

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

Maximum Load/Demand till Date

Date:	August 2, 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	185.40	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance.
		Unit- II	186.49	400kV THP - Siliguri Line - II	361.57	+	
		Unit- III	185.40	400kV THP - Siliguri Line- IV	346.58	+	
		Unit- IV	184.93	400kV THP - Malbase Line - III	401.83	+	
		Unit- V	185.39	400kV Malbase - Siliguri Line	325.03	+	
		Unit- VI	185.76	-	-	-	
		<b>Total</b>	<b>1,113.37</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.304%</b>		
2	720MW MHP	Unit-I	197.82	400kV MHP - Jigmeling Line - I	293.79	+	Unit-III under Restoration . 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II(Interim) on standby.
		Unit-II	197.32	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.58	+	
		Unit-IV	197.80	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)	-45.50	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	157.20	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	234.70	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	234.70	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	27.90	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	27.90	+	
		-	-	220kV Tsirang - Jigmeling Line	104.80	+	
-	-	132kV Gelephu - Salakati Line	22.71	+			
<b>Total</b>	<b>592.94</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.602%</b>				
3	336MW CHP	Unit- I	91.39	220kV CHP - Birpara Line- I	103.89	+	
		Unit- II	91.11	220kV CHP - Birpara Line- II	103.63	+	
		Unit- III	91.33	220kV CHP - Malbase Line- III	133.69	+	
		Unit- IV	91.51	220kV CHP - Semtokha Line- IV	7.65	+	
		-	-	220kV Malbase - Birpara Line	65.15	+	
		-	-	66kV CHP - Chumdo Line	8.70	+	
		-	-	66kV CHP - Gedu Line	5.67	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
		<b>Total</b>	<b>365.34</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.249%</b>		
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	53.30	+	
		Unit- II	12.20	66kV BHP - Lobeyasa Line	25.40	+	
		<b>Total</b>	<b>24.50</b>	220kV BHP - Tsirang Line	-14.40	-	
5	40MW BHP (L/S)	Unit- I	20.60	5MVA, 66/11kV TFR	0.91	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	3.16	+	
		<b>Total</b>	<b>41.70</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>1.495%</b>		
6	126MW DHP	Unit-I	62.41	220kV DHP - Tsirang Line	123.90	+	220kV DHP_Dagapela Line on standby.
		Unit-II	61.99	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.50	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		<b>Total</b>	<b>124.40</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.161%</b>		
7	60MW KHP	Unit- I	16.51	132kV KHP - Nangkhoh Line	37.99	+	
		Unit-II	16.51	132kV KHP - Kilikhar Line	26.84	+	
		Unit- III	16.55	5MVA, 132/11kV TFR	0.50	+	
		Unit- IV	16.46	132kV Motanga - Rangia Line	40.17	+	
		<b>Total</b>	<b>66.03</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>1.060%</b>		

**Note: Generation-Load Summary (MW) for August 02, 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	1,669.31	258.66	254.67	1,305.85	3.99
2	Eastern Grid	658.97	74.29	70.02	689.48	4.27
	<b>Total</b>	<b>2,328.28</b>	<b>332.95</b>	<b>324.69</b>	<b>1,995.33</b>	<b>8.26</b>

**Note: Generation-Load Summary for August 02, 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	1,679.37	237.65	219.54	1,339.72	18.11
2	Eastern Grid	847.94	65.57	62.14	884.37	3.43
	<b>Total</b>	<b>2,527.31</b>	<b>303.22</b>	<b>281.68</b>	<b>2,224.09</b>	<b>21.54</b>

**NOTE-BHP & 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>August 3, 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	185.15	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance.
		Unit- II	184.05	400kV THP - Siliguri Line - II	363.89	+	
		Unit- III	185.20	400kV THP - Siliguri Line- IV	346.92	+	
		Unit- IV	185.27	400kV THP - Malbase Line - III	396.02	+	
		Unit- V	185.60	400kV Malbase - Siliguri Line	329.23	+	
		Unit- VI	186.18	-	-	-	
		<b>Total</b>	<b>1,111.45</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.416%</b>		
2	720MW MHP	Unit-I	197.79	400kV MHP - Jigmeling Line - I	294.61	+	Unit-III under Restoration . 400kV MHP-JLG Line II & IV on standby.132kV MHP_Yurmoo line I & II not in service.400kV JLG_ALI Line II(Interim) on standby.
		Unit-II	197.66	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.95	+	
		Unit-IV	197.90	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)	-45.30	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	157.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	235.60	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	235.60	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	22.90	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	22.90	+	
		-	-	220kV Tsirang - Jigmeling Line	92.60	+	
		-	-	132kV Gelephu - Salakati Line	19.50	+	
<b>Total</b>	<b>593.35</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.470%</b>				
3	336MW CHP	Unit- I	91.26	220kV CHP - Birpara Line- I	101.44	+	
		Unit- II	91.27	220kV CHP - Birpara Line- II	101.16	+	
		Unit- III	91.20	220kV CHP - Malbase Line- III	145.80	+	
		Unit- IV	91.93	220kV CHP - Semtokha Line- IV	4.57	+	
		-	-	220kV Malbase - Birpara Line	52.58	+	
		-	-	66kV CHP - Chumdo Line	5.73	+	
		-	-	66kV CHP - Gedu Line	5.78	+	
		-	-	3x3MVA, 66/11kV TFR	0.70	+	
		<b>Total</b>	<b>365.66</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.131%</b>		
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	48.78	+	
		Unit- II	12.20	66kV BHP - Lobeysa Line	25.30	+	
		<b>Total</b>	<b>24.50</b>	220kV BHP - Tsirang Line	-8.98	-	
5	40MW BHP (L/S)	Unit- I	20.60	5MVA, 66/11kV TFR	0.98	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	1.80	+	
		<b>Total</b>	<b>41.60</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.030%</b>		
6	126MW DHP	Unit-I	52.92	220kV DHP - Tsirang Line	104.43	+	220kV DHP_Dagapela Line on standby.
		Unit-II	52.01	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.00	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		<b>Total</b>	<b>104.93</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.191%</b>		
7	60MW KHP	Unit- I	16.45	132kV KHP - Nangkhon Line	40.38	+	
		Unit-II	16.52	132kV KHP - Kilikhar Line	25.03	+	
		Unit- III	16.58	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.53	132kV Motanga - Rangia Line	45.88	+	
		<b>Total</b>	<b>66.08</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.560%</b>		

**Note: Generation-Load Summary (MW) for August 03, 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	1,648.14	260.32	256.00	1,295.22	4.32
2	Eastern Grid	659.43	58.45	55.29	693.58	3.16
<b>Total</b>		<b>2,307.57</b>	<b>318.77</b>	<b>311.29</b>	<b>1,988.80</b>	<b>7.48</b>

**Note: Generation-Load Summary for August 03, 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	1,678.74	213.86	193.55	1,374.99	20.31
2	Eastern Grid	848.67	44.87	43.68	893.69	1.19
<b>Total</b>		<b>2,527.41</b>	<b>258.73</b>	<b>237.23</b>	<b>2,268.68</b>	<b>21.50</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.