

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>July 14, 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	185.37	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under breakdown.
		Unit- II	183.79	400kV THP - Siliguri Line - II	356.17	+	
		Unit- III	185.68	400kV THP - Siliguri Line- IV	338.23	+	
		Unit- IV	185.42	400kV THP - Malbase Line - III	407.40	+	
		Unit- V	184.92	400kV Malbase - Siliguri Line	319.10	+	
		Unit- VI	186.08	-	-	-	
		<b>Total</b>	<b>1,111.26</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.851%</b>		
2	720MW MHP	Unit-I	197.87	400kV MHP - Jigmeling Line - I	294.10	+	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) under shutdown.
		Unit-II	197.71	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.65	+	
		Unit-IV	197.40	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)	-49.90	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	159.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	236.40	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	236.40	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	33.10	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	33.20	+	
		-	-	220kV Tsirang - Jigmeling Line	117.96	+	
-	-	132kV Gelephu - Salakati Line	26.58	+			
<b>Total</b>	<b>592.98</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.545%</b>				
3	336MW CHP	Unit- I	91.81	220kV CHP - Birpara Line- I	103.86	+	
		Unit- II	91.02	220kV CHP - Birpara Line- II	104.11	+	
		Unit- III	91.76	220kV CHP - Malbase Line- III	134.62	+	
		Unit- IV	91.49	220kV CHP - Semtokha Line- IV	8.46	+	
		-	-	220kV Malbase - Birpara Line	66.30	+	
		-	-	66kV CHP - Chumdo Line	7.64	+	
		-	-	66kV CHP - Gedu Line	5.08	+	
		-	-	3x3MVA, 66/11kV TFR	1.00	+	
		<b>Total</b>	<b>366.08</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.358%</b>		
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	46.46	+	30MVA ICT(220/66kV) under shutdown.
		Unit- II	12.10	66kV BHP - Lobeyza Line	21.89	+	
		<b>Total</b>	<b>24.40</b>	220kV BHP - Tsirang Line	-4.05	-	
5	40MW BHP (L/S)	Unit- I	20.60	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	20.50	30MVA ICT, 220/66kV (HV)	0.00		
		<b>Total</b>	<b>41.10</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.473%</b>		
6	126MW DHP	Unit-I	63.64	220kV DHP - Tsirang Line	126.22	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.21	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.50	+	
		-	-	5MVA, 220/33kV TFR	0.50	+	
		<b>Total</b>	<b>126.85</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.102%</b>		
7	60MW KHP	Unit- I	16.57	132kV KHP - Nangkhoh Line	37.86	+	
		Unit-II	16.61	132kV KHP - Kilikhar Line	27.29	+	
		Unit- III	16.55	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.52	132kV Motanga - Rangia Line	50.49	+	
		<b>Total</b>	<b>66.25</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>1.208%</b>		

**Note: Generation-Load Summary (MW) for July 14, 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	1,669.69	263.96	254.25	1,287.77	9.71
2	Eastern Grid	659.23	68.32	64.29	708.87	4.03
<b>Total</b>		<b>2,328.92</b>	<b>332.28</b>	<b>318.54</b>	<b>1,996.64</b>	<b>13.74</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	1,675.70	203.49	188.95	1,373.32	14.54
2	Eastern Grid	857.15	60.66	56.72	895.38	3.94
<b>Total</b>		<b>2,532.85</b>	<b>264.15</b>	<b>245.67</b>	<b>2,268.70</b>	<b>18.48</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.

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<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	185.28	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under breakdown.
		Unit- II	184.64	400kV THP - Siliguri Line - II	363.75	+	
		Unit- III	185.42	400kV THP - Siliguri Line- IV	348.12	+	
		Unit- IV	185.46	400kV THP - Malbase Line - III	397.41	+	
		Unit- V	185.84	400kV Malbase - Siliguri Line	329.00	+	
		Unit- VI	185.83	-	-	-	
		<b>Total</b>	<b>1,112.47</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.287%</b>		
2	720MW MHP	Unit-I	197.87	400kV MHP - Jigmeling Line - I	293.99	+	Unit-III on Restoration. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line II (Interim) under standby.
		Unit-II	197.81	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.44	+	
		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)	-74.60	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	161.69	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	247.89	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	246.20	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.60	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	20.60	+	
		-	-	220kV Tsirang - Jigmeling Line	119.76	+	
-	-	132kV Gelephu - Salakati Line	24.86	+			
<b>Total</b>	<b>592.96</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.595%</b>				
3	336MW CHP	Unit- I	91.88	220kV CHP - Birpara Line- I	103.95	+	
		Unit- II	91.02	220kV CHP - Birpara Line- II	103.57	+	
		Unit- III	91.87	220kV CHP - Malbase Line- III	141.55	+	
		Unit- IV	91.34	220kV CHP - Semtokha Line- IV	4.42	+	
		-	-	220kV Malbase - Birpara Line	59.80	+	
		-	-	66kV CHP - Chumdo Line	6.02	+	
		-	-	66kV CHP - Gedu Line	5.11	+	
		-	-	3x3MVA, 66/11kV TFR	0.70	+	
		<b>Total</b>	<b>366.11</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.216%</b>		
4	24MW BHP (U/S)	Unit- I	12.20	220kV BHP - Semtokha Line	46.56	+	30MVA ICT(220/66kV) under shutdown
		Unit- II	12.10	66kV BHP - Lobeyza Line	24.00	+	
		<b>Total</b>	<b>24.30</b>	220kV BHP - Tsirang Line	-4.99	-	
5	40MW BHP (L/S)	Unit- I	20.60	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)			
		<b>Total</b>	<b>41.60</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-0.850%</b>		
6	126MW DHP	Unit-I	63.69	220kV DHP - Tsirang Line	126.23	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.24	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.30	+	
		-	-	5MVA, 220/33kV TFR	0.28	+	
		<b>Total</b>	<b>126.93</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.331%</b>		
7	60MW KHP	Unit- I	16.47	132kV KHP - Nangkhoh Line	40.95	+	
		Unit-II	16.64	132kV KHP - Kilikhar Line	24.08	+	
		Unit- III	16.41	5MVA, 132/11kV TFR	0.32	+	
		Unit- IV	16.53	132kV Motanga - Rangia Line	36.83	+	
		<b>Total</b>	<b>66.05</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.060%</b>		

**Note: Generation-Load Summary (MW) for July 15, 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	1,671.41	243.46	240.92	1,308.19	2.54
2	Eastern Grid	659.01	61.30	57.07	717.47	4.23
	<b>Total</b>	<b>2,330.42</b>	<b>304.76</b>	<b>297.99</b>	<b>2,025.66</b>	<b>6.77</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	1,679.45	184.97	169.41	1,400.98	15.56
2	Eastern Grid	856.37	54.43	50.88	895.44	3.55
	<b>Total</b>	<b>2,535.82</b>	<b>239.40</b>	<b>220.29</b>	<b>2,296.42</b>	<b>19.11</b>

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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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