

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

**Coincidental Maximum Load**

<b>Date:</b>	<b>December 22, 2022</b>
<b>Hours:</b>	<b>18:00 Hours</b>

<b>Date</b>	<b>Time</b>	<b>Load(MW)</b>
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	75.87	Unit-I, II & III under Shutdown. 400kV THP- Siliguri Line II on Standby 400kV Tala-Siliguri line IV under Shutdown
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	69.50	400kV THP - Malbase Line - III	135.05	
		Unit- V	73.57	400kV Malbase - Siliguri Line	57.12	
		Unit- VI	70.38	-	-	
		<b>Total</b>	<b>213.45</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.19%</b>	
2	720MW MHP	Unit-I	59.80	400kV MHP - Jigmeling Line - I	34.88	Unit-III & IV under shutdown. 400kV MHP-JLG Line II, III & IV on Standby. 132kV MHP_Yurmo Line- I not in service. 400kV JLG_ALI line- I (Direct) on Standby. 400kV JLG_ALI Line- I (Interim) on Standby.
		Unit-II	59.80	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	83.44	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	110.51	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-29.09	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-44.80	
		-	-	80MVA, 220/132kV ICT - I (HV)	7.14	
		-	-	80MVA, 220/132kV ICT - II (HV)	7.32	
		-	-	220kV Tsirang - Jigmeling Line	-32.22	
-	-	132kV Gelephu - Salakati Line	-15.68			
<b>Total</b>	<b>119.60</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.07%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I under Shutdown. 220kV CHP_Birpara Line I & 66kV CHP_GED Line on Standby.
		Unit- II	54.49	220kV CHP - Birpara Line- II	15.35	
		Unit- III	90.65	220kV CHP - Malbase Line- III	72.31	
		Unit- IV	68.78	220kV CHP - Semtokha Line- IV	96.68	
		-	-	220kV Malbase - Birpara Line	-31.89	
		-	-	66kV CHP - Chumdo Line	27.03	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	2.06	
<b>Total</b>	<b>213.92</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.23%</b>			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	51.55	BHP(U/S) unit I on Standby.
		Unit- II	8.15	66kV BHP - Lobeyasa Line	28.16	
		<b>Total</b>	<b>8.15</b>	<b>220kV BHP - Tsirang Line</b>	<b>-55.09</b>	
5	40MW BHP (L/S)	Unit- I	8.62	5MVA, 66/11kV TFR	0.76	
		Unit- II	8.22	30MVA ICT, 220/66kV (HV)	20.70	
		<b>Total</b>	<b>16.84</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-1.56%</b>	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	27.53	Unit-I under Shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	27.83	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	63.25	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>27.83</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.36%</b>			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	10.54	Unit- I under mechanical spin. Unit- III on Standby.
		Unit-II	15.03	132kV KHP - Kilikhar Line	18.48	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.74	
		Unit- IV	15.05	132kV Motanga - Rangia Line	0.00	
		<b>Total</b>	<b>30.08</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.06%</b>	

**Note: Generation-Load Summary (MW) for December 22, 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	480.19	395.96	393.23	116.45	2.73
2	Eastern Grid	149.68	207.03	205.43	-89.57	1.60
<b>Total</b>		<b>629.87</b>	<b>602.99</b>	<b>598.66</b>	<b>26.88</b>	<b>4.33</b>

**Note: Generation-Load Summary for December 22, 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	426.12	368.06	365.59	101.15	2.47
2	Eastern Grid	160.21	92.31	90.24	24.81	2.07
<b>Total</b>		<b>586.33</b>	<b>460.37</b>	<b>455.83</b>	<b>125.96</b>	<b>4.55</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.

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<b>Hours:</b>	<b>09:00 Hours</b>

<b>Date</b>	<b>Time</b>	<b>Load(MW)</b>
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	75.39	Unit-I, II & III under Shutdown. 400kV THP- Siliguri Line II on Standby 400kV Tala-Siliguri line IV under Shutdown
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	79.08	400kV THP - Malbase Line - III	148.60	
		Unit- V	78.38	400kV Malbase - Siliguri Line	56.53	
		Unit- VI	69.86	-	-	
		<b>Total</b>	<b>227.32</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.46%</b>	
2	720MW MHP	Unit-I	82.81	400kV MHP - Jigmeling Line - I	82.87	Unit-III & IV under shutdown. 400kV MHP-JLG Line II, III & IV on Standby. 132kV MHP_Yurmo Line- I not in service. 400kV JLG_ALI line- I (Direct) on Standby. 400kV JLG_ALI Line- I (Interim) on Standby.
		Unit-II	81.83	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	80.46	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	111.35	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-10.91	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-17.04	
		-	-	80MVA, 220/132kV ICT - I (HV)	3.60	
		-	-	80MVA, 220/132kV ICT - II (HV)	3.76	
		-	-	220kV Tsirang - Jigmeling Line	-42.32	
-	-	132kV Gelephu - Salakati Line	-17.20			
<b>Total</b>	<b>164.64</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.80%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I under Shutdown. Unit-II on Standby. 220kV CHP_Birpara Line I & 66kV CHP_GED Line on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-15.37	
		Unit- III	61.60	220kV CHP - Malbase Line- III	38.19	
		Unit- IV	54.01	220kV CHP - Semtokha Line- IV	67.53	
		-	-	220kV Malbase - Birpara Line	-54.32	
		-	-	66kV CHP - Chumdo Line	23.48	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	1.52	
<b>Total</b>	<b>115.61</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.22%</b>			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	65.77	U/S unit-I on Standby
		Unit- II	8.40	66kV BHP - Lobeyasa Line	25.26	
		<b>Total</b>	<b>8.40</b>	220kV BHP - Tsirang Line	-66.24	
5	40MW BHP (L/S)	Unit- I	8.50	5MVA, 66/11kV TFR	0.54	U/S unit-I on Standby
		Unit- II	8.30	30MVA ICT, 220/66kV (HV)	17.70	
		<b>Total</b>	<b>16.80</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-0.52%</b>	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	27.55	Unit-I under shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	27.82	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.01	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>27.82</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.25%</b>			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	6.18	Unit-I under Shutdown. Unit-III on Standby.
		Unit-II	10.07	132kV KHP - Kilikhar Line	13.18	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.55	
		Unit- IV	10.10	132kV Motanga - Rangia Line	-5.28	
		<b>Total</b>	<b>20.17</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.29%</b>	

**Note: Generation-Load Summary (MW) for December 23, 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	395.95	376.04	372.51	62.23	3.53
2	Eastern Grid	184.81	192.92	191.35	-50.43	1.57
<b>Total</b>		<b>580.76</b>	<b>568.96</b>	<b>563.86</b>	<b>11.80</b>	<b>5.10</b>

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1	Western Grid	463.55	345.99	343.08	157.69	2.91
2	Eastern Grid	223.78	88.78	86.28	94.87	2.50
<b>Total</b>		<b>687.33</b>	<b>434.77</b>	<b>429.36</b>	<b>252.56</b>	<b>5.41</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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