

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

**Coincidental Maximum Load**

<b>Date:</b>	<b>March 9, 2023</b>
<b>Hours:</b>	<b>18:00 Hours</b>

<b>Date</b>	<b>Time</b>	<b>Load(MW)</b>
10-Feb-23	19:12:46hrs	646.17

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	98.51	400kV THP - Siliguri Line - I	0.00	Unit-IV, V & VI under AMP. Unit-III on Standby. 400kV THP- Siliguri Line I under Shutdown. 400kV THP- Siliguri Line IV on Standby.
		Unit- II	118.95	400kV THP - Siliguri Line - II	66.93	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	148.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	44.37	
		Unit- VI	0.00	-	-	
		<b>Total</b>	<b>217.46</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.16%</b>	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	Unit-I & Unit-III under AMP. 400kV MHP-JLG Line I, III & IV on Standby. 132kV MHP_Yurmoo Line- I not in service. 400kV JLG_ALI Line- I (Interim) under Shutdown. 400kV JLG_ALI line -II (Interim) on Standby.
		Unit-II	79.65	400kV MHP - Jigmeling Line - II	92.53	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	100.06	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	85.67	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	127.69	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-18.65	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-17.11	
		-	-	80MVA, 220/132kV ICT - I (HV)	6.03	
		-	-	80MVA, 220/132kV ICT - II (HV)	6.16	
		-	-	220kV Tsirang - Jigmeling Line	-50.22	
-	-	132kV Gelephu - Salakati Line	-10.84			
<b>Total</b>	<b>179.71</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.84%</b>			
3	336MW CHP	Unit- I	59.98	220kV CHP - Birpara Line- I	0.00	Unit-II and IV under AMP. 220kV CHP-Birpara Line-I on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-15.60	
		Unit- III	49.48	220kV CHP - Malbase Line- III	21.40	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	74.36	
		-	-	220kV Malbase - Birpara Line	-42.48	
		-	-	66kV CHP - Chumdo Line	22.06	
		-	-	66kV CHP - Gedu Line	6.31	
		-	-	3x3MVA, 66/11kV TFR	0.73	
<b>Total</b>	<b>109.46</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.18%</b>			
4	24MW BHP (U/S)	Unit- I	5.00	220kV BHP - Semtokha Line	54.00	L/S & U/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	24.60	
		<b>Total</b>	<b>5.00</b>	220kV BHP - Tsirang Line	-63.31	
5	40MW BHP (L/S)	Unit- I	10.60	5MVA, 66/11kV TFR	0.51	L/S & U/S Unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	20.30	
		<b>Total</b>	<b>10.60</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-1.28%</b>	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	16.53	Unit-I on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	16.78	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	65.91	
		-	-	5MVA, 220/33kV TFR	0.24	
<b>Total</b>	<b>16.78</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.06%</b>			
7	60MW KHP	Unit- I	15.03	132kV KHP - Nangkhor Line	13.19	Unit-II on Standby. Unit-IV under AMP.
		Unit-II	0.00	132kV KHP - Kilikhar Line	15.89	
		Unit- III	14.97	5MVA, 132/11kV TFR	0.60	
		Unit- IV	0.00	132kV Motanga - Rangia Line	10.91	
		<b>Total</b>	<b>30.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.07%</b>	

**Note: Generation-Load Summary (MW) for March 09, 2023 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	359.30	356.30	353.76	53.22	2.54
2	Eastern Grid	209.71	195.18	193.35	-35.69	1.83
<b>Total</b>		<b>569.01</b>	<b>551.48</b>	<b>547.11</b>	<b>17.53</b>	<b>4.37</b>

**Note: Generation-Load Summary for March 09, 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	224.59	349.22	347.48	-63.19	1.74
2	Eastern Grid	206.44	52.83	51.50	92.17	1.33
<b>Total</b>		<b>431.03</b>	<b>402.05</b>	<b>398.98</b>	<b>28.98</b>	<b>3.07</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**

<b>Date:</b>	<b>March 10, 2023</b>
<b>Hours:</b>	<b>09:00 Hours</b>

<b>Date</b>	<b>Time</b>	<b>Load(MW)</b>
10-Feb-23	19:12:46hrs	646.17

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	148.07	400kV THP - Siliguri Line - I	0.00	Unit-IV, V & VI under AMP. Unit-III on Standby. 400kV THP- Siliguri Line I under shutdown. 400kV THP- Siliguri Line IV on standby
		Unit- II	109.35	400kV THP - Siliguri Line - II	86.84	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	168.56	
		Unit- V	0.00	400kV Malbase - Siliguri Line	62.77	
		Unit- VI	0.00	-	-	
		<b>Total</b>	<b>257.42</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.78%</b>	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	Unit-I & Unit-III under AMP. Unit-IV under Shutdown. 400kV MHP-JLG Line I,III & IV on Standby. 132kV MHP_Yurmo Line- I not in service. 400kV JLG_ALI Line-I (Interim) under Shutdown. 400kV JLG_ALI Line-II (Interim) on Standby.
		Unit-II	165.07	400kV MHP - Jigmeling Line - II	80.95	
		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	81.87	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	109.75	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-13.23	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-14.59	
		-	-	80MVA, 220/132kV ICT - I (HV)	4.95	
		-	-	80MVA, 220/132kV ICT - II (HV)	5.08	
		-	-	220kV Tsirang - Jigmeling Line	-54.23	
-	-	132kV Gelephu - Salakati Line	-12.67			
<b>Total</b>	<b>165.07</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.36%</b>			
3	336MW CHP	Unit- I	27.63	220kV CHP - Birpara Line- I	0.00	Unit-II and IV under AMP. 220kV CHP-Birpara Line-I on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-20.09	
		Unit- III	51.84	220kV CHP - Malbase Line- III	7.59	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	63.57	
		-	-	220kV Malbase - Birpara Line	-38.01	
		-	-	66kV CHP - Chumdo Line	21.04	
		-	-	66kV CHP - Gedu Line	5.58	
		-	-	3x3MVA, 66/11kV TFR	0.72	
<b>Total</b>	<b>79.47</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.33%</b>			
4	24MW BHP (U/S)	Unit- I	5.00	220kV BHP - Semtokha Line	59.70	L/S & U/S unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	23.40	
		<b>Total</b>	<b>5.00</b>	<b>220kV BHP - Tsirang Line</b>	<b>-68.02</b>	
5	40MW BHP (L/S)	Unit- I	10.20	5MVA, 66/11kV TFR	0.38	L/S & U/S unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	18.88	
		<b>Total</b>	<b>10.20</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-1.71%</b>	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	16.41	Unit-I on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	16.65	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	45.81	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>16.65</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.24%</b>			
7	60MW KHP	Unit- I	15.08	132kV KHP - Nangkhoh Line	15.02	Unit-II on Standby. Unit-IV under AMP.
		Unit-II	0.00	132kV KHP - Kilikhar Line	14.14	
		Unit- III	15.05	5MVA, 132/11kV TFR	0.53	
		Unit- IV	0.00	132kV Motanga - Rangia Line	5.28	
		<b>Total</b>	<b>30.13</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.46%</b>	

**Note: Generation-Load Summary (MW) for March 10, 2023 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	368.74	331.46	328.60	91.51	2.86
2	Eastern Grid	195.20	176.18	173.49	-35.21	2.69
<b>Total</b>		<b>563.94</b>	<b>507.64</b>	<b>502.09</b>	<b>56.30</b>	<b>5.55</b>

**Note: Generation-Load Summary for March 10, 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	215.63	343.50	342.26	-67.28	1.24
2	Eastern Grid	217.67	53.86	52.79	103.22	1.07
<b>Total</b>		<b>433.30</b>	<b>397.36</b>	<b>395.05</b>	<b>35.94</b>	<b>2.31</b>

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- 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.

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