

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

Maximum Load/Demand till Date

Date: **June 29, 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	136.55	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance.
		Unit- II	137.76	400kV THP - Siliguri Line - II	241.02	+	
		Unit- III	99.96	400kV THP - Siliguri Line- IV	230.01	+	
		Unit- IV	99.82	400kV THP - Malbase Line - III	274.87	+	
		Unit- V	137.73	400kV Malbase - Siliguri Line	215.31	+	
		Unit- VI	139.23	-	-	-	
		<b>Total</b>	<b>751.05</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.686%</b>		
2	720MW MHP	Unit-I	197.66	400kV MHP - Jigmeling Line - I	293.35	+	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	196.79	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.22	+	
		Unit-IV	197.21	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)	1.40	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	144.70	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	217.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	217.00	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	27.40	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	27.10	+	
		-	-	220kV Tsirang - Jigmeling Line	55.90	+	
-	-	132kV Gelephu - Salakati Line	20.12	+			
<b>Total</b>	<b>591.66</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.522%</b>				
3	336MW CHP	Unit- I	91.65	220kV CHP - Birpara Line- I	92.95	+	
		Unit- II	91.61	220kV CHP - Birpara Line- II	92.97	+	
		Unit- III	91.88	220kV CHP - Malbase Line- III	137.49	+	
		Unit- IV	91.84	220kV CHP - Semtokha Line- IV	27.79	+	
		-	-	220kV Malbase - Birpara Line	44.96	+	
		-	-	66kV CHP - Chumdo Line	9.15	+	
		-	-	66kV CHP - Gedu Line	4.40	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
		<b>Total</b>	<b>366.98</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.281%</b>		
4	24MW BHP (U/S)	Unit- I	9.10	220kV BHP - Semtokha Line	34.55	+	30MVA ICT(220/66kV) under shutdown.
		Unit- II	9.00	66kV BHP - Lobeysa Line	17.40	+	
		<b>Total</b>	<b>18.10</b>	220kV BHP - Tsirang Line	-4.05	-	
5	40MW BHP (L/S)	Unit- I	15.10	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	15.30	30MVA ICT, 220/66kV (HV)	0.00		
		<b>Total</b>	<b>30.40</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>-0.598%</b>		
6	126MW DHP	Unit-I	33.30	220kV DHP - Tsirang Line	61.85	+	220kV DHP_Dagapela Line on standby.
		Unit-II	28.99	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.90	+	
		-	-	5MVA, 220/33kV TFR	0.34	+	
		<b>Total</b>	<b>62.29</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.161%</b>		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkor Line	40.15	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	25.00	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.44	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	37.76	+	
		<b>Total</b>	<b>66.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.621%</b>		

**Note: Generation-Load Summary (MW) for June 29, 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	1,228.82	255.70	251.61	917.22	4.09
2	Eastern Grid	657.66	76.98	73.48	636.58	3.50
<b>Total</b>		<b>1,886.48</b>	<b>332.68</b>	<b>325.09</b>	<b>1,553.80</b>	<b>7.59</b>

**Note: Generation-Load Summary for June 29, 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	1,570.59	212.72	196.76	1,271.22	15.96
2	Eastern Grid	831.04	63.48	59.20	854.21	4.28
<b>Total</b>		<b>2,401.63</b>	<b>276.20</b>	<b>255.96</b>	<b>2,125.43</b>	<b>20.24</b>

**NOTE-BHP, 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 30, 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	185.39	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance.
		Unit- II	186.07	400kV THP - Siliguri Line - II	359.88	+	
		Unit- III	185.71	400kV THP - Siliguri Line- IV	345.00	+	
		Unit- IV	185.08	400kV THP - Malbase Line - III	400.24	+	
		Unit- V	184.75	400kV Malbase - Siliguri Line	325.62	+	
		Unit- VI	185.23	-	-	-	
		<b>Total</b>	<b>1,112.23</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.639%</b>		
2	720MW MHP	Unit-I	197.82	400kV MHP - Jigmeling Line - I	294.10	+	Unit-III on 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	197.73	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.55	+	
		Unit-IV	197.53	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)	38.50	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	154.20	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	231.60	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	231.60	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	24.30	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	24.30	+	
		-	-	220kV Tsirang - Jigmeling Line	89.20	+	
-	-	132kV Gelephu - Salakati Line	24.52	+			
<b>Total</b>	<b>593.08</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.578%</b>				
3	336MW CHP	Unit- I	91.72	220kV CHP - Birpara Line- I	97.13	+	
		Unit- II	91.22	220kV CHP - Birpara Line- II	97.07	+	
		Unit- III	91.48	220kV CHP - Malbase Line- III	134.95	+	
		Unit- IV	91.67	220kV CHP - Semtokha Line- IV	19.25	+	
		-	-	220kV Malbase - Birpara Line	52.92	+	
		-	-	66kV CHP - Chumdo Line	5.84	+	
		-	-	66kV CHP - Gedu Line	9.28	+	
		-	-	3x3MVA, 66/11kV TFR	0.90	+	
		<b>Total</b>	<b>366.09</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.456%</b>		
4	24MW BHP (U/S)	Unit- I	9.70	220kV BHP - Semtokha Line	36.55	+	30MVA ICT(220/66kV) under shutdown
		Unit- II	9.60	66kV BHP - Lobeyza Line	17.50	+	
		<b>Total</b>	<b>19.30</b>	220kV BHP - Tsirang Line	-2.30	-	
5	40MW BHP (L/S)	Unit- I	17.10	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	17.30	30MVA ICT, 220/66kV (HV)	0.00		
		<b>Total</b>	<b>34.40</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.955%</b>		
6	126MW DHP	Unit-I	63.42	220kV DHP - Tsirang Line	94.85	+	220kV DHP_Dagapela Line on standby.
		Unit-II	32.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.60	+	
		-	-	5MVA, 220/33kV TFR	0.50	+	
		<b>Total</b>	<b>95.42</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.073%</b>		
7	60MW KHP	Unit- I	16.58	132kV KHP - Nangkor Line	41.92	+	
		Unit-II	16.47	132kV KHP - Kilikhar Line	23.18	+	
		Unit- III	16.51	5MVA, 132/11kV TFR	0.32	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	35.56	+	
		<b>Total</b>	<b>66.06</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.969%</b>		

**Note: Generation-Load Summary (MW) for June 30, 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	1,627.44	260.62	252.32	1,277.62	8.30
2	Eastern Grid	659.14	70.86	66.79	677.48	4.07
<b>Total</b>		<b>2,286.58</b>	<b>331.48</b>	<b>319.11</b>	<b>1,955.10</b>	<b>12.37</b>

**Note: Generation-Load Summary for June 30, 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	1,569.56	214.14	198.00	1,279.15	16.14
2	Eastern Grid	822.75	46.98	43.07	852.01	3.91
<b>Total</b>		<b>2,392.31</b>	<b>261.12</b>	<b>241.07</b>	<b>2,131.16</b>	<b>20.05</b>

**NOTE-BHP 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.
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