

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

Maximum Load/Demand till Date

Date: **August 22, 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	185.73	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	184.93	400kV THP - Siliguri Line - II	352.94	+	
		Unit- III	184.66	400kV THP - Siliguri Line- IV	338.12	+	
		Unit- IV	185.22	400kV THP - Malbase Line - III	413.79	+	
		Unit- V	186.03	400kV Malbase - Siliguri Line	314.17	+	
		Unit- VI	186.11	-	-	-	
		<b>Total</b>	<b>1,112.68</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.704%</b>		
2	720MW MHP	Unit-I	197.76	400kV MHP - Jigmeling Line - I	389.83	+	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	194.85	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	197.71	400kV MHP - Jigmeling Line - III	392.45	+	
		Unit-IV	197.26	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)	-23.40	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	197.80	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	297.84	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	297.84	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	38.80	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	39.00	+	
		-	-	220kV Tsirang - Jigmeling Line	103.49	+	
-	-	132kV Gelephu - Salakati Line	27.58	+			
<b>Total</b>	<b>787.58</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.673%</b>				
3	336MW CHP	Unit- I	92.16	220kV CHP - Birpara Line- I	101.85	+	
		Unit- II	90.86	220kV CHP - Birpara Line- II	101.87	+	
		Unit- III	91.74	220kV CHP - Malbase Line- III	120.83	+	
		Unit- IV	91.71	220kV CHP - Semtokha Line- IV	21.80	+	
		-	-	220kV Malbase - Birpara Line	72.24	+	
		-	-	66kV CHP - Chumdo Line	11.52	+	
		-	-	66kV CHP - Gedu Line	5.60	+	
		-	-	3x3MVA, 66/11kV TFR	1.40	+	
<b>Total</b>	<b>366.47</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.437%</b>				
4	24MW BHP (U/S)	Unit- I	12.10	220kV BHP - Semtokha Line	53.40	+	Lobeysa Line
		Unit- II	12.30	66kV BHP - Lobeysa Line	28.30	+	
		<b>Total</b>	<b>24.40</b>	220kV BHP - Tsirang Line	-17.52	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	5.84	+	
		<b>Total</b>	<b>41.80</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>1.692%</b>		
6	126MW DHP	Unit-I	63.59	220kV DHP - Tsirang Line	126.14	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.14	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.90	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		<b>Total</b>	<b>126.73</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.229%</b>		
7	60MW KHP	Unit- I	16.55	132kV KHP - Nangkhon Line	25.36	+	KHP Unit III under Restoration
		Unit-II	16.55	132kV KHP - Kilikhar Line	23.18	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.32	+	
		Unit- IV	16.53	132kV Motanga - Rangia Line	32.60	+	
		<b>Total</b>	<b>49.63</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>1.551%</b>		

**Note: Generation-Load Summary (MW) for August 22, 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	1,672.08	287.40	278.46	1,281.19	8.94
2	Eastern Grid	837.21	87.04	80.97	853.66	6.07
	<b>Total</b>	<b>2,509.29</b>	<b>374.44</b>	<b>359.43</b>	<b>2,134.85</b>	<b>15.01</b>

**Note: Generation-Load Summary for August 22, 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	1,677.43	210.63	196.25	1,369.48	14.38
2	Eastern Grid	832.70	61.94	61.45	868.08	0.49
	<b>Total</b>	<b>2,510.13</b>	<b>272.57</b>	<b>257.70</b>	<b>2,237.56</b>	<b>14.87</b>

**NOTE-BHP, KHP 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>August 23, 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	186.55	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	186.35	400kV THP - Siliguri Line - II	359.00	+	
		Unit- III	185.45	400kV THP - Siliguri Line- IV	341.40	+	
		Unit- IV	184.73	400kV THP - Malbase Line - III	405.30	+	
		Unit- V	185.49	400kV Malbase - Siliguri Line	321.67	+	
		Unit- VI	184.92	-	-	-	
		<b>Total</b>	<b>1,113.49</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.700%</b>		
2	720MW MHP	Unit-I	197.91	400kV MHP - Jigmeling Line - I	389.59	+	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	193.53	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	197.93	400kV MHP - Jigmeling Line - III	391.87	+	
		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)	-36.60	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	200.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	303.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	303.00	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	23.50	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	23.50	+	
		-	-	220kV Tsirang - Jigmeling Line	84.07	+	
		-	-	132kV Gelephu - Salakati Line	25.09	+	
<b>Total</b>	<b>785.79</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.551%</b>				
3	336MW CHP	Unit- I	89.74	220kV CHP - Birpara Line- I	76.18	+	CHP Unit II shutdown (Runner Inspection)
		Unit- II	0.00	220kV CHP - Birpara Line- II	75.82	+	
		Unit- III	91.34	220kV CHP - Malbase Line- III	116.15	+	
		Unit- IV	91.20	220kV CHP - Semtokha Line- IV	-10.31	-	
		-	-	220kV Malbase - Birpara Line	33.71	+	
		-	-	66kV CHP - Chumdo Line	6.71	+	
		-	-	66kV CHP - Gedu Line	5.64	+	
		-	-	3x3MVA, 66/11kV TFR	0.78	+	
		<b>Total</b>	<b>272.28</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.481%</b>		
4	24MW BHP (U/S)	Unit- I	12.10	220kV BHP - Semtokha Line	76.10	+	
		Unit- II	12.30	66kV BHP - Lobeysa Line	27.41	+	
		<b>Total</b>	<b>24.40</b>	220kV BHP - Tsirang Line	-38.91	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	4.65	+	
		<b>Total</b>	<b>41.80</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.057%</b>		
6	126MW DHP	Unit-I	63.63	220kV DHP - Tsirang Line	126.30	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.20	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.20	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		<b>Total</b>	<b>126.83</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.181%</b>		
7	60MW KHP	Unit- I	16.55	132kV KHP - Nangkhoh Line	41.33	+	
		Unit-II	16.44	132kV KHP - Kilikhar Line	23.82	+	
		Unit- III	16.47	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	16.49	132kV Motanga - Rangia Line	35.78	+	
		<b>Total</b>	<b>65.95</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.607%</b>		

**Note: Generation-Load Summary (MW) for August 23, 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	1,578.80	286.95	278.12	1,207.78	8.83
2	Eastern Grid	851.74	68.94	64.21	866.87	4.73
	<b>Total</b>	<b>2,430.54</b>	<b>355.89</b>	<b>342.33</b>	<b>2,074.65</b>	<b>13.56</b>

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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	1,680.45	198.94	174.31	1,399.90	24.63
2	Eastern Grid	855.30	42.75	42.22	894.16	0.53
	<b>Total</b>	<b>2,535.75</b>	<b>241.69</b>	<b>216.53</b>	<b>2,294.06</b>	<b>25.16</b>

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- 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.
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