

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>June 28, 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	137.58	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance.
		Unit- II	166.68	400kV THP - Siliguri Line - II	233.19	+	
		Unit- III	99.88	400kV THP - Siliguri Line- IV	223.51	+	
		Unit- IV	99.86	400kV THP - Malbase Line - III	265.57	+	
		Unit- V	135.12	400kV Malbase - Siliguri Line	210.33	+	
		Unit- VI	89.23	-	-	-	
		<b>Total</b>	<b>728.35</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.835%</b>		
2	720MW MHP	Unit-I	197.72	400kV MHP - Jigmeling Line - I	293.13	+	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 I(Interim) under shutdown
		Unit-II	196.56	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.09	+	
		Unit-IV	197.25	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)	8.20	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	146.20	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	220.40	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	220.40	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	29.20	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	29.20	+	
		-	-	220kV Tsirang - Jigmeling Line	69.80	+	
-	-	132kV Gelephu - Salakati Line	21.88	+			
<b>Total</b>	<b>591.53</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.560%</b>				
3	336MW CHP	Unit- I	91.73	220kV CHP - Birpara Line- I	91.82	+	
		Unit- II	91.49	220kV CHP - Birpara Line- II	91.69	+	
		Unit- III	91.93	220kV CHP - Malbase Line- III	141.79	+	
		Unit- IV	91.49	220kV CHP - Semtokha Line- IV	24.23	+	
		-	-	220kV Malbase - Birpara Line	40.45	+	
		-	-	66kV CHP - Chumdo Line	8.75	+	
		-	-	66kV CHP - Gedu Line	4.99	+	
		-	-	3x3MVA, 66/11kV TFR	1.14	+	
		<b>Total</b>	<b>366.64</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.608%</b>		
4	24MW BHP (U/S)	Unit- I	8.60	220kV BHP - Semtokha Line	37.27	+	30MVA ICT(220/66kV) under shutdown.
		Unit- II	8.50	66kV BHP - Lobeysa Line	16.30	+	
		<b>Total</b>	<b>17.10</b>	220kV BHP - Tsirang Line	-5.24	-	
5	40MW BHP (L/S)	Unit- I	16.00	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	16.30	30MVA ICT, 220/66kV (HV)	0.00		
		<b>Total</b>	<b>32.30</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.364%</b>		
6	126MW DHP	Unit-I	50.00	220kV DHP - Tsirang Line	79.00	+	220kV DHP_Dagapela Line on standby.
		Unit-II	30.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.80	+	
		-	-	5MVA, 220/33kV TFR	0.51	+	
		<b>Total</b>	<b>80.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.612%</b>		
7	60MW KHP	Unit- I	16.49	132kV KHP - Nangkor Line	39.27	+	
		Unit-II	16.54	132kV KHP - Kilikhar Line	25.85	+	
		Unit- III	16.59	5MVA, 132/11kV TFR	0.44	+	
		Unit- IV	16.56	132kV Motanga - Rangia Line	38.62	+	
		<b>Total</b>	<b>66.18</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.944%</b>		

**Note: Generation-Load Summary (MW) for June 28, 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	1,224.39	263.60	256.42	890.99	7.18
2	Eastern Grid	657.71	80.01	76.08	647.50	3.93
<b>Total</b>		<b>1,882.10</b>	<b>343.61</b>	<b>332.50</b>	<b>1,538.49</b>	<b>11.12</b>

**Note: Generation-Load Summary for June 28, 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	1,586.11	216.90	200.27	1,274.38	16.63
2	Eastern Grid	820.99	58.55	54.84	857.27	3.71
<b>Total</b>		<b>2,407.10</b>	<b>275.45</b>	<b>255.11</b>	<b>2,131.65</b>	<b>20.34</b>

**NOTE-BHP, DHP, KHP and MHEP 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>June 29, 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	137.74	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance.
		Unit- II	167.33	400kV THP - Siliguri Line - II	247.60	+	
		Unit- III	99.61	400kV THP - Siliguri Line- IV	237.79	+	
		Unit- IV	99.35	400kV THP - Malbase Line - III	290.04	+	
		Unit- V	139.18	400kV Malbase - Siliguri Line	221.55	+	
		Unit- VI	139.28	-	-	-	
		<b>Total</b>	<b>782.49</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.902%</b>		
2	720MW MHP	Unit-I	197.72	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 I (Interim) under shutdown.
		Unit-II	197.69	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.55	+	
		Unit-IV	197.48	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)	14.90	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	146.90	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	224.20	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	224.20	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	23.40	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	23.40	+	
		-	-	220kV Tsirang - Jigmeling Line	59.39	+	
-	-	132kV Gelephu - Salakati Line	25.99	+			
<b>Total</b>	<b>592.89</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.546%</b>				
3	336MW CHP	Unit- I	91.42	220kV CHP - Birpara Line- I	83.11	+	
		Unit- II	74.86	220kV CHP - Birpara Line- II	83.90	+	
		Unit- III	90.68	220kV CHP - Malbase Line- III	134.47	+	
		Unit- IV	90.89	220kV CHP - Semtokha Line- IV	24.61	+	
		-	-	220kV Malbase - Birpara Line	32.60	+	
		-	-	66kV CHP - Chumdo Line	6.48	+	
		-	-	66kV CHP - Gedu Line	4.45	+	
		-	-	3x3MVA, 66/11kV TFR	0.80	+	
<b>Total</b>	<b>347.85</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>2.883%</b>				
4	24MW BHP (U/S)	Unit- I	7.30	220kV BHP - Semtokha Line	31.80	+	30MVA ICT(220/66kV) under shutdown.
		Unit- II	7.10	66kV BHP - Lobeysa Line	10.60	+	
		<b>Total</b>	<b>14.40</b>	220kV BHP - Tsirang Line	-1.50	-	
5	40MW BHP (L/S)	Unit- I	13.50	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	13.80	30MVA ICT, 220/66kV (HV)	0.00		
		<b>Total</b>	<b>27.30</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-0.240%</b>		
6	126MW DHP	Unit-I	38.31	220kV DHP - Tsirang Line	66.86	+	220kV DHP_Dagapela Line on standby.
		Unit-II	28.98	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.00	+	
		-	-	5MVA, 220/33kV TFR	0.40	+	
		<b>Total</b>	<b>67.29</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.045%</b>		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkor Line	42.54	+	
		Unit-II	16.61	132kV KHP - Kilikhar Line	22.66	+	
		Unit- III	16.57	5MVA, 132/11kV TFR	0.33	+	
		Unit- IV	16.58	132kV Motanga - Rangia Line	32.48	+	
		<b>Total</b>	<b>66.26</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.102%</b>		

**Note: Generation-Load Summary (MW) for June 29, 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	1,239.33	273.39	257.37	906.55	16.02
2	Eastern Grid	659.15	64.77	60.80	653.77	3.97
<b>Total</b>		<b>1,898.48</b>	<b>338.16</b>	<b>318.17</b>	<b>1,560.32</b>	<b>19.99</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	1,573.93	212.96	197.96	1,278.97	15.00
2	Eastern Grid	820.45	54.70	51.57	847.75	3.13
<b>Total</b>		<b>2,394.38</b>	<b>267.66</b>	<b>249.53</b>	<b>2,126.72</b>	<b>18.13</b>

**NOTE-BHP and MHEP 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.
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