

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>June 8, 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	168.83	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance
		Unit- II	98.02	400kV THP - Siliguri Line - II	283.78	+	
		Unit- III	138.88	400kV THP - Siliguri Line- IV	270.08	+	
		Unit- IV	170.60	400kV THP - Malbase Line - III	342.99	+	
		Unit- V	169.33	400kV Malbase - Siliguri Line	252.32	+	
		Unit- VI	168.77	-	-	-	
		<b>Total</b>	<b>914.43</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.923%</b>		
2	720MW MHP	Unit-I	190.35	400kV MHP - Jigmeling Line - I	283.42	+	Unit-III on breakdown. 400kV MHP_JLG line II and IV on standby. 132kV MHP_Yurmo line I & II not in service. 400/220kV ICT at JLG opened.
		Unit-II	190.28	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	284.87	+	
		Unit-IV	190.67	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)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I	280.40	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	279.24	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	29.30	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	29.40	+	
		-	-	220kV Tsirang - Jigmeling Line	58.75	+	
		-	-	132kV Gelephu - Salakati Line	14.00	+	
		<b>Total</b>	<b>571.30</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.527%</b>		
3	336MW CHP	Unit- I	74.38	220kV CHP - Birpara Line- I	79.80	+	
		Unit- II	84.54	220kV CHP - Birpara Line- II	79.94	+	
		Unit- III	82.70	220kV CHP - Malbase Line- III	104.52	+	
		Unit- IV	78.46	220kV CHP - Semtokha Line- IV	42.12	+	
		-	-	220kV Malbase - Birpara Line	49.45	+	
		-	-	66kV CHP - Chumdo Line	7.81	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	1.13	+	
		<b>Total</b>	<b>320.08</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.487%</b>		
4	24MW BHP (U/S)	Unit- I	6.10	220kV BHP - Semtokha Line	13.90	+	
		Unit- II	6.00	66kV BHP - Lobeyasa Line	8.30	+	
		<b>Total</b>	<b>12.10</b>	220kV BHP - Tsirang Line	12.76	-	
	40MW BHP (L/S)	Unit- I	12.40	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	12.70	30MVA ICT, 220/66kV (HV)	-2.76	-	
		<b>Total</b>	<b>25.10</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>3.602%</b>		
5	126MW DHP	Unit-I	25.30	220kV DHP - Tsirang Line	49.90	+	220kV DHP_Dagapela Line on standby.
		Unit-II	25.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	0.10		
		-	-	5MVA, 220/33kV TFR	0.38	+	
		<b>Total</b>	<b>50.30</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.040%</b>		
6	60MW KHP	Unit- I	15.72	132kV KHP - Nangkhor Line	0.00		132kV KHP-NKO line under shutdown.
		Unit-II	15.86	132kV KHP - Kilikhar Line	63.80	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.35	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	37.92	+	
		<b>Total</b>	<b>64.58</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.666%</b>		

**Note: Generation-Load Summary (MW) for June 08, 2021 at 19:00hrs.**

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Load Balance (MW)
1	Western Grid	1,322.01	247.89	224.29	1,015.37	23.60
2	Eastern Grid	635.88	83.07	79.63	611.56	3.44
<b>Total</b>		<b>1,957.89</b>	<b>330.96</b>	<b>303.92</b>	<b>1,626.93</b>	<b>27.04</b>

**Note: Generation-Load Summary for June 08, 2020 at 19:00hrs.**

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Load Balance (MW)
1	Western Grid	1,021.96	194.31	181.15	783.45	13.16
2	Eastern Grid	658.90	45.84	41.73	657.26	4.11
<b>Total</b>		<b>1,680.86</b>	<b>240.15</b>	<b>222.88</b>	<b>1,440.71</b>	<b>17.27</b>

**NOTE-BHP & MHP data collected 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.

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

Maximum Load/Demand till Date

Date:	June 9, 2021
Hours:	09:00 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	99.73	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance.
		Unit- II	98.88	400kV THP - Siliguri Line - II	196.65	+	
		Unit- III	120.96	400kV THP - Siliguri Line- IV	188.12	+	
		Unit- IV	101.12	400kV THP - Malbase Line - III	225.91	+	
		Unit- V	100.00	400kV Malbase - Siliguri Line	176.96	+	
		Unit- VI	100.60	-	-	-	
		<b>Total</b>	<b>621.29</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.708%</b>		
2	720MW MHP	Unit-I	197.95	400kV MHP - Jigmeling Line - I	294.58	+	Unit-III on breakdown 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400/220kV ICT at JLG opened.
		Unit-II	197.83	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	296.18	+	
		Unit-IV	198.35	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)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I	290.20	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	291.70	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	22.00	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	22.00	+	
		-	-	220kV Tsirang - Jigmeling Line	45.07	+	
		-	-	132kV Gelephu - Salakati Line	16.00	+	
<b>Total</b>	<b>594.13</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.567%</b>				
3	336MW CHP	Unit- I	67.01	220kV CHP - Birpara Line- I	66.93	+	
		Unit- II	65.22	220kV CHP - Birpara Line- II	67.07	+	
		Unit- III	67.19	220kV CHP - Malbase Line- III	121.30	+	
		Unit- IV	68.13	220kV CHP - Semtokha Line- IV	4.71	-	
		-	-	220kV Malbase - Birpara Line	15.96	+	
		-	-	66kV CHP - Chumdo Line	4.63	+	
		-	-	66kV CHP - Gedu Line	3.15	+	
		-	-	3x3MVA, 66/11kV TFR	0.70	+	
<b>Total</b>	<b>267.55</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.351%</b>				
4	24MW BHP (U/S)	Unit- I	9.10	220kV BHP - Semtokha Line	39.35	+	
		Unit- II	8.90	66kV BHP - Lobeysa Line	17.40	+	
		<b>Total</b>	<b>18.00</b>	220kV BHP - Tsirang Line	-5.24	-	
	40MW BHP (L/S)	Unit- I	16.60	5MVA, 66/11kV TFR	0.83	+	
		Unit- II	16.60	30MVA ICT, 220/66kV (HV)	-0.85	-	
		<b>Total</b>	<b>33.20</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-2.227%</b>		
5	126MW DHP	Unit-I	27.25	220kV DHP - Tsirang Line	51.86	+	220kV DHP_Dagapela Line on standby.
		Unit-II	24.99	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.10		
		-	-	5MVA, 220/33kV TFR	0.40	+	
		<b>Total</b>	<b>52.24</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.038%</b>		
6	60MW KHP	Unit- I	15.49	132kV KHP - Nangkhor Line	0.00		132kV KHP-NKO line under shutdown.
		Unit-II	15.67	132kV KHP - Kilikhar Line	63.28	+	
		Unit- III	16.66	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	37.48	+	
		<b>Total</b>	<b>64.32</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.150%</b>		

**Note: Generation-Load Summary (MW) for June 09, 2021 at 09:00hrs.**

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Load Balance (MW)
1	Western Grid	992.28	235.52	228.11	711.69	7.41
2	Eastern Grid	658.45	68.14	64.03	635.38	4.11
<b>Total</b>		<b>1,650.73</b>	<b>303.66</b>	<b>292.14</b>	<b>1,347.07</b>	<b>11.52</b>

**Note: Generation-Load Summary for June 09, 2020 at 09:00hrs.**

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Load Balance (MW)
1	Western Grid	1,106.88	199.40	185.21	872.98	14.19
2	Eastern Grid	659.55	31.16	26.89	662.98	4.27
<b>Total</b>		<b>1,766.43</b>	<b>230.56</b>	<b>212.10</b>	<b>1,535.96</b>	<b>18.46</b>

**NOTE-BHP & MHP collected 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.