

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

Maximum Load/Demand till Date

Date: **November 5, 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 I under Annual Maintenance. 400kV THP-Siliguri line I under breakdown. 400kV THP-MAL line under Annual Maintenance
		Unit- II	147.79	400kV THP - Siliguri Line - II	311.35	+	
		Unit- III	167.48	400kV THP - Siliguri Line- IV	299.87	+	
		Unit- IV	160.76	400kV THP - Malbase Line - III	0.00	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-39.11	-	
		Unit- VI	139.30	-	-	-	
		<b>Total</b>	<b>615.33</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.668%</b>		
2	720MW MHP	Unit-I	115.58	400kV MHP - Jigmeling Line - I	121.75	+	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	130.96	400kV MHP - Jigmeling Line - III	122.55	+	
		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)	20.73	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	86.54	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	133.17	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	23.41	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	23.74	+	
		-	-	220kV Tsirang - Jigmeling Line	32.83	+	
-	-	132kV Gelephu - Salakati Line	8.61	+			
<b>Total</b>	<b>246.54</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.909%</b>				
3	336MW CHP	Unit- I	74.72	220kV CHP - Birpara Line- I	49.38	+	
		Unit- II	76.52	220kV CHP - Birpara Line- II	49.56	+	
		Unit- III	77.02	220kV CHP - Malbase Line- III	117.03	+	
		Unit- IV	75.70	220kV CHP - Semtokha Line- IV	63.01	+	
		-	-	220kV Malbase - Birpara Line	-10.13	+	
		-	-	66kV CHP - Chumdo Line	18.10	+	
		-	-	66kV CHP - Gedu Line	4.30	+	
		-	-	3x3MVA, 66/11kV TFR	1.72	+	
		<b>Total</b>	<b>303.96</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.283%</b>		
4	24MW BHP (U/S)	Unit- I	9.60	220kV BHP - Semtokha Line	55.90	+	
		Unit- II	9.40	66kV BHP - Lobeysa Line	28.85	+	
		<b>Total</b>	<b>19.00</b>	220kV BHP - Tsirang Line	-32.77	-	
5	40MW BHP (L/S)	Unit- I	17.00	5MVA, 66/11kV TFR	0.65	+	
		Unit- II	16.90	30MVA ICT, 220/66kV (HV)	11.70	-	
		<b>Total</b>	<b>33.90</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.510%</b>		
6	126MW DHP	Unit-I	35.78	220kV DHP - Tsirang Line	69.39	+	220kV DHP_Dagapela Line on standby.
		Unit-II	34.01	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	6.24	+	
		-	-	5MVA, 220/33kV TFR	0.38	+	
		<b>Total</b>	<b>69.79</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.029%</b>		
7	60MW KHP	Unit- I	11.53	132kV KHP - Nangkhor Line	25.93	+	5 MVA transformer under maintenance.
		Unit-II	11.50	132kV KHP - Kilikhar Line	19.36	+	
		Unit- III	11.50	5MVA, 132/11kV TFR	0.00		
		Unit- IV	11.53	132kV Motanga - Rangia Line	13.50	+	
		<b>Total</b>	<b>46.06</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>1.672%</b>		

**Note: Generation-Load Summary (MW) for November 05, 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	1,041.98	348.23	349.21	660.92	-0.98
2	Eastern Grid	292.60	83.61	80.60	241.82	3.01
	<b>Total</b>	<b>1,334.58</b>	<b>431.84</b>	<b>429.81</b>	<b>902.74</b>	<b>2.03</b>

**Note: Generation-Load Summary for November 05, 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	706.86	200.18	191.11	456.88	9.07
2	Eastern Grid	280.98	58.00	56.86	272.78	1.14
	<b>Total</b>	<b>987.84</b>	<b>258.18</b>	<b>247.97</b>	<b>729.66</b>	<b>10.21</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 6, 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 V on standby. Unit I under Annual Maintenance. 400kV THP-Siliguri line I under breakdown. 400kV THP-MAL line under Annual Maintenance .
		Unit- II	147.40	400kV THP - Siliguri Line - II	300.08	+	
		Unit- III	167.97	400kV THP - Siliguri Line- IV	288.52	+	
		Unit- IV	139.05	400kV THP - Malbase Line - III	0.00		
		Unit- V	0.00	400kV Malbase - Siliguri Line	-30.82	-	
		Unit- VI	139.18	-	-	-	
		<b>Total</b>	<b>593.60</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.842%</b>		
2	720MW MHP	Unit-I	120.94	400kV MHP - Jigmeling Line - I	124.70	+	Unit II on Standby and Unit IV under Annual Maintenance. 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. JLG_ALI Line II (Direct) opened (Both end).
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	130.98	400kV MHP - Jigmeling Line - III	125.39	+	
		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)	11.35	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	92.35	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	142.45	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	19.86	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	20.16	+	
		-	-	220kV Tsirang - Jigmeling Line	34.75	+	
-	-	132kV Gelephu - Salakati Line	12.40	+			
<b>Total</b>	<b>251.92</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.726%</b>				
3	336MW CHP	Unit- I	91.06	220kV CHP - Birpara Line- I	40.59	+	Unit IV under shutdown
		Unit- II	91.73	220kV CHP - Birpara Line- II	40.83	+	
		Unit- III	90.10	220kV CHP - Malbase Line- III	119.57	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	50.81	+	
		-	-	220kV Malbase - Birpara Line	-26.22	-	
		-	-	66kV CHP - Chumdo Line	15.04	+	
		-	-	66kV CHP - Gedu Line	3.92	+	
		-	-	3x3MVA, 66/11kV TFR	1.33	+	
		<b>Total</b>	<b>272.89</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.293%</b>		
4	24MW BHP (U/S)	Unit- I	9.40	220kV BHP - Semtokha Line	54.79	+	
		Unit- II	9.20	66kV BHP - Lobeysa Line	27.60	+	
		<b>Total</b>	<b>18.60</b>	220kV BHP - Tsirang Line	-30.31	-	
5	40MW BHP (L/S)	Unit- I	17.70	5MVA, 66/11kV TFR	0.44	+	
		Unit- II	16.40	30MVA ICT, 220/66kV (HV)	9.24	+	
		<b>Total</b>	<b>34.10</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.342%</b>		
6	126MW DHP	Unit-I	35.29	220kV DHP - Tsirang Line	68.86	+	220kV DHP_Dagapela Line on standby.
		Unit-II	33.96	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	5.69	+	
		-	-	5MVA, 220/33kV TFR		+	
		<b>Total</b>	<b>69.25</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.563%</b>		
7	60MW KHP	Unit- I	10.99	132kV KHP - Nangkhon Line	26.62	+	5 MVA transformer under maintenance.
		Unit-II	10.98	132kV KHP - Kilikhar Line	16.73	+	
		Unit- III	11.02	5MVA, 132/11kV TFR	0.00	+	
		Unit- IV	11.06	132kV Motanga - Rangia Line	10.49	+	
		<b>Total</b>	<b>44.05</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.589%</b>		

**Note: Generation-Load Summary (MW) for November 06, 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	988.44	340.71	340.03	612.98	0.68
2	Eastern Grid	295.97	73.03	70.50	257.69	2.53
	<b>Total</b>	<b>1,284.41</b>	<b>413.74</b>	<b>410.53</b>	<b>870.67</b>	<b>3.21</b>

**Note: Generation-Load Summary for November 06, 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	684.31	181.00	172.22	467.31	8.78
2	Eastern Grid	283.40	52.10	49.86	267.30	2.24
	<b>Total</b>	<b>967.71</b>	<b>233.10</b>	<b>222.08</b>	<b>734.61</b>	<b>11.02</b>

**NOTE-BHP,MHPA ,Gelephu & 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.