

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

**Coincidental Maximum Load**

<b>Date:</b>	<b>June 1, 2022</b>
<b>Hours:</b>	<b>19:00 Hours</b>

<b>Date</b>	<b>Time</b>	<b>Load(MW)</b>
12-Jan-22	18:00hrs	492.25

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	0.00	Unit-III on standby. Unit I & V under maintenance. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	158.34	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	173.40	
		Unit- IV	139.32	400kV THP - Malbase Line - III	260.81	
		Unit- V	0.00	400kV Malbase - Siliguri Line	153.13	
		Unit- VI	140.01	-	-	
		<b>Total</b>	<b>437.67</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.79%</b>	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	Unit- I & IV on standby 400kV MHP-JLG Line I & II under Shutdown. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby.
		Unit-II	140.18	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	140.79	400kV MHP - Jigmeling Line - III	140.59	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	139.53	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	72.49	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	82.07	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	122.59	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.08	
		-	-	80MVA, 220/132kV ICT - II (HV)	20.48	
		-	-	220kV Tsirang - Jigmeling Line	-11.12	
-	-	132kV Gelephu - Salakati Line	4.95			
<b>Total</b>	<b>280.97</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.30%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	36.98	Unit-I on standby.
		Unit- II	68.20	220kV CHP - Birpara Line- II	36.86	
		Unit- III	70.09	220kV CHP - Malbase Line- III	53.12	
		Unit- IV	71.06	220kV CHP - Semtokha Line- IV	62.21	
		-	-	220kV Malbase - Birpara Line	18.82	
		-	-	66kV CHP - Chumdo Line	14.63	
		-	-	66kV CHP - Gedu Line	4.01	
		-	-	3x3MVA, 66/11kV TFR	1.19	
<b>Total</b>	<b>209.35</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.17%</b>			
4	24MW BHP (U/S)	Unit- I	6.30	220kV BHP - Semtokha Line	41.01	
		Unit- II	6.00	66kV BHP - Lobeyasa Line	21.99	
		<b>Total</b>	<b>12.30</b>	220kV BHP - Tsirang Line	-31.72	
5	40MW BHP (L/S)	Unit- I	9.40	5MVA, 66/11kV TFR	0.57	
		Unit- II	10.20	30MVA ICT, 220/66kV (HV)	10.20	
		<b>Total</b>	<b>19.60</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.16%</b>	
6	126MW DHP	Unit-I	22.71	220kV DHP - Tsirang Line	22.50	Unit-II on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	21.70	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>22.71</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.04%</b>			
7	60MW KHP	Unit- I	16.52	132kV KHP - Nangkhoh Line	44.59	
		Unit-II	16.48	132kV KHP - Kilikhar Line	20.33	
		Unit- III	16.46	5MVA, 132/11kV TFR	0.59	
		Unit- IV	16.55	132kV Motanga - Rangia Line	43.39	
		<b>Total</b>	<b>66.01</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.76%</b>	

**Note: Generation-Load Summary (MW) for June 01, 2022 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)
1	Western Grid	701.63	293.56	289.69	419.19	3.87
2	Eastern Grid	346.98	82.86	81.51	253.00	1.35
<b>Total</b>		<b>1,048.61</b>	<b>376.42</b>	<b>371.20</b>	<b>672.19</b>	<b>5.22</b>

**Note: Generation-Load Summary for June 01, 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)
1	Western Grid	1,066.36	238.25	230.62	780.81	7.63
2	Eastern Grid	547.04	63.65	60.20	530.69	3.45
<b>Total</b>		<b>1,613.40</b>	<b>301.90</b>	<b>290.82</b>	<b>1,311.50</b>	<b>11.08</b>

**NOTE- BHP data collected from site.**

- The Instantaneous load balance,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**

**Coincidental Maximum Load**

<b>Date:</b>	<b>June 2, 2022</b>
<b>Hours:</b>	<b>09:00 Hours</b>

<b>Date</b>	<b>Time</b>	<b>Load(MW)</b>
12-Jan-22	18:00hrs	492.25

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	0.00	Unit- I, III & V on standby. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	139.94	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	149.33	
		Unit- IV	89.97	400kV THP - Malbase Line - III	215.49	
		Unit- V	0.00	400kV Malbase - Siliguri Line	136.03	
		Unit- VI	139.46	-	-	
		<b>Total</b>	<b>369.37</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.23%</b>	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	Unit- I & IV on standby. 400kV MHP-JLG Line I & II under shutdown. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby.
		Unit-II	170.22	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	180.63	400kV MHP - Jigmeling Line - III	175.55	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	174.58	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	50.32	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	177.43	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	117.83	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	27.75	
		-	-	80MVA, 220/132kV ICT - II (HV)	28.17	
		-	-	220kV Tsirang - Jigmeling Line	27.90	
-	-	132kV Gelephu - Salakati Line	14.20			
<b>Total</b>	<b>350.85</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.21%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	39.65	Unit-I on standby
		Unit- II	61.62	220kV CHP - Birpara Line- II	39.83	
		Unit- III	66.50	220kV CHP - Malbase Line- III	66.62	
		Unit- IV	65.29	220kV CHP - Semtokha Line- IV	30.85	
		-	-	220kV Malbase - Birpara Line	13.04	
		-	-	66kV CHP - Chumdo Line	10.82	
		-	-	66kV CHP - Gedu Line	4.47	
		-	-	3x3MVA, 66/11kV TFR	0.88	
<b>Total</b>	<b>193.41</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.15%</b>			
4	24MW BHP (U/S)	Unit- I	10.50	220kV BHP - Semtokha Line	61.90	
		Unit- II	10.20	66kV BHP - Lobeysa Line	23.32	
		<b>Total</b>	<b>20.70</b>	220kV BHP - Tsirang Line	-30.08	
5	40MW BHP (L/S)	Unit- I	17.80	5MVA, 66/11kV TFR	0.36	
		Unit- II	18.00	30MVA ICT, 220/66kV (HV)	4.07	
		<b>Total</b>	<b>35.80</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.77%</b>	
6	126MW DHP	Unit-I	60.31	220kV DHP - Tsirang Line	60.06	Unit-II on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	21.84	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>60.31</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.08%</b>			
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	44.32	
		Unit-II	16.50	132kV KHP - Kilikhar Line	20.80	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.39	
		Unit- IV	16.50	132kV Motanga - Rangia Line	47.69	
		<b>Total</b>	<b>66.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.75%</b>	

**Note: Generation-Load Summary (MW) for June 02, 2022 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)
1	Western Grid	679.59	273.81	267.92	377.88	5.89
2	Eastern Grid	416.85	87.60	86.39	357.15	1.21
<b>Total</b>		<b>1,096.44</b>	<b>361.41</b>	<b>354.31</b>	<b>735.03</b>	<b>7.10</b>

**Note: Generation-Load Summary for June 02, 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)
1	Western Grid	984.94	219.96	206.46	726.19	13.50
2	Eastern Grid	656.93	65.63	55.03	629.90	10.60
<b>Total</b>		<b>1,641.87</b>	<b>285.59</b>	<b>261.49</b>	<b>1,356.09</b>	<b>24.10</b>

**NOTE-BHP & All EAST load collected from Site.**

1. The Instantaneous load balance,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.