

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>August 12, 2021</b>
<b>Hours:</b>	<b>19:00 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	0.00	400kV THP - Siliguri Line - I	0.00		Total Plant emergency shutdown.400kV THP-Siliguri line II & IV opened. 400kV THP-Siliguri Line I under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	-0.96	-	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-20.17	-	
		Unit- VI	0.00	-	-	-	
		<b>Total</b>	<b>0.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.000%</b>		
2	720MW MHP	Unit-I	197.25	400kV MHP - Jigmeling Line - I	290.90	+	Unit-III under Breakdown . 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	197.91	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	291.60	+	
		Unit-IV	197.74	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)	-5.70	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	146.20	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	221.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	221.00	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	28.20	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	28.20	+	
		-	-	220kV Tsirang - Jigmeling Line	65.00	+	
-	-	132kV Gelephu - Salakati Line	19.17	+			
<b>Total</b>	<b>592.90</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>1.754%</b>				
3	336MW CHP	Unit- I	91.46	220kV CHP - Birpara Line- I	83.00	+	
		Unit- II	91.04	220kV CHP - Birpara Line- II	82.99	+	
		Unit- III	91.38	220kV CHP - Malbase Line- III	160.79	+	
		Unit- IV	91.77	220kV CHP - Semtokha Line- IV	17.97	+	
		-	-	220kV Malbase - Birpara Line	11.50	+	
		-	-	66kV CHP - Chumdo Line	10.29	+	
		-	-	66kV CHP - Gedu Line	6.98	+	
		-	-	3x3MVA, 66/11kV TFR	1.08	+	
		<b>Total</b>	<b>365.65</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.697%</b>		
4	24MW BHP (U/S)	Unit- I	12.40	220kV BHP - Semtokha Line	55.00	+	
		Unit- II	12.30	66kV BHP - Lobeysa Line	28.80	+	
		<b>Total</b>	<b>24.70</b>	220kV BHP - Tsirang Line	-19.13	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.91	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	5.99	+	
		<b>Total</b>	<b>41.80</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>1.383%</b>		
6	126MW DHP	Unit-I	57.35	220kV DHP - Tsirang Line	87.89	+	220kV DHP_Dagapela Line on standby.
		Unit-II	31.01	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.80	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		<b>Total</b>	<b>88.36</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.192%</b>		
7	60MW KHP	Unit- I	16.52	132kV KHP - Nangkhon Line	38.02	+	
		Unit-II	16.54	132kV KHP - Kilikhar Line	26.97	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.41	+	
		Unit- IV	16.51	132kV Motanga - Rangia Line	44.53	+	
		<b>Total</b>	<b>66.07</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>1.008%</b>		

**Note: Generation-Load Summary (MW) for August 12, 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	520.51	298.19	295.39	157.32	2.80
2	Eastern Grid	658.97	72.07	61.00	651.90	11.07
	<b>Total</b>	<b>1,179.48</b>	<b>370.26</b>	<b>356.39</b>	<b>809.22</b>	<b>13.87</b>

**Note: Generation-Load Summary for August 12, 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	1,679.50	197.50	182.48	1,393.48	15.02
2	Eastern Grid	842.55	62.26	56.09	868.80	6.17
	<b>Total</b>	<b>2,522.05</b>	<b>259.76</b>	<b>238.57</b>	<b>2,262.28</b>	<b>21.19</b>

**NOTE-BHP and MHPA 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.

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**Maximum Load/Demand till Date**

<b>Date:</b>	<b>August 13, 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	183.62	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	185.48	400kV THP - Siliguri Line - II	357.54	+	
		Unit- III	185.27	400kV THP - Siliguri Line- IV	342.23	+	
		Unit- IV	184.49	400kV THP - Malbase Line - III	399.40	+	
		Unit- V	184.80	400kV Malbase - Siliguri Line	324.01	+	
		Unit- VI	185.26	-	-	-	
		<b>Total</b>	<b>1,108.92</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.879%</b>		
2	720MW MHP	Unit-I	197.72	400kV MHP - Jigmeling Line - I	294.30	+	Unit-III under Breakdown . 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	197.65	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	296.00	+	
		Unit-IV	197.68	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)	-42.30	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	154.17	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	235.29	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	235.29	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	19.90	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	20.00	+	
		-	-	220kV Tsirang - Jigmeling Line	83.88	+	
-	-	132kV Gelephu - Salakati Line	17.49	+			
<b>Total</b>	<b>593.05</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.464%</b>				
3	336MW CHP	Unit- I	91.89	220kV CHP - Birpara Line- I	94.55	+	
		Unit- II	91.22	220kV CHP - Birpara Line- II	95.00	+	
		Unit- III	91.37	220kV CHP - Malbase Line- III	141.70	+	
		Unit- IV	91.31	220kV CHP - Semtokha Line- IV	19.10	+	
		-	-	220kV Malbase - Birpara Line	44.84	+	
		-	-	66kV CHP - Chumdo Line	7.17	+	
		-	-	66kV CHP - Gedu Line	5.70	+	
		-	-	3x3MVA, 66/11kV TFR	0.74	+	
<b>Total</b>	<b>365.79</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.500%</b>				
4	24MW BHP (U/S)	Unit- I	12.40	220kV BHP - Semtokha Line	42.82	+	
		Unit- II	12.30	66kV BHP - Lobeysa Line	27.00	+	
		<b>Total</b>	<b>24.70</b>	220kV BHP - Tsirang Line	-4.48	-	
5	40MW BHP (L/S)	Unit- I	20.60	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	3.20	+	
		<b>Total</b>	<b>41.70</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.241%</b>		
6	126MW DHP	Unit-I	60.35	220kV DHP - Tsirang Line	90.87	+	220kV DHP_Dagapela Line on standby.
		Unit-II	31.02	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.00	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		<b>Total</b>	<b>91.37</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.219%</b>		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Line	41.62	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	23.36	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.37	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	34.87	+	
		<b>Total</b>	<b>66.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.985%</b>		

**Note: Generation-Load Summary (MW) for August 13, 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	1,632.48	290.43	279.49	1,258.17	10.94
2	Eastern Grid	659.05	65.82	62.42	677.11	3.40
	<b>Total</b>	<b>2,291.53</b>	<b>356.25</b>	<b>341.91</b>	<b>1,935.28</b>	<b>14.34</b>

**Note: Generation-Load Summary for August 13, 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	1,679.29	185.42	167.40	1,413.20	18.02
2	Eastern Grid	842.80	49.29	44.70	874.18	4.59
	<b>Total</b>	<b>2,522.09</b>	<b>234.71</b>	<b>212.10</b>	<b>2,287.38</b>	<b>22.61</b>

**NOTE-BHP & KHP 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.
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