

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

**Coincidental Maximum Load**

<b>Date:</b>	<b>March 5, 2022</b>
<b>Hours:</b>	<b>18:00 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	THP under total Shutdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-41.52	
		Unit- VI	0.00	-	-	
		<b>Total</b>	<b>0.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.00%</b>	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	208.50	Unit-I & II under Annual Maintenance .400kV MHP-JLG Line III under Annual Maintenance . 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG-ALI I ( Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	100.72	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	109.04	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)	84.80	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	44.36	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	72.47	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	12.98	
		-	-	80MVA, 220/132kV ICT - II (HV)	13.15	
		-	-	220kV Tsirang - Jigmeling Line	-72.84	
-	-	132kV Gelephu - Salakati Line	-12.22			
<b>Total</b>	<b>209.76</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.60%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	7.50	Unit-I under maintenance. Unit II under breakdown.
		Unit- II	0.00	220kV CHP - Birpara Line- II	7.61	
		Unit- III	86.90	220kV CHP - Malbase Line- III	75.13	
		Unit- IV	82.00	220kV CHP - Semtokha Line- IV	54.88	
		-	-	220kV Malbase - Birpara Line	-45.78	
		-	-	66kV CHP - Chumdo Line	17.82	
		-	-	66kV CHP - Gedu Line	2.78	
		-	-	3x3MVA, 66/11kV TFR	1.56	
<b>Total</b>	<b>168.90</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.96%</b>			
4	24MW BHP (U/S)	Unit- I	7.20	220kV BHP - Semtokha Line	72.80	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	24.14	
		<b>Total</b>	<b>7.20</b>	<b>220kV BHP - Tsirang Line</b>	<b>-69.87</b>	
5	40MW BHP (L/S)	Unit- I	20.20	5MVA, 66/11kV TFR	0.61	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	17.76	
		<b>Total</b>	<b>20.20</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-1.02%</b>	
6	126MW DHP	Unit-I	26.18	220kV DHP - Tsirang Line	0.00	Unit-II under Annual Maintenance. 220kV DHP_Tsirang Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	25.95	
		-	-	220kV Jigmeling - Dagapela Line	-17.26	
		-	-	5MVA, 220/33kV TFR	0.15	
<b>Total</b>	<b>26.18</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.31%</b>			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	14.02	Unit-I under AMP. Unit-IV on Standby.
		Unit-II	15.09	132kV KHP - Kilikhar Line	15.26	
		Unit- III	15.10	5MVA, 132/11kV TFR	0.58	
		Unit- IV	0.00	132kV Motanga - Rangia Line	-1.39	
		<b>Total</b>	<b>30.19</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.09%</b>	

**Note: Generation-Load Summary (MW) for March 05, 2022 at 18:00hrs.**

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	222.48	367.51	366.09	-72.19	1.42
2	Eastern Grid	239.95	63.89	62.30	103.22	1.59
<b>Total</b>		<b>462.43</b>	<b>431.40</b>	<b>428.39</b>	<b>31.03</b>	<b>3.01</b>

**Note: Generation-Load Summary for March 05, 2021 at 18:00hrs.**

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	225.54	216.88	213.22	-0.59	3.66
2	Eastern Grid	110.53	67.44	66.10	52.34	1.34
<b>Total</b>		<b>336.07</b>	<b>284.32</b>	<b>279.32</b>	<b>51.75</b>	<b>5.00</b>

**NOTE- BHP data 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.

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

**Coincidental Maximum Load**

<b>Date:</b>	<b>March 6, 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	THP under total shutdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-41.60	
		Unit- VI	0.00	-	-	
		<b>Total</b>	<b>0.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.00%</b>	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	179.12	Unit-I & II under Annual Maintenance. 400kV MHP-JLG Line III under Annual Maintenance. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG-ALI I ( Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	85.18	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	94.61	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)	70.52	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	40.72	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	64.46	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	14.33	
		-	-	80MVA, 220/132kV ICT - II (HV)	14.55	
		-	-	220kV Tsirang - Jigmeling Line	-62.87	
-	-	132kV Gelephu - Salakati Line	-8.98			
<b>Total</b>	<b>179.79</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.37%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	9.24	Unit-III standby. Unit-I under Annual Maintenance.
		Unit- II	83.06	220kV CHP - Birpara Line- II	9.32	
		Unit- III	0.00	220kV CHP - Malbase Line- III	76.04	
		Unit- IV	80.89	220kV CHP - Semtokha Line- IV	48.43	
		-	-	220kV Malbase - Birpara Line	-43.93	
		-	-	66kV CHP - Chumdo Line	14.89	
		-	-	66kV CHP - Gedu Line	3.28	
		-	-	3x3MVA, 66/11kV TFR	1.37	
<b>Total</b>	<b>163.95</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.84%</b>			
4	24MW BHP (U/S)	Unit- I	7.70	220kV BHP - Semtokha Line	64.75	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeysa Line	22.16	
		<b>Total</b>	<b>7.70</b>	220kV BHP - Tsirang Line	-59.34	
5	40MW BHP (L/S)	Unit- I	20.10	5MVA, 66/11kV TFR	0.45	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	15.10	
		<b>Total</b>	<b>20.10</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-0.79%</b>	
6	126MW DHP	Unit-I	30.18	220kV DHP - Tsirang Line	0.00	Unit-II under Annual maintenance. 220kV DHP_Tsirang Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	29.96	
		-	-	220kV Jigmeling - Dagapela Line	-21.18	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>30.18</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.07%</b>			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	15.01	Unit-I under AMP. Unit-IV on Standby.
		Unit-II	15.07	132kV KHP - Kilikhar Line	14.19	
		Unit- III	15.12	5MVA, 132/11kV TFR	0.60	
		Unit- IV	0.00	132kV Motanga - Rangia Line	2.90	
		<b>Total</b>	<b>30.19</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.29%</b>	

**Note: Generation-Load Summary (MW) for March 06, 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	221.93	351.77	350.59	-66.97	1.18
2	Eastern Grid	209.98	48.01	46.95	99.10	1.06
<b>Total</b>		<b>431.91</b>	<b>399.78</b>	<b>397.54</b>	<b>32.13</b>	<b>2.24</b>

**Note: Generation-Load Summary for March 06, 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	254.95	241.03	242.37	14.39	-1.34
2	Eastern Grid	134.78	56.98	55.75	77.33	1.23
<b>Total</b>		<b>389.73</b>	<b>298.01</b>	<b>298.12</b>	<b>91.72</b>	<b>-0.11</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.