

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>October 28, 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	139.42	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	139.35	400kV THP - Siliguri Line - II	270.12	+	
		Unit- III	137.87	400kV THP - Siliguri Line- IV	258.51	+	
		Unit- IV	168.14	400kV THP - Malbase Line - III	326.75	+	
		Unit- V	138.56	400kV Malbase - Siliguri Line	238.58	+	
		Unit- VI	139.75	-	-	-	
		<b>Total</b>	<b>863.09</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.893%</b>		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	156.30	+	Unit-I & IV, 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line I (Interim) on standby.
		Unit-II	159.88	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	155.82	400kV MHP - Jigmeling Line - III	157.26	+	
		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)	-10.36	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	75.63	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	121.53	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	121.53	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	26.81	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	27.17	+	
		-	-	220kV Tsirang - Jigmeling Line	66.64	+	
-	-	132kV Gelephu - Salakati Line	14.24	+			
<b>Total</b>	<b>315.70</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.678%</b>				
3	336MW CHP	Unit- I	91.48	220kV CHP - Birpara Line- I	85.48	+	
		Unit- II	91.56	220kV CHP - Birpara Line- II	85.73	+	
		Unit- III	91.29	220kV CHP - Malbase Line- III	117.16	+	
		Unit- IV	91.27	220kV CHP - Semtokha Line- IV	54.44	+	
		-	-	220kV Malbase - Birpara Line	48.62	+	
		-	-	66kV CHP - Chumdo Line	15.35	+	
		-	-	66kV CHP - Gedu Line	5.43	+	
		-	-	3x3MVA, 66/11kV TFR	1.65	+	
		<b>Total</b>	<b>365.60</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.098%</b>		
4	24MW BHP (U/S)	Unit- I	11.50	220kV BHP - Semtokha Line	52.20	+	
		Unit- II	11.30	66kV BHP - Lobeysa Line	28.37	+	
		<b>Total</b>	<b>22.80</b>	220kV BHP - Tsirang Line	-18.76	-	
5	40MW BHP (L/S)	Unit- I	20.00	5MVA, 66/11kV TFR	0.63	+	
		Unit- II	20.00	30MVA ICT, 220/66kV (HV)	6.85	+	
		<b>Total</b>	<b>40.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.573%</b>		
6	126MW DHP	Unit-I	45.34	220kV DHP - Tsirang Line	88.96	+	220kV DHP_Dagapela Line on standby.
		Unit-II	44.02	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.89	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		<b>Total</b>	<b>89.36</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.112%</b>		
7	60MW KHP	Unit- I	14.03	132kV KHP - Nangkhoh Line	31.14	+	
		Unit-II	14.08	132kV KHP - Kilikhar Line	24.20	+	
		Unit- III	14.12	5MVA, 132/11kV TFR	0.35	+	
		Unit- IV	14.02	132kV Motanga - Rangia Line	31.35	+	
		<b>Total</b>	<b>56.25</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.996%</b>		

**Note: Generation-Load Summary (MW) for October 28, 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	1,380.85	327.17	320.53	987.04	6.64
2	Eastern Grid	371.95	74.31	71.61	364.28	2.70
	<b>Total</b>	<b>1,752.80</b>	<b>401.48</b>	<b>392.14</b>	<b>1,351.32</b>	<b>9.34</b>

**Note: Generation-Load Summary for October 28, 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	885.13	184.52	177.51	639.71	7.01
2	Eastern Grid	335.23	43.33	40.55	352.80	2.78
	<b>Total</b>	<b>1,220.36</b>	<b>227.85</b>	<b>218.06</b>	<b>992.51</b>	<b>9.79</b>

**NOTE-BHP, MHPA and Rangia 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 29, 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	139.10	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown. THP unit-III under shutdown.
		Unit- II	138.73	400kV THP - Siliguri Line - II	223.17	+	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	212.45	+	
		Unit- IV	139.63	400kV THP - Malbase Line - III	251.11	+	
		Unit- V	138.16	400kV Malbase - Siliguri Line	201.80	+	
		Unit- VI	139.77	-	-	-	
		<b>Total</b>	<b>695.39</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.245%</b>		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	151.67	+	Unit I and IV under Standby. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line I (Interim) on standby.
		Unit-II	154.80	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	151.43	400kV MHP - Jigmeling Line - III	152.54	+	
		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)	-33.34	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	81.45	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	125.38	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	125.38	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	18.56	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	18.83	+	
		-	-	220kV Tsirang - Jigmeling Line	75.50	+	
-	-	132kV Gelephu - Salakati Line	13.45	+			
<b>Total</b>	<b>306.23</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.660%</b>				
3	336MW CHP	Unit- I	91.61	220kV CHP - Birpara Line- I	78.85	+	
		Unit- II	91.45	220kV CHP - Birpara Line- II	78.52	+	
		Unit- III	91.55	220kV CHP - Malbase Line- III	138.10	+	
		Unit- IV	91.24	220kV CHP - Semtokha Line- IV	51.31	+	
		-	-	220kV Malbase - Birpara Line	21.11	+	
		-	-	66kV CHP - Chumdo Line	11.98	+	
		-	-	66kV CHP - Gedu Line	5.55	+	
		-	-	3x3MVA, 66/11kV TFR	1.02	+	
		<b>Total</b>	<b>365.85</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.142%</b>		
4	24MW BHP (U/S)	Unit- I	11.20	220kV BHP - Semtokha Line	42.30	+	
		Unit- II	11.00	66kV BHP - Lobeysa Line	26.30	+	
		<b>Total</b>	<b>22.20</b>	220kV BHP - Tsirang Line	-7.17	-	
5	40MW BHP (L/S)	Unit- I	20.00	5MVA, 66/11kV TFR	0.33	+	
		Unit- II	19.90	30MVA ICT, 220/66kV (HV)	4.68	+	
		<b>Total</b>	<b>39.90</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.548%</b>		
6	126MW DHP	Unit-I	44.35	220kV DHP - Tsirang Line	86.91	+	220kV DHP_Dagapela Line on standby.
		Unit-II	42.96	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	3.87	+	
		-	-	5MVA, 220/33kV TFR		+	
		<b>Total</b>	<b>87.31</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.458%</b>		
7	60MW KHP	Unit- I	13.47	132kV KHP - Nangkhoh Line	33.76	+	
		Unit-II	13.52	132kV KHP - Kilikhar Line	19.34	+	
		Unit- III	13.48	5MVA, 132/11kV TFR	0.32	+	
		Unit- IV	13.47	132kV Motanga - Rangia Line	22.90	+	
		<b>Total</b>	<b>53.94</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.964%</b>		

**Note: Generation-Load Summary (MW) for October 29, 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	1,210.65	319.25	313.20	815.90	6.05
2	Eastern Grid	360.17	67.11	64.57	368.56	2.54
	<b>Total</b>	<b>1,570.82</b>	<b>386.36</b>	<b>377.77</b>	<b>1,184.46</b>	<b>8.59</b>

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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	745.41	188.10	179.16	510.49	8.94
2	Eastern Grid	327.27	44.22	41.95	329.87	2.27
	<b>Total</b>	<b>1,072.68</b>	<b>232.32</b>	<b>221.11</b>	<b>840.36</b>	<b>11.21</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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