

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

Maximum Load/Demand till Date

Date:	May 2, 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	90.08	400kV THP - Siliguri Line - I	42.45		Unit-II & VI on standby. Unit-III & IV under AMP. 400kV THP_SIL Line II & IV on Standby.
		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	122.97	+	
		Unit- V	79.95	400kV Malbase - Siliguri Line	21.91		
		Unit- VI	0.00	-	-	-	
		<b>Total</b>	<b>170.03</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.711%</b>		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	77.09		Unit-I under AMP. Unit -III under breakdown. 400kV MHP-JLG Line I, II & III on standby. 132kV MHP_Yurmo line I & II not in service. 400/220kV ICT at JLG not in service. 400kV JLG_ALI line II on standby.
		Unit-II	60.21	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00		
		Unit-IV	95.85	400kV MHP - Jigmeling Line - IV	77.45	+	
		-	-	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	153.60	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	9.30	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	9.30	+	
		-	-	220kV Tsirang - Jigmeling Line	20.70	-	
		-	-	132kV Gelephu - Salakati Line	-22.92	-	
<b>Total</b>	<b>156.06</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.974%</b>				
3	336MW CHP	Unit- I	48.00	220kV CHP - Birpara Line- I	-3.00	-	Unit-II on standby. Unit-IV under AMP. 220kV CHP_BIR line II on standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	0.00		
		Unit- III	46.00	220kV CHP - Malbase Line- III	26.00	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	55.00	+	
		-	-	220kV Malbase - Birpara Line	-29.27	-	
		-	-	66kV CHP - Chumdo Line	11.00	+	
		-	-	66kV CHP - Gedu Line	3.90	+	
		-	-	3x3MVA, 66/11kV TFR	1.51	+	
<b>Total</b>	<b>94.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.436%</b>				
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	-9.20	-	U/S Unit-I & L/S Unit-II on standby
		Unit- II	4.00	66kV BHP - Lobeysa Line	9.55	+	
		<b>Total</b>	<b>4.00</b>	220kV BHP - Tsirang Line	11.30	+	
	40MW BHP (L/S)	Unit- I	8.60	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	5.52	+	
<b>Total</b>	<b>8.60</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.556%</b>				
5	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	14.00	+	Unit-I on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	14.22	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.90	+	
		-	-	5MVA, 220/33kV TFR	0.24	+	
		<b>Total</b>	<b>14.22</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.141%</b>		
6	60MW KHP	Unit- I	14.04	132kV KHP - Nangkhor Line	17.67	+	Unit-III & IV Standby.
		Unit-II	14.10	132kV KHP - Kilikhar Line	9.63	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.54	+	
		Unit- IV	0.00	132kV Motanga - Rangia Line	6.60	+	
		<b>Total</b>	<b>28.14</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.066%</b>		

**Note: Generation-Load Summary (MW) for May 02, 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	290.85	238.06	235.71	32.09	2.35
2	Eastern Grid	184.20	67.62	65.80	137.28	1.82
<b>Total</b>		<b>475.05</b>	<b>305.68</b>	<b>301.51</b>	<b>169.37</b>	<b>4.17</b>

**Note: Generation-Load Summary for May 02, 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	885.88	272.26	263.61	599.04	8.65
2	Eastern Grid	65.42	51.97	51.47	28.03	0.50
<b>Total</b>		<b>951.30</b>	<b>324.23</b>	<b>315.08</b>	<b>627.07</b>	<b>9.15</b>

**NOTE-BHP,CHP,DHP & 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:	May 3, 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	90.20	400kV THP - Siliguri Line - I	69.90	+	Unit-II & VI on standby. Unit-III & IV under AMP. 400kV THP_SIL Line II & IV on Standby.
		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	125.64	+	
		Unit- V	110.11	400kV Malbase - Siliguri Line	51.50	+	
		Unit- VI	-	-	-	-	
		<b>Total</b>	<b>200.31</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>2.381%</b>	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	82.52	+	Unit-I under AMP. Unit -III under breakdown. 400kV MHP-JLG Line I, II & III on standby. 132kV MHP_Yurmo line I & II not in service. 400/220kV ICT at JLG not in service. 400kV JLG_ALI line II on standby.
		Unit-II	60.16	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00		
		Unit-IV	105.87	400kV MHP - Jigmeling Line - IV	83.89	+	
		-	-	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	163.60	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	5.60	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	5.50	+	
		-	-	220kV Tsirang - Jigmeling Line	11.90	+	
		-	-	132kV Gelephu - Salakati Line	-13.72	-	
<b>Total</b>	<b>166.03</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>-0.229%</b>			
3	336MW CHP	Unit- I	48.00	220kV CHP - Birpara Line- I	7.20	+	Unit-II on standby. Unit-IV under AMP. 220kV CHP_BIR line II on standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	0.00		
		Unit- III	46.00	220kV CHP - Malbase Line- III	45.30	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	28.80	+	
		-	-	220kV Malbase - Birpara Line	-30.31	-	
		-	-	66kV CHP - Chumdo Line	6.90	+	
		-	-	66kV CHP - Gedu Line	4.20	+	
		-	-	3x3MVA, 66/11kV TFR	0.89	+	
<b>Total</b>	<b>94.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>0.755%</b>			
4	24MW BHP (U/S)	Unit- I	4.10	220kV BHP - Semtokha Line	5.00	+	U/S Unit-I & L/S Unit-II on standby
		Unit- II	0.00	66kV BHP - Lobeyasa Line	10.20	+	
		<b>Total</b>	<b>4.10</b>	220kV BHP - Tsirang Line	-3.00	-	
	40MW BHP (L/S)	Unit- I	9.00	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	7.04	+	
<b>Total</b>	<b>9.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>0.153%</b>			
5	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	14.36	+	Unit-I on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	14.56	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.00	+	
		-	-	5MVA, 220/33kV TFR	0.20	+	
		<b>Total</b>	<b>14.56</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>0.000%</b>	
6	60MW KHP	Unit- I	13.06	132kV KHP - Nangkhor Line	14.08	+	Unit-III & IV standby.
		Unit-II	13.07	132kV KHP - Kilikhar Line	11.37	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.38	+	
		Unit- IV	0.00	132kV Motanga - Rangia Line	1.76	+	
		<b>Total</b>	<b>26.13</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>1.148%</b>	

**Note: Generation-Load Summary (MW) for May 03, 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	321.97	211.78	207.28	98.29	4.50
2	Eastern Grid	192.16	52.42	52.50	151.64	-0.08
<b>Total</b>		<b>514.13</b>	<b>264.20</b>	<b>259.78</b>	<b>249.93</b>	<b>4.42</b>

**Note: Generation-Load Summary for May 03, 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	820.50	264.66	255.83	559.08	8.83
2	Eastern Grid	65.94	41.47	40.93	21.23	0.54
<b>Total</b>		<b>886.44</b>	<b>306.13</b>	<b>296.76</b>	<b>580.31</b>	<b>9.37</b>

**NOTE- BHP,CHP,DHP & MHP data collected 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.