

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

**Coincidental Maximum Load**

<b>Date:</b>	<b>December 7, 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	0.00	Unit-I, II & III under Shutdown. 400kV THP- Siliguri Line I & 400kV Tala-Siliguri line IV on Standby
		Unit- II	0.00	400kV THP - Siliguri Line - II	126.18	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	120.46	400kV THP - Malbase Line - III	190.70	
		Unit- V	126.60	400kV Malbase - Siliguri Line	102.20	
		Unit- VI	72.75	-	-	
		<b>Total</b>	<b>319.81</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.92%</b>	
2	720MW MHP	Unit-I	99.83	400kV MHP - Jigmeling Line - I	0.00	Unit-III & IV under shutdown. 400kV MHP-JLG Line I & II under Shutdown. 400kV MHP-JLG Line III on Standby. 132kV MHP_Yurmo Line-I not in service. 400kV JLG_ALI line- II (Direct) on Standby. 400kV JLG_ALI Line- I (Interim) on Standby.
		Unit-II	94.76	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	93.59	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	98.84	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	207.90	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-45.09	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-68.55	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	8.26	
		-	-	80MVA, 220/132kV ICT - II (HV)	8.48	
		-	-	220kV Tsirang - Jigmeling Line	22.43	
-	-	132kV Gelephu - Salakati Line	-5.47			
<b>Total</b>	<b>194.59</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.11%</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. 220kV CHP_SEM Line under Shutdown.
		Unit- II	0.00	220kV CHP - Birpara Line- II	56.96	
		Unit- III	81.34	220kV CHP - Malbase Line- III	81.96	
		Unit- IV	72.19	220kV CHP - Semtokha Line- IV	0.00	
		-	-	220kV Malbase - Birpara Line	26.84	
		-	-	66kV CHP - Chumdo Line	11.95	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	2.07	
<b>Total</b>	<b>153.53</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.38%</b>			
4	24MW BHP (U/S)	Unit- I	4.80	220kV BHP - Semtokha Line	148.80	
		Unit- II	4.60	66kV BHP - Lobeyasa Line	31.89	
		<b>Total</b>	<b>9.40</b>	220kV BHP - Tsirang Line	-152.33	
5	40MW BHP (L/S)	Unit- I	9.00	5MVA, 66/11kV TFR	0.81	
		Unit- II	10.00	30MVA ICT, 220/66kV (HV)	23.65	
		<b>Total</b>	<b>19.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-2.71%</b>	
6	126MW DHP	Unit-I	31.69	220kV DHP - Tsirang Line	31.41	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.49	
		-	-	5MVA, 220/33kV TFR	0.25	
<b>Total</b>	<b>31.69</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.09%</b>			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	8.58	Unit- I under Shutdown. Unit- II on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	18.32	
		Unit- III	13.91	5MVA, 132/11kV TFR	0.82	
		Unit- IV	14.17	132kV Motanga - Rangia Line	3.31	
		<b>Total</b>	<b>28.08</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.28%</b>	

**Note: Generation-Load Summary (MW) for December 07, 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	533.43	198.82	196.04	312.18	2.78
2	Eastern Grid	222.67	360.90	358.38	-115.80	2.52
<b>Total</b>		<b>756.10</b>	<b>559.72</b>	<b>554.42</b>	<b>196.38</b>	<b>5.30</b>

**Note: Generation-Load Summary for December 07, 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	551.88	356.40	352.30	212.78	4.10
2	Eastern Grid	189.31	93.92	91.53	78.09	2.39
<b>Total</b>		<b>741.19</b>	<b>450.32</b>	<b>443.83</b>	<b>290.87</b>	<b>6.49</b>

**Note:-**

- 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**

<b>Date:</b>	<b>December 8, 2022</b>
<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	0.00	Unit-I, II & III under Shutdown. 400kV THP- Siliguri Line I & 400kV Tala-Siliguri line IV on Standby
		Unit- II	0.00	400kV THP - Siliguri Line - II	105.73	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	64.41	400kV THP - Malbase Line - III	166.22	
		Unit- V	137.26	400kV Malbase - Siliguri Line	83.23	
		Unit- VI	72.25	-	-	
		<b>Total</b>	<b>273.92</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.72%</b>	
2	720MW MHP	Unit-I	95.80	400kV MHP - Jigmeling Line - I	0.00	Unit-III & IV under shutdown. 400kV MHP-JLG Line I & II under Shutdown. 400kV MHP-JLG Line III on Standby. 132kV MHP_Yurmo Line-I not in service. 400kV JLG_ALI line- II (Direct) on Standby. 400kV JLG_ALI Line- I (Interim) on Standby.
		Unit-II	94.82	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	102.02	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	87.01	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	174.80	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-28.36	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-44.11	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	3.98	
		-	-	80MVA, 220/132kV ICT - II (HV)	4.05	
		-	-	220kV Tsirang - Jigmeling Line	22.43	
-	-	132kV Gelephu - Salakati Line	-9.40			
<b>Total</b>	<b>190.62</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.83%</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. 220kV CHP_SEM line under Shutdown.
		Unit- II	0.00	220kV CHP - Birpara Line- II	39.80	
		Unit- III	77.41	220kV CHP - Malbase Line- III	85.61	
		Unit- IV	60.27	220kV CHP - Semtokha Line- IV	0.00	
		-	-	220kV Malbase - Birpara Line	-2.16	
		-	-	66kV CHP - Chumdo Line	10.16	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	1.35	
<b>Total</b>	<b>137.68</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.55%</b>			
4	24MW BHP (U/S)	Unit- I	4.80	220kV BHP - Semtokha Line	133.45	
		Unit- II	4.60	66kV BHP - Lobeyasa Line	27.21	
		<b>Total</b>	<b>9.40</b>	220kV BHP - Tsirang Line	-131.52	
5	40MW BHP (L/S)	Unit- I	9.50	5MVA, 66/11kV TFR	0.48	
		Unit- II	10.10	30MVA ICT, 220/66kV (HV)	18.50	
		<b>Total</b>	<b>19.60</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-2.14%</b>	
6	126MW DHP	Unit-I	31.39	220kV DHP - Tsirang Line	31.14	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.83	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>31.39</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.16%</b>			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	15.16	Unit-I under Shutdown. Unit-II on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	15.00	
		Unit- III	15.51	5MVA, 132/11kV TFR	0.62	
		Unit- IV	15.56	132kV Motanga - Rangia Line	5.21	
		<b>Total</b>	<b>31.07</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.93%</b>	

**Note: Generation-Load Summary (MW) for December 08, 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	471.99	222.96	220.80	226.60	2.16
2	Eastern Grid	221.69	320.78	318.90	-76.66	1.88
<b>Total</b>		<b>693.68</b>	<b>543.74</b>	<b>539.70</b>	<b>149.94</b>	<b>4.04</b>

**Note: Generation-Load Summary for December 08, 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	529.73	358.11	353.64	177.66	4.47
2	Eastern Grid	194.07	81.46	80.25	106.57	1.21
<b>Total</b>		<b>723.80</b>	<b>439.57</b>	<b>433.89</b>	<b>284.23</b>	<b>5.68</b>

**Note:-**

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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.
  - The clocks of all the locations are not synchronized.
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