

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

Maximum Load/Demand till Date

Date: **November 8, 2021**  
Hours: **19:00 Hours**

Date	Time	Load(MW)
5-Nov-21	19:00hrs	429.81MW

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-V on standby. Unit-II under emergency shutdown. 400kV THP-Siliguri line I under breakdown. Unit-I & 400kV THP-MAL line under AMP.
		Unit- II	0.00	400kV THP - Siliguri Line - II	275.66	+	
		Unit- III	158.22	400kV THP - Siliguri Line- IV	264.72	+	
		Unit- IV	99.68	400kV THP - Malbase Line - III	0.00		
		Unit- V	150.00	400kV Malbase - Siliguri Line	-35.36	-	
		Unit- VI	138.33	-	-	-	
		<b>Total</b>	<b>546.23</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>1.071%</b>		
2	720MW MHP	Unit-I	105.74	400kV MHP - Jigmeling Line - I	115.62	+	Unit-III 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	129.83	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	116.35	+	
		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)	34.18	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	77.81	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	118.11		
		-	-	80MVA, 220/132kV ICT - I (HV)	24.43	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	24.84	+	
		-	-	220kV Tsirang - Jigmeling Line	21.18	+	
-	-	132kV Gelephu - Salakati Line	5.84	+			
<b>Total</b>	<b>235.57</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>1.528%</b>				
3	336MW CHP	Unit- I	68.81	220kV CHP - Birpara Line- I	43.72	+	
		Unit- II	70.87	220kV CHP - Birpara Line- II	43.70	+	
		Unit- III	71.65	220kV CHP - Malbase Line- III	107.28	+	
		Unit- IV	68.73	220kV CHP - Semtokha Line- IV	58.82	+	
		-	-	220kV Malbase - Birpara Line	-11.08	-	
		-	-	66kV CHP - Chumdo Line	17.67	+	
		-	-	66kV CHP - Gedu Line	5.39	+	
		-	-	3x3MVA, 66/11kV TFR	1.92	+	
		<b>Total</b>	<b>280.06</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.557%</b>		
4	24MW BHP (U/S)	Unit- I	8.90	220kV BHP - Semtokha Line	61.60	+	
		Unit- II	8.80	66kV BHP - Lobeysa Line	29.12	+	
		<b>Total</b>	<b>17.70</b>	220kV BHP - Tsirang Line	-40.14	-	
5	40MW BHP (L/S)	Unit- I	16.50	5MVA, 66/11kV TFR	0.64	+	
		Unit- II	16.80	30MVA ICT, 220/66kV (HV)	12.50	+	
		<b>Total</b>	<b>33.30</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>-0.431%</b>		
6	126MW DHP	Unit-I	34.77	220kV DHP - Tsirang Line	64.38	+	220kV DHP_Dagapela Line on standby.
		Unit-II	29.99	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	6.36	+	
		-	-	5MVA, 220/33kV TFR	0.27	+	
		<b>Total</b>	<b>64.76</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.170%</b>		
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Line	22.00	+	Unit I on standby. 5 MVA transformer under maintenance.
		Unit-II	14.05	132kV KHP - Kilikhar Line	19.56	+	
		Unit- III	14.12	5MVA, 132/11kV TFR	0.00		
		Unit- IV	14.10	132kV Motanga - Rangia Line	13.21	+	
		<b>Total</b>	<b>42.27</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>1.680%</b>		

**Note: Generation-Load Summary (MW) for November 08, 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	942.05	339.51	338.57	581.36	0.94
2	Eastern Grid	277.84	84.05	79.74	214.97	4.31
	<b>Total</b>	<b>1,219.89</b>	<b>423.56</b>	<b>418.31</b>	<b>796.33</b>	<b>5.25</b>

**Note: Generation-Load Summary for November 08, 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	770.19	201.84	192.61	522.08	9.23
2	Eastern Grid	247.78	62.09	60.03	231.96	2.06
	<b>Total</b>	<b>1,017.97</b>	<b>263.93</b>	<b>252.64</b>	<b>754.04</b>	<b>11.29</b>

**NOTE-BHP, MHP 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 9, 2021</b>
<b>Hours:</b>	<b>09:00 Hours</b>

<b>Date</b>	<b>Time</b>	<b>Load(MW)</b>
5-Nov-21	19:00hrs	429.81MW

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 AMP. Unit-II on standby. 400kV THP-Siliguri line I under breakdown. 400kV THP-MAL line under Annual Maintenance .
		Unit- II	0.00	400kV THP - Siliguri Line - II	265.70	+	
		Unit- III	158.92	400kV THP - Siliguri Line- IV	255.79	+	
		Unit- IV	99.91	400kV THP - Malbase Line - III	0.00		
		Unit- V	130.00	400kV Malbase - Siliguri Line	-26.20	-	
		Unit- VI	138.44	-	-	-	
		<b>Total</b>	<b>527.27</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.096%</b>		
2	720MW MHP	Unit-I	108.17	400kV MHP - Jigmeling Line - I	118.47	+	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	130.38	400kV MHP - Jigmeling Line - III	119.16	+	
		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)	15.54	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	84.36	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	132.09	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	17.16	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	17.48	+	
		-	-	220kV Tsirang - Jigmeling Line	24.88	+	
-	-	132kV Gelephu - Salakati Line	6.36	+			
<b>Total</b>	<b>238.55</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.386%</b>				
3	336MW CHP	Unit- I	69.67	220kV CHP - Birpara Line- I	43.79	+	
		Unit- II	67.73	220kV CHP - Birpara Line- II	43.63	+	
		Unit- III	71.78	220kV CHP - Malbase Line- III	116.96	+	
		Unit- IV	61.09	220kV CHP - Semtokha Line- IV	45.26	+	
		-	-	220kV Malbase - Birpara Line	-19.03	-	
		-	-	66kV CHP - Chumdo Line	13.18	+	
		-	-	66kV CHP - Gedu Line	5.36	+	
		-	-	3x3MVA, 66/11kV TFR	1.13	+	
		<b>Total</b>	<b>270.27</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.355%</b>		
4	24MW BHP (U/S)	Unit- I	8.80	220kV BHP - Semtokha Line	57.50	+	
		Unit- II	8.60	66kV BHP - Lobeysa Line	26.70	+	
		<b>Total</b>	<b>17.40</b>	220kV BHP - Tsirang Line	-35.81	-	
5	40MW BHP (L/S)	Unit- I	16.50	5MVA, 66/11kV TFR	0.35	+	
		Unit- II	16.50	30MVA ICT, 220/66kV (HV)	9.72	+	
		<b>Total</b>	<b>33.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>3.294%</b>		
6	126MW DHP	Unit-I	33.79	220kV DHP - Tsirang Line	63.42	+	220kV DHP_Dagapela Line on standby.
		Unit-II	30.01	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	5.58	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		<b>Total</b>	<b>63.80</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.125%</b>		
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	24.90	+	Unitr I on standby. 5 MVA transformer under maintenance.
		Unit-II	13.59	132kV KHP - Kilikhar Line	15.35	+	
		Unit- III	13.55	5MVA, 132/11kV TFR	0.00		
		Unit- IV	13.57	132kV Motanga - Rangia Line	4.48	+	
		<b>Total</b>	<b>40.71</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.130%</b>		

**Note: Generation-Load Summary (MW) for November 09, 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	911.74	323.18	320.28	563.68	2.90
2	Eastern Grid	279.26	76.85	75.47	227.29	1.38
	<b>Total</b>	<b>1,191.00</b>	<b>400.03</b>	<b>395.75</b>	<b>790.97</b>	<b>4.28</b>

**Note: Generation-Load Summary for November 09, 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	612.38	178.28	171.63	403.38	6.65
2	Eastern Grid	249.52	56.01	54.19	224.23	1.82
	<b>Total</b>	<b>861.90</b>	<b>234.29</b>	<b>225.82</b>	<b>627.61</b>	<b>8.47</b>

**NOTE-BHP,MHPA & 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.