

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

Maximum Load/Demand till Date

Date: **September 25, 2021**  
Hours: **19:00 Hours**

Date	Time	Load(MW)
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	185.76	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	185.73	400kV THP - Siliguri Line - II	363.97	+	
		Unit- III	184.11	400kV THP - Siliguri Line- IV	347.58	+	
		Unit- IV	185.79	400kV THP - Malbase Line - III	393.99	+	
		Unit- V	185.58	400kV Malbase - Siliguri Line	329.67	+	
		Unit- VI	185.53	-	-	-	
		<b>Total</b>	<b>1,112.50</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.626%</b>		
2	720MW MHP	Unit-I	130.22	400kV MHP - Jigmeling Line - I	271.90	+	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. (There is MW power difference of 11.21 MW between Total MHP generation & outgoing feeder at JLG end)
		Unit-II	149.43	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	128.42	400kV MHP - Jigmeling Line - III	273.65	+	
		Unit-IV	140.54	400kV MHP - Jigmeling Line - IV	0.00		
		-	-	132kV MHP - Yurmoo Line - I	0.00		
		-	-	132kV MHP - Yurmoo Line - II	0.00		
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	3.70	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	127.30	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	203.20	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	203.20	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	34.70	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	35.10	+	
		-	-	220kV Tsirang - Jigmeling Line	69.10	+	
-	-	132kV Gelephu - Salakati Line	24.30	+			
<b>Total</b>	<b>548.61</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.558%</b>				
3	336MW CHP	Unit- I	92.01	220kV CHP - Birpara Line- I	100.46	+	
		Unit- II	91.42	220kV CHP - Birpara Line- II	99.93	+	
		Unit- III	91.37	220kV CHP - Malbase Line- III	141.07	+	
		Unit- IV	91.84	220kV CHP - Semtokha Line- IV	10.97	+	
		-	-	220kV Malbase - Birpara Line	54.81	+	
		-	-	66kV CHP - Chumdo Line	5.91	+	
		-	-	66kV CHP - Gedu Line	6.45	+	
		-	-	3x3MVA, 66/11kV TFR	0.60	+	
		<b>Total</b>	<b>366.64</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.341%</b>		
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	46.83	+	
		Unit- II	12.20	66kV BHP - Lobeyssa Line	29.00	+	
		<b>Total</b>	<b>24.50</b>	220kV BHP - Tsirang Line	-10.44	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	5.24	+	
		<b>Total</b>	<b>41.80</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.015%</b>		
6	126MW DHP	Unit-I	63.56	220kV DHP - Tsirang Line	126.11	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.11	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	2.40	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		<b>Total</b>	<b>126.67</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.205%</b>		
7	60MW KHP	Unit- I	16.54	132kV KHP - Nangkhoh Line	42.30	+	
		Unit-II	16.69	132kV KHP - Kilikhar Line	23.58	+	
		Unit- III	16.36	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	16.74	132kV Motanga - Rangia Line	52.40	+	
		<b>Total</b>	<b>66.33</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.075%</b>		

**Note: Generation-Load Summary (MW) for September 25, 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	1,672.11	306.59	300.51	1,296.42	6.08
2	Eastern Grid	614.94	73.64	70.53	610.40	3.11
<b>Total</b>		<b>2,287.05</b>	<b>380.23</b>	<b>371.04</b>	<b>1,906.82</b>	<b>9.19</b>

**Note: Generation-Load Summary for September 25, 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	1,679.74	183.94	167.45	1,402.77	16.49
2	Eastern Grid	658.79	61.69	58.70	690.13	2.99
<b>Total</b>		<b>2,338.53</b>	<b>245.63</b>	<b>226.15</b>	<b>2,092.90</b>	<b>19.48</b>

**NOTE-BHP and MHPA 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>September 26, 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	136.86	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	138.08	400kV THP - Siliguri Line - II	260.04	+	
		Unit- III	139.08	400kV THP - Siliguri Line- IV	248.23	+	
		Unit- IV	139.75	400kV THP - Malbase Line - III	317.15	+	
		Unit- V	137.23	400kV Malbase - Siliguri Line	228.65	+	
		Unit- VI	139.10	-	-	-	
		<b>Total</b>	<b>830.10</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.564%</b>		
2	720MW MHP	Unit-I	130.29	400kV MHP - Jigmeling Line - I	253.74	+	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. (There is MW power difference of 8.73 MW between Total MHP generation & outgoing feeder at JLG end)
		Unit-II	110.12	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	130.72	400kV MHP - Jigmeling Line - III	255.34	+	
		Unit-IV	140.54	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)	-28.70	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	129.44	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	201.55	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	200.65	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.70	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.00	+	
		-	-	220kV Tsirang - Jigmeling Line	72.76	+	
-	-	132kV Gelephu - Salakati Line	23.19	+			
<b>Total</b>	<b>511.67</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.506%</b>				
3	336MW CHP	Unit- I	92.20	220kV CHP - Birpara Line- I	96.58	+	
		Unit- II	91.13	220kV CHP - Birpara Line- II	95.84	+	
		Unit- III	91.49	220kV CHP - Malbase Line- III	122.93	+	
		Unit- IV	90.97	220kV CHP - Semtokha Line- IV	33.13	+	
		-	-	220kV Malbase - Birpara Line	48.43	+	
		-	-	66kV CHP - Chumdo Line	6.80	+	
		-	-	66kV CHP - Gedu Line	6.86	+	
		-	-	3x3MVA, 66/11kV TFR	0.66	+	
<b>Total</b>	<b>365.79</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.817%</b>				
4	24MW BHP (U/S)	Unit- I	12.40	220kV BHP - Semtokha Line	39.40	+	
		Unit- II	12.20	66kV BHP - Lobeysa Line	27.10	+	
		<b>Total</b>	<b>24.60</b>	220kV BHP - Tsirang Line	-2.23	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	4.41	+	
		<b>Total</b>	<b>41.80</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.852%</b>		
6	126MW DHP	Unit-I	48.38	220kV DHP - Tsirang Line	77.94	+	220kV DHP_Dagapela Line on standby.
		Unit-II	30.01	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.80	+	
		-	-	5MVA, 220/33kV TFR	0.27	+	
		<b>Total</b>	<b>78.39</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.230%</b>		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	40.41	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	23.53	+	
		Unit- III	15.62	5MVA, 132/11kV TFR	0.35	+	
		Unit- IV	16.28	132kV Motanga - Rangia Line	40.60	+	
		<b>Total</b>	<b>64.90</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.940%</b>		

**Note: Generation-Load Summary (MW) for September 26, 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	1,340.68	290.15	282.87	977.77	7.28
2	Eastern Grid	576.57	53.90	50.70	595.43	3.20
	<b>Total</b>	<b>1,917.25</b>	<b>344.05</b>	<b>333.57</b>	<b>1,573.20</b>	<b>10.48</b>

**Note: Generation-Load Summary for September 26, 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	1,680.41	185.82	166.55	1,440.80	19.27
2	Eastern Grid	658.79	48.58	44.94	664.00	3.64
	<b>Total</b>	<b>2,339.20</b>	<b>234.40</b>	<b>211.49</b>	<b>2,104.80</b>	<b>22.91</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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