

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>November 3, 2021</b>
<b>Hours:</b>	<b>19:00 Hours</b>

<b>Date</b>	<b>Time</b>	<b>Load(MW)</b>
1-Nov-21	19:00hrs	429.42MW

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	0.00		Unit I under Maintenance. 400kV THP-Siliguri line I under breakdown.
		Unit- II	138.12	400kV THP - Siliguri Line - II	184.36	+	
		Unit- III	137.31	400kV THP - Siliguri Line- IV	176.01	+	
		Unit- IV	99.90	400kV THP - Malbase Line - III	246.39	+	
		Unit- V	97.14	400kV Malbase - Siliguri Line	159.41	+	
		Unit- VI	139.16	-	-	-	
		<b>Total</b>	<b>611.63</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.796%</b>		
2	720MW MHP	Unit-I	130.40	400kV MHP - Jigmeling Line - I	129.50	+	Unit-II on Standby. Unit IV under Annual Maintenance. 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. JLG_ALI Line II (Direct) opened (Both end).
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	131.03	400kV MHP - Jigmeling Line - III	130.72	+	
		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)	25.67	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	91.63	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	139.16	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	24.43	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	24.83	+	
		-	-	220kV Tsirang - Jigmeling Line	30.36	+	
-	-	132kV Gelephu - Salakati Line	9.38	+			
<b>Total</b>	<b>261.43</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.463%</b>				
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	52.64	+	CHP Unit I opened due to problem at Nozzle No. 5.
		Unit- II	92.11	220kV CHP - Birpara Line- II	52.70	+	
		Unit- III	91.05	220kV CHP - Malbase Line- III	93.51	+	
		Unit- IV	91.50	220kV CHP - Semtokha Line- IV	52.19	+	
		-	-	220kV Malbase - Birpara Line	13.41	+	
		-	-	66kV CHP - Chumdo Line	17.31	+	
		-	-	66kV CHP - Gedu Line	4.40	+	
		-	-	3x3MVA, 66/11kV TFR	1.86	+	
<b>Total</b>	<b>274.66</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.018%</b>				
4	24MW BHP (U/S)	Unit- I	9.90	220kV BHP - Semtokha Line	59.22	+	
		Unit- II	9.80	66kV BHP - Lobeysa Line	28.52	+	
		<b>Total</b>	<b>19.70</b>	220kV BHP - Tsirang Line	-33.34	-	
5	40MW BHP (L/S)	Unit- I	18.00	5MVA, 66/11kV TFR	0.99	+	
		Unit- II	18.10	30MVA ICT, 220/66kV (HV)	10.37	+	
		<b>Total</b>	<b>36.10</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.735%</b>		
6	126MW DHP	Unit-I	37.28	220kV DHP - Tsirang Line	73.84	+	220kV DHP_Dagapela Line on standby.
		Unit-II	36.96	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	6.59	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		<b>Total</b>	<b>74.24</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.135%</b>		
7	60MW KHP	Unit- I	12.08	132kV KHP - Nangkor Line	27.48	+	
		Unit-II	12.09	132kV KHP - Kilikhar Line	20.25	+	
		Unit- III	12.07	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	12.10	132kV Motanga - Rangia Line	21.94	+	
		<b>Total</b>	<b>48.34</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.434%</b>		

**Note: Generation-Load Summary (MW) for November 03, 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	1,016.33	347.44	348.60	638.53	-1.16
2	Eastern Grid	309.77	78.02	76.60	262.11	1.42
	<b>Total</b>	<b>1,326.10</b>	<b>425.46</b>	<b>425.20</b>	<b>900.64</b>	<b>0.26</b>

**Note: Generation-Load Summary for November 03, 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	755.84	174.96	175.65	524.63	-0.69
2	Eastern Grid	290.67	59.14	58.22	287.78	0.92
	<b>Total</b>	<b>1,046.51</b>	<b>234.10</b>	<b>233.87</b>	<b>812.41</b>	<b>0.23</b>

**NOTE-BHP, MHP, KHP and Rangia data collected from site**

1. 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:

- 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**

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>November 4, 2021</b>
<b>Hours:</b>	<b>09:00 Hours</b>

<b>Date</b>	<b>Time</b>	<b>Load(MW)</b>
1-Nov-21	19:00hrs	429.42MW

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	0.00		Unit I under breakdown & Unit V on standby. 400kV THP-Siliguri line I under breakdown.
		Unit- II	167.14	400kV THP - Siliguri Line - II	197.03	+	
		Unit- III	168.91	400kV THP - Siliguri Line- IV	188.08	+	
		Unit- IV	128.64	400kV THP - Malbase Line - III	242.99	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	171.97	+	
		Unit- VI	169.69	-	-	-	
		<b>Total</b>	<b>634.38</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.990%</b>		
2	720MW MHP	Unit-I	129.70	400kV MHP - Jigmeling Line - I	129.86	+	Unit II on Standby. Unit IV under Annual Maintenance. 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. JLG_ALI Line II (Direct) opened (Both end).
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	130.78	400kV MHP - Jigmeling Line - III	130.78	+	
		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)	0.90	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	101.80	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	155.66	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	18.05	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	18.34	+	
		-	-	220kV Tsirang - Jigmeling Line	42.24	+	
-	-	132kV Gelephu - Salakati Line	12.81	+			
<b>Total</b>	<b>260.48</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-0.061%</b>				
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	51.85	+	
		Unit- II	91.74	220kV CHP - Birpara Line- II	52.00	+	
		Unit- III	90.30	220kV CHP - Malbase Line- III	104.07	+	
		Unit- IV	91.61	220kV CHP - Semtokha Line- IV	46.49	+	
		-	-	220kV Malbase - Birpara Line	3.90	+	
		-	-	66kV CHP - Chumdo Line	13.24	+	
		-	-	66kV CHP - Gedu Line	4.27	+	
		-	-	3x3MVA, 66/11kV TFR	1.16	+	
<b>Total</b>	<b>273.65</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.208%</b>				
4	24MW BHP (U/S)	Unit- I	9.70	220kV BHP - Semtokha Line	54.30	+	
		Unit- II	9.60	66kV BHP - Lobeysa Line	25.89	+	
		<b>Total</b>	<b>19.30</b>	220kV BHP - Tsirang Line	-26.30	-	
5	40MW BHP (L/S)	Unit- I	17.70	5MVA, 66/11kV TFR	0.40	+	
		Unit- II	17.70	30MVA ICT, 220/66kV (HV)	7.40	+	
		<b>Total</b>	<b>35.40</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.750%</b>		
6	126MW DHP	Unit-I	35.77	220kV DHP - Tsirang Line	71.31	+	220kV DHP_Dagapela Line on standby.
		Unit-II	35.98	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	5.76	+	
		-	-	5MVA, 220/33kV TFR	0.43	+	
		<b>Total</b>	<b>71.75</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.014%</b>		
7	60MW KHP	Unit- I	12.08	132kV KHP - Nangkhoh Line	29.83	+	
		Unit-II	12.11	132kV KHP - Kilikhar Line	17.00	+	
		Unit- III	11.56	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	11.60	132kV Motanga - Rangia Line	14.20	+	
		<b>Total</b>	<b>47.35</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.253%</b>		

**Note: Generation-Load Summary (MW) for November 04, 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	1,034.48	327.41	325.90	664.83	1.51
2	Eastern Grid	307.83	65.60	65.64	284.47	-0.04
	<b>Total</b>	<b>1,342.31</b>	<b>393.01</b>	<b>391.54</b>	<b>949.30</b>	<b>1.47</b>

**Note: Generation-Load Summary for November 04, 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	712.93	178.68	173.45	492.88	5.23
2	Eastern Grid	294.53	46.01	46.65	290.79	-0.64
	<b>Total</b>	<b>1,007.46</b>	<b>224.69</b>	<b>220.10</b>	<b>783.67</b>	<b>4.59</b>

**NOTE-BHP,MHPA & 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.