

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>October 7, 2021</b>
<b>Hours:</b>	<b>19:00 Hours</b>

<b>Date</b>	<b>Time</b>	<b>Load(MW)</b>
27-Dec-18	18:18hrs	399.35MW

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	137.05	400kV THP - Siliguri Line - I	0.00		Unit-II on Standby. 400kV THP-Siliguri line I under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	193.45	+	
		Unit- III	139.41	400kV THP - Siliguri Line- IV	185.00	+	
		Unit- IV	97.88	400kV THP - Malbase Line - III	267.58	+	
		Unit- V	137.71	400kV Malbase - Siliguri Line	164.54	+	
		Unit- VI	139.88	-	-	-	
		<b>Total</b>	<b>651.93</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.905%</b>		
2	720MW MHP	Unit-I	180.01	400kV MHP - Jigmeling Line - I	186.90	+	Unit II tripped at 18.15hrs due to rotor earth fault (under breakdown) & Unit-IV under Excitation mode. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmo lineI & II not in service. 400kV JLG_ALI Line I (Interim) on standby. 132kV Gelephu_Salakati line under shutdown.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	195.00	400kV MHP - Jigmeling Line - III	187.27	+	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00		
		-	-	132kV MHP - Yurmo Line - I	0.00		
		-	-	132kV MHP - Yurmo Line - II	0.00		
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	1.63	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	90.17	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	138.45	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	138.45	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.84	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.17	+	
		-	-	220kV Tsirang - Jigmeling Line	43.52	+	
-	-	132kV Gelephu - Salakati Line	0.00				
<b>Total</b>	<b>375.01</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.224%</b>				
3	336MW CHP	Unit- I	83.80	220kV CHP - Birpara Line- I	76.96	+	
		Unit- II	77.29	220kV CHP - Birpara Line- II	77.09	+	
		Unit- III	83.62	220kV CHP - Malbase Line- III	97.03	+	
		Unit- IV	84.72	220kV CHP - Semtokha Line- IV	59.79	+	
		-	-	220kV Malbase - Birpara Line	51.09	+	
		-	-	66kV CHP - Chumdo Line	11.84	+	
		-	-	66kV CHP - Gedu Line	4.75	+	
		-	-	3x3MVA, 66/11kV TFR	1.45	+	
<b>Total</b>	<b>329.43</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.158%</b>				
4	24MW BHP (U/S)	Unit- I	10.30	220kV BHP - Semtokha Line	41.54	+	
		Unit- II	10.10	66kV BHP - Lobeysa Line	29.00	+	
		<b>Total</b>	<b>20.40</b>	220kV BHP - Tsirang Line	-14.28	-	
5	40MW BHP (L/S)	Unit- I	18.60	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	18.30	30MVA ICT, 220/66kV (HV)	9.51	+	
		<b>Total</b>	<b>36.90</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.244%</b>		
6	126MW DHP	Unit-I	61.35	220kV DHP - Tsirang Line	61.02	+	Unit II on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	2.54	+	
		-	-	5MVA, 220/33kV TFR	0.32	+	
		<b>Total</b>	<b>61.35</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.016%</b>		
7	60MW KHP	Unit- I	16.45	132kV KHP - Nangkhoh Line	37.75	+	
		Unit-II	16.55	132kV KHP - Kilikhar Line	27.18	+	
		Unit- III	16.39	5MVA, 132/11kV TFR	0.41	+	
		Unit- IV	16.61	132kV Motanga - Rangia Line	42.90	+	
		<b>Total</b>	<b>66.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>1.000%</b>		

**Note: Generation-Load Summary (MW) for October 07, 2021 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) at Generator end.
1	Western Grid	1,100.01	308.36	304.33	748.13	4.03
2	Eastern Grid	441.01	74.56	73.06	409.97	1.50
	<b>Total</b>	<b>1,541.02</b>	<b>382.92</b>	<b>377.39</b>	<b>1,158.10</b>	<b>5.53</b>

**Note: Generation-Load Summary for October 07, 2020 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
1	Western Grid	1,382.43	199.05	185.03	1,099.13	14.02
2	Eastern Grid	621.49	53.26	49.13	652.48	4.13
	<b>Total</b>	<b>2,003.92</b>	<b>252.31</b>	<b>234.16</b>	<b>1,751.61</b>	<b>18.15</b>

**NOTE-BHP and MHPA data collected from site**

- The Instantaneous load balance is 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**

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>October 8, 2021</b>
<b>Hours:</b>	<b>09:00 Hours</b>

<b>Date</b>	<b>Time</b>	<b>Load(MW)</b>
27-Dec-18	18:18hrs	399.35MW

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	138.04	400kV THP - Siliguri Line - I	0.00		Unit-II on standby. 400kV THP-Siliguri line I under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	186.53	+	
		Unit- III	80.48	400kV THP - Siliguri Line- IV	179.55	+	
		Unit- IV	99.79	400kV THP - Malbase Line - III	222.28	+	
		Unit- V	138.23	400kV Malbase - Siliguri Line	166.69	+	
		Unit- VI	139.32	-	-	-	
		<b>Total</b>	<b>595.86</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.259%</b>		
2	720MW MHP	Unit-I	120.16	400kV MHP - Jigmeling Line - I	189.67	+	Unit-II on standby. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line I (Interim) on standby. 132kV Gelephu_Salakati line under shutdown.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	130.73	400kV MHP - Jigmeling Line - III	190.90	+	
		Unit-IV	130.52	400kV MHP - Jigmeling Line - IV	0.00		
		-	-	132kV MHP - Yurmo Line - I	0.00		
		-	-	132kV MHP - Yurmo Line - II	0.00		
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	-40.77	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	102.54	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	156.37	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	156.37	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	11.73	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	11.89	+	
		-	-	220kV Tsirang - Jigmeling Line	66.77	+	
-	-	132kV Gelephu - Salakati Line	0.00				
<b>Total</b>	<b>381.41</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.220%</b>				
3	336MW CHP	Unit- I	79.87	220kV CHP - Birpara Line- I	77.05	+	
		Unit- II	79.84	220kV CHP - Birpara Line- II	76.57	+	
		Unit- III	86.63	220kV CHP - Malbase Line- III	109.10	+	
		Unit- IV	87.59	220kV CHP - Semtokha Line- IV	56.64	+	
		-	-	220kV Malbase - Birpara Line	41.08	+	
		-	-	66kV CHP - Chumdo Line	7.96	+	
		-	-	66kV CHP - Gedu Line	5.21	+	
		-	-	3x3MVA, 66/11kV TFR	0.91	+	
		<b>Total</b>	<b>333.93</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.147%</b>		
4	24MW BHP (U/S)	Unit- I	10.60	220kV BHP - Semtokha Line	31.74	+	
		Unit- II	10.40	66kV BHP - Lobeysa Line	25.89	+	
		<b>Total</b>	<b>21.00</b>	220kV BHP - Tsirang Line	-1.33	-	
5	40MW BHP (L/S)	Unit- I	18.90	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	18.60	30MVA ICT, 220/66kV (HV)	6.85	+	
		<b>Total</b>	<b>37.50</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>2.239%</b>		
6	126MW DHP	Unit-I	40.33	220kV DHP - Tsirang Line	75.01	+	220kV DHP_Dagapela Line on standby.
		Unit-II	35.08	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.83	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		<b>Total</b>	<b>75.41</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.133%</b>		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	41.43	+	
		Unit-II	16.51	132kV KHP - Kilikhar Line	23.66	+	
		Unit- III	16.59	5MVA, 132/11kV TFR	0.25	+	
		Unit- IV	16.51	132kV Motanga - Rangia Line	37.90	+	
		<b>Total</b>	<b>66.11</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.165%</b>		

**Note: Generation-Load Summary (MW) for October 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) at Generator end.
1	Western Grid	1,063.70	269.46	261.89	727.47	7.57
2	Eastern Grid	447.52	61.11	59.50	453.18	1.61
	<b>Total</b>	<b>1,511.22</b>	<b>330.57</b>	<b>321.39</b>	<b>1,180.65</b>	<b>9.18</b>

**Note: Generation-Load Summary for October 08, 2020 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
1	Western Grid	1,408.83	182.61	169.70	1,148.88	12.91
2	Eastern Grid	533.35	44.65	37.81	566.04	6.84
	<b>Total</b>	<b>1,942.18</b>	<b>227.26</b>	<b>207.51</b>	<b>1,714.92</b>	<b>19.75</b>

**NOTE-BHP & MHPA data collected from site**

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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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