

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

**Coincidental Maximum Load**

**Date:** March 22, 2022  
**Hours:** 18:00 Hours

**Date**      **Time**      **Load(MW)**  
 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, II & III on Standby. 400kV THP- Siliguri - I under Shutdown. 400kV THP- Siliguri - II under Breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	116.36	
		Unit- IV	104.84	400kV THP - Malbase Line - III	199.89	
		Unit- V	74.09	400kV Malbase - Siliguri Line	96.76	
		Unit- VI	138.97	-	-	
		<b>Total</b>	<b>317.90</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.52%</b>	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	193.12	Unit-I & II under Annual Maintenance. 400kV MHP-JLG Line II,III & IV on standby. 132kV MHP_Yurmo 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	57.36	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	137.48	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)	77.36	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	43.63	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	68.42	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	22.59	
		-	-	80MVA, 220/132kV ICT - II (HV)	22.90	
		-	-	220kV Tsirang - Jigmeling Line	-48.00	
-	-	132kV Gelephu - Salakati Line	3.17			
<b>Total</b>	<b>194.84</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.88%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	21.31	Unit-I under maintenance. Unit-II on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	21.35	
		Unit- III	78.68	220kV CHP - Malbase Line- III	46.17	
		Unit- IV	79.93	220kV CHP - Semtokha Line- IV	50.35	
		-	-	220kV Malbase - Birpara Line	-1.18	
		-	-	66kV CHP - Chumdo Line	13.02	
		-	-	66kV CHP - Gedu Line	3.45	
		-	-	3x3MVA, 66/11kV TFR	1.23	
<b>Total</b>	<b>158.61</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.09%</b>			
4	24MW BHP (U/S)	Unit- I	8.00	220kV BHP - Semtokha Line	52.40	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	23.05	
		<b>Total</b>	<b>8.00</b>	<b>220kV BHP - Tsirang Line</b>	<b>-48.32</b>	
5	40MW BHP (L/S)	Unit- I	20.10	5MVA, 66/11kV TFR	0.72	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	15.95	
		<b>Total</b>	<b>20.10</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.89%</b>	
6	126MW DHP	Unit-I	24.71	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	24.49	
		-	-	220kV Jigmeling - Dagapela Line	-17.48	
		-	-	5MVA, 220/33kV TFR	0.21	
<b>Total</b>	<b>24.71</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Gen. end</b>	<b>0.04%</b>			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	24.16	Unit-I on Standby.
		Unit-II	14.99	132kV KHP - Kilikhar Line	20.04	
		Unit- III	15.15	5MVA, 132/11kV TFR	0.57	
		Unit- IV	14.95	132kV Motanga - Rangia Line	31.37	
		<b>Total</b>	<b>45.09</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.71%</b>	

**Note: Generation-Load Summary (MW) for March 22, 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	529.32	322.72	319.08	254.60	3.64
2	Eastern Grid	239.93	45.34	43.30	146.59	2.04
<b>Total</b>		<b>769.25</b>	<b>368.06</b>	<b>362.38</b>	<b>401.19</b>	<b>5.68</b>

**Note: Generation-Load Summary for March 22, 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	105.73	230.28	233.58	-89.87	-3.30
2	Eastern Grid	139.68	55.80	55.14	49.20	0.66
<b>Total</b>		<b>245.41</b>	<b>286.08</b>	<b>288.72</b>	<b>-40.67</b>	<b>-2.64</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>March 23, 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, II & III on Standby. 400kV THP- Siliguri - I under Shutdown. 400kV THP- Siliguri - II under Breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	108.94	
		Unit- IV	95.18	400kV THP - Malbase Line - III	196.49	
		Unit- V	74.71	400kV Malbase - Siliguri Line	88.36	
		Unit- VI	138.96	-	-	
		<b>Total</b>	<b>308.85</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.11%</b>	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	227.38	Unit-I & II under Annual Maintenance. 400kV MHP-JLG Line II,III & IV on standby. 132kV MHP_Yurmo 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	80.65	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	148.25	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)	75.65	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	58.18	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	90.05	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	24.59	
		-	-	80MVA, 220/132kV ICT - II (HV)	24.95	
		-	-	220kV Tsirang - Jigmeling Line	-46.27	
-	-	132kV Gelephu - Salakati Line	8.25			
<b>Total</b>	<b>228.90</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.66%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	15.44	Unit-I under Annual Maintenance. Unit-II under standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	15.48	
		Unit- III	76.94	220kV CHP - Malbase Line- III	52.84	
		Unit- IV	74.18	220kV CHP - Semtokha Line- IV	49.55	
		-	-	220kV Malbase - Birpara Line	-14.00	
		-	-	66kV CHP - Chumdo Line	12.14	
		-	-	66kV CHP - Gedu Line	3.65	
		-	-	3x3MVA, 66/11kV TFR	1.06	
<b>Total</b>	<b>151.12</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.64%</b>			
4	24MW BHP (U/S)	Unit- I	8.30	220kV BHP - Semtokha Line	50.50	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeysa Line	21.27	
		<b>Total</b>	<b>8.30</b>	220kV BHP - Tsirang Line	-43.75	
5	40MW BHP (L/S)	Unit- I	20.00	5MVA, 66/11kV TFR	0.42	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	13.54	
		<b>Total</b>	<b>20.00</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>-0.49%</b>	
6	126MW DHP	Unit-I	28.22	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	27.99	
		-	-	220kV Jigmeling - Dagapela Line	-20.57	
		-	-	5MVA, 220/33kV TFR	0.20	
<b>Total</b>	<b>28.22</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>0.11%</b>			
7	60MW KHP	Unit- I	15.09	132kV KHP - Nangkhoh Line	25.91	Unit-IV on Standby.
		Unit-II	15.07	132kV KHP - Kilikhar Line	18.31	
		Unit- III	15.02	5MVA, 132/11kV TFR	0.50	
		Unit- IV	0.00	132kV Motanga - Rangia Line	17.11	
		<b>Total</b>	<b>45.18</b>	<b>Auxiliary Consumption &amp; Transformation Losses at Generator end</b>	<b>1.02%</b>	

**Note: Generation-Load Summary (MW) for March 23, 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	516.49	348.54	344.27	214.22	4.27
2	Eastern Grid	274.08	54.22	52.24	173.59	1.98
<b>Total</b>		<b>790.57</b>	<b>402.76</b>	<b>396.51</b>	<b>387.81</b>	<b>6.25</b>

**Note: Generation-Load Summary for March 23, 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	276.03	262.39	256.48	48.71	5.91
2	Eastern Grid	170.63	60.43	59.51	75.13	0.92
<b>Total</b>		<b>446.66</b>	<b>322.82</b>	<b>315.99</b>	<b>123.84</b>	<b>6.83</b>

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