b>	<b>620.13</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.96%</b>			
3	336MW CHP	Unit- I	91.34	220kV CHP - Birpara Line- I	75.40	
		Unit- II	91.17	220kV CHP - Birpara Line- II	75.29	
		Unit- III	91.90	220kV CHP - Malbase Line- III	120.21	
		Unit- IV	75.68	220kV CHP - Semtokha Line- IV	54.84	
		-	-	220kV Malbase - Birpara Line	30.69	
		-	-	66kV CHP - Chumdo Line	16.86	
		-	-	66kV CHP - Gedu Line	5.32	
		-	-	3x3MVA, 66/11kV TFR	1.64	
<b>Total</b>	<b>350.09</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.15%</b>			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	56.00	
		Unit- II	12.10	66kV BHP - Lobeyasa Line	27.38	
		<b>Total</b>	<b>24.40</b>	220kV BHP - Tsirang Line	-18.51	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.59	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	4.14	
		<b>Total</b>	<b>41.60</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.82%</b>	
6	126MW DHP	Unit-I	46.40	220kV DHP - Tsirang Line	0.00	220kV DHP_Tsirang Line on Standby.
		Unit-II	46.03	220kV DHP - Dagapela Line	91.96	
		-	-	220kV Jigmeling - Dagapela Line	-58.98	
		-	-	5MVA, 220/33kV TFR	0.45	
<b>Total</b>	<b>92.43</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.02%</b>			
7	60MW KHP	Unit- I	16.43	132kV KHP - Nangkhoh Line	37.88	
		Unit-II	16.50	132kV KHP - Kilikhar Line	27.05	
		Unit- III	16.51	5MVA, 132/11kV TFR	0.31	
		Unit- IV	16.41	132kV Motanga - Rangia Line	43.70	
		<b>Total</b>	<b>65.85</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.93%</b>	

**Note: Generation-Load Summary (MW) for October 09, 2022 at 19:00hrs.**

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	1,621.77	376.77	365.72	1,207.43	11.05
2	Eastern Grid	685.98	123.02	116.48	600.53	6.54
<b>Total</b>		<b>2,307.75</b>	<b>499.79</b>	<b>482.20</b>	<b>1,807.96</b>	<b>17.59</b>

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1	Western Grid	1,116.18	320.77	317.16	745.41	3.61
2	Eastern Grid	448.22	83.02	80.39	415.20	2.63
<b>Total</b>		<b>1,564.40</b>	<b>403.79</b>	<b>397.55</b>	<b>1,160.61</b>	<b>6.24</b>

**NOTE-MAT 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:** October 10, 2022  
**Hours:** 09:00 Hours

**Date:** 30-Aug-22      **Time:** 19:23 hrs      **Load(MW):** 536.69

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	186.16	400kV THP - Siliguri Line - I	273.29	
		Unit- II	184.78	400kV THP - Siliguri Line - II	272.87	
		Unit- III	184.96	400kV THP - Siliguri Line - IV	264.91	
		Unit- IV	185.91	400kV THP - Malbase Line - III	296.09	
		Unit- V	187.95	400kV Malbase - Siliguri Line	253.06	
		Unit- VI	185.18	-	-	
		<b>Total</b>	<b>1,114.94</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.70%</b>	
2	720MW MHP	Unit-I	174.94	400kV MHP - Jigmeling Line - I	298.53	400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmoo line I not in service. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	174.87	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	135.52	400kV MHP - Jigmeling Line - III	300.41	
		Unit-IV	175.27	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	56.72	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	-39.12	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	158.05	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	236.24	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	236.46	
		-	-	80MVA, 220/132kV ICT - I (HV)	10.04	
		-	-	80MVA, 220/132kV ICT - II (HV)	10.22	
		-	-	220kV Tsirang - Jigmeling Line	-17.44	
-	-	132kV Gelephu - Salakati Line	20.89			
<b>Total</b>	<b>660.60</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.75%</b>			
3	336MW CHP	Unit- I	91.27	220kV CHP - Birpara Line- I	80.19	
		Unit- II	91.18	220kV CHP - Birpara Line- II	79.79	
		Unit- III	91.63	220kV CHP - Malbase Line- III	130.52	
		Unit- IV	75.26	220kV CHP - Semtokha Line- IV	40.21	
		-	-	220kV Malbase - Birpara Line	30.14	
		-	-	66kV CHP - Chumdo Line	13.34	
		-	-	66kV CHP - Gedu Line	4.97	
		-	-	3x3MVA, 66/11kV TFR	0.94	
<b>Total</b>	<b>349.34</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-0.18%</b>			
4	24MW BHP (U/S)	Unit- I	11.86	220kV BHP - Semtokha Line	56.23	
		Unit- II	11.86	66kV BHP - Lobeyasa Line	25.09	
		<b>Total</b>	<b>23.72</b>	220kV BHP - Tsirang Line	-16.18	
5	40MW BHP (L/S)	Unit- I	20.48	5MVA, 66/11kV TFR	0.35	
		Unit- II	20.99	30MVA ICT, 220/66kV (HV)	1.70	
		<b>Total</b>	<b>41.47</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-0.46%</b>	
6	126MW DHP	Unit-I	46.37	220kV DHP - Tsirang Line	0.00	220kV DHP_TSI Line on Standby.
		Unit-II	63.11	220kV DHP - Dagapela Line	108.91	
		-	-	220kV Jigmeling - Dagapela Line	-77.71	
		-	-	5MVA, 220/33kV TFR	0.40	
<b>Total</b>	<b>109.48</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.16%</b>			
7	60MW KHP	Unit- I	16.56	132kV KHP - Nangkhoh Line	14.97	
		Unit-II	16.54	132kV KHP - Kilikhar Line	50.21	
		Unit- III	16.60	5MVA, 132/11kV TFR	0.45	
		Unit- IV	16.39	132kV Motanga - Rangia Line	15.90	
		<b>Total</b>	<b>66.09</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.70%</b>	

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1	Western Grid	1,638.95	324.43	317.40	1,254.25	7.03
2	Eastern Grid	726.69	119.42	114.02	667.54	5.40
<b>Total</b>		<b>2,365.64</b>	<b>443.85</b>	<b>431.42</b>	<b>1,921.79</b>	<b>12.43</b>

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1	Western Grid	1,131.47	309.99	305.74	764.81	4.25
2	Eastern Grid	457.53	49.35	47.56	464.85	1.79
<b>Total</b>		<b>1,589.00</b>	<b>359.34</b>	<b>353.30</b>	<b>1,229.66</b>	<b>6.04</b>

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  - 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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