

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

Maximum Load/Demand till Date

Date: **September 5, 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	185.39	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	185.80	400kV THP - Siliguri Line - II	353.59	+	
		Unit- III	184.78	400kV THP - Siliguri Line- IV	337.29	+	
		Unit- IV	184.80	400kV THP - Malbase Line - III	412.64	+	
		Unit- V	185.08	400kV Malbase - Siliguri Line	314.54	+	
		Unit- VI	184.64	-	-	-	
		<b>Total</b>	<b>1,110.49</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.628%</b>		
2	720MW MHP	Unit-I	197.88	400kV MHP - Jigmeling Line - I	391.40	+	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.
		Unit-II	197.09	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	197.75	400kV MHP - Jigmeling Line - III	393.72	+	
		Unit-IV	197.28	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)	-9.40	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	194.89	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	295.58	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	295.58	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	39.50	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	39.60	+	
		-	-	220kV Tsirang - Jigmeling Line	90.60	+	
-	-	132kV Gelephu - Salakati Line	29.17	+			
<b>Total</b>	<b>790.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.618%</b>				
3	336MW CHP	Unit- I	91.70	220kV CHP - Birpara Line- I	102.72	+	
		Unit- II	91.31	220kV CHP - Birpara Line- II	102.68	+	
		Unit- III	90.88	220kV CHP - Malbase Line- III	110.97	+	
		Unit- IV	91.68	220kV CHP - Semtokha Line- IV	29.87	+	
		-	-	220kV Malbase - Birpara Line	82.43	+	
		-	-	66kV CHP - Chumdo Line	10.91	+	
		-	-	66kV CHP - Gedu Line	5.69	+	
		-	-	3x3MVA, 66/11kV TFR	1.51	+	
<b>Total</b>	<b>365.57</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.334%</b>				
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	85.40	+	
		Unit- II	12.10	66kV BHP - Lobeyza Line	8.98	+	
		<b>Total</b>	<b>24.40</b>	220kV BHP - Tsirang Line	-31.58	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	-11.10	-	
		<b>Total</b>	<b>41.80</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>3.776%</b>		
6	126MW DHP	Unit-I	63.64	220kV DHP - Tsirang Line	126.25	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.15	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	2.10	+	
		-	-	5MVA, 220/33kV TFR	0.50	+	
		<b>Total</b>	<b>126.79</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.032%</b>		
7	60MW KHP	Unit- I	16.55	132kV KHP - Nangkhoh Line	36.16	+	
		Unit-II	16.56	132kV KHP - Kilikhar Line	28.88	+	
		Unit- III	16.53	5MVA, 132/11kV TFR	0.41	+	
		Unit- IV	16.65	132kV Motanga - Rangia Line	46.44	+	
		<b>Total</b>	<b>66.29</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>1.267%</b>		

**Note: Generation-Load Summary (MW) for September 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	1,669.05	285.20	276.57	1,293.25	8.63
2	Eastern Grid	856.29	85.23	79.51	861.66	5.72
<b>Total</b>		<b>2,525.34</b>	<b>370.43</b>	<b>356.08</b>	<b>2,154.91</b>	<b>14.35</b>

**Note: Generation-Load Summary for September 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	1,654.38	213.75	201.19	1,350.40	12.56
2	Eastern Grid	746.90	54.18	55.88	782.95	-1.70
<b>Total</b>		<b>2,401.28</b>	<b>267.93</b>	<b>257.07</b>	<b>2,133.35</b>	<b>10.86</b>

**NOTE-BHP and MHP 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 6, 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	185.35	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	185.72	400kV THP - Siliguri Line - II	381.45	+	
		Unit- III	184.46	400kV THP - Siliguri Line- IV	364.67	+	
		Unit- IV	186.39	400kV THP - Malbase Line - III	358.66	+	
		Unit- V	186.19	400kV Malbase - Siliguri Line	357.68	+	
		Unit- VI	185.99	-	-	-	
		<b>Total</b>	<b>1,114.10</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.837%</b>		
2	720MW MHP	Unit-I	197.88	400kV MHP - Jigmeling Line - I	390.83	+	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	196.16	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	197.78	400kV MHP - Jigmeling Line - III	392.93	+	
		Unit-IV	196.42	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)	-39.30	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	201.43	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	305.01	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	304.72	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	24.80	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	24.90	+	
		-	-	220kV Tsirang - Jigmeling Line	90.13	+	
-	-	132kV Gelephu - Salakati Line	23.44	+			
<b>Total</b>	<b>788.24</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.568%</b>				
3	336MW CHP	Unit- I	92.00	220kV CHP - Birpara Line- I	84.96	+	
		Unit- II	91.39	220kV CHP - Birpara Line- II	84.78	+	
		Unit- III	91.70	220kV CHP - Malbase Line- III	169.82	+	
		Unit- IV	91.65	220kV CHP - Semtokha Line- IV	12.80	+	
		-	-	220kV Malbase - Birpara Line	6.65	+	
		-	-	66kV CHP - Chumdo Line	5.75	+	
		-	-	66kV CHP - Gedu Line	7.02	+	
		-	-	3x3MVA, 66/11kV TFR	0.73	+	
<b>Total</b>	<b>366.74</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.240%</b>				
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	91.68	+	
		Unit- II	12.20	66kV BHP - Lobeyssa Line	7.40	+	
		<b>Total</b>	<b>24.50</b>	220kV BHP - Tsirang Line	-34.10	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	-15.61	-	
		<b>Total</b>	<b>41.80</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.649%</b>		
6	126MW DHP	Unit-I	63.66	220kV DHP - Tsirang Line	126.20	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.07	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	0.90	+	
		-	-	5MVA, 220/33kV TFR	0.40	+	
		<b>Total</b>	<b>126.73</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.103%</b>		
7	60MW KHP	Unit- I	16.61	132kV KHP - Nangkhoh Line	40.93	+	
		Unit-II	16.52	132kV KHP - Kilikhar Line	24.06	+	
		Unit- III	16.10	5MVA, 132/11kV TFR	0.32	+	
		Unit- IV	16.70	132kV Motanga - Rangia Line	38.13	+	
		<b>Total</b>	<b>65.93</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.940%</b>		

**Note: Generation-Load Summary (MW) for September 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	1,673.87	303.55	293.69	1,280.19	9.86
2	Eastern Grid	854.17	71.57	66.47	872.73	5.10
	<b>Total</b>	<b>2,528.04</b>	<b>375.12</b>	<b>360.16</b>	<b>2,152.92</b>	<b>14.96</b>

**Note: Generation-Load Summary for September 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	1,654.64	190.44	171.75	1,383.37	18.69
2	Eastern Grid	848.81	62.37	57.77	867.27	4.60
	<b>Total</b>	<b>2,503.45</b>	<b>252.81</b>	<b>229.52</b>	<b>2,250.64</b>	<b>23.29</b>

**NOTE-BHP and MHP 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.