

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>May 17, 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	0.00	400kV THP - Siliguri Line - I	119.45	+	Unit-I under AMP. Unit-IV & V on standby. 400kV THP_SIL Line II & IV on Standby.
		Unit- II	100.48	400kV THP - Siliguri Line - II	0.00		
		Unit- III	120.79	400kV THP - Siliguri Line- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	195.37	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	94.71	+	
		Unit- VI	98.30	-	-	-	
		<b>Total</b>	<b>319.57</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>1.486%</b>	
2	720MW MHP	Unit-I	179.92	400kV MHP - Jigmeling Line - I	0.00		Unit-III under breakdown. Unit-IV under shutdown. 400kV MHP-JLG Line I & 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	149.93	400kV MHP - Jigmeling Line - II	164.01	+	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	164.00	+	
		-	-	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	324.10	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	10.50	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	10.50	+	
		-	-	220kV Tsirang - Jigmeling Line	22.87	+	
		-	-	132kV Gelephu - Salakati Line	-14.98	-	
<b>Total</b>	<b>329.85</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>0.558%</b>			
3	336MW CHP	Unit- I	52.00	220kV CHP - Birpara Line- I	45.54	+	Unit-II on standby. 220kV CHP-MAL line under shutdown.
		Unit- II	0.00	220kV CHP - Birpara Line- II	45.30	+	
		Unit- III	56.24	220kV CHP - Malbase Line- III	0.00		
		Unit- IV	52.33	220kV CHP - Semtokha Line- IV	51.37	+	
		-	-	220kV Malbase - Birpara Line	-31.99	-	
		-	-	66kV CHP - Chumdo Line	9.66	+	
		-	-	66kV CHP - Gedu Line	5.31	+	
		-	-	3x3MVA, 66/11kV TFR	1.30	+	
<b>Total</b>	<b>160.57</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>1.302%</b>			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	-12.00	-	U/S Unit-I & L/S Unit I on standby.
		Unit- II	5.20	66kV BHP - Lobeyasa Line	16.80	+	
		<b>Total</b>	<b>5.20</b>	220kV BHP - Tsirang Line	10.55	+	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.83	+	
		Unit- II	10.60	30MVA ICT, 220/66kV (HV)	-12.00	-	
<b>Total</b>	<b>10.60</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>-2.405%</b>			
5	126MW DHP	Unit-I	15.55	220kV DHP - Tsirang Line	15.46	+	Unit-II on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.70	+	
		-	-	5MVA, 220/33kV TFR	0.09	+	
		<b>Total</b>	<b>15.55</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>0.000%</b>	
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	19.63	+	Unit-I on standby.
		Unit-II	13.08	132kV KHP - Kilikhar Line	18.07	+	
		Unit- III	13.15	5MVA, 132/11kV TFR	0.44	+	
		Unit- IV	12.53	132kV Motanga - Rangia Line	14.28	+	
		<b>Total</b>	<b>38.76</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>1.600%</b>	

**Note: Generation-Load Summary (MW) for May 17, 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	511.49	215.61	210.85	273.01	4.76
2	Eastern Grid	368.61	68.08	65.62	323.40	2.46
<b>Total</b>		<b>880.10</b>	<b>283.69</b>	<b>276.47</b>	<b>596.41</b>	<b>7.22</b>

**Note: Generation-Load Summary for May 17, 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	678.58	241.70	222.30	399.52	19.40
2	Eastern Grid	356.64	62.64	60.39	331.26	2.25
<b>Total</b>		<b>1,035.22</b>	<b>304.34</b>	<b>282.69</b>	<b>730.78</b>	<b>21.65</b>

**NOTE-BHP & 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.

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>May 18, 2021</b>
<b>Hours:</b>	<b>09:00 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	0.00	400kV THP - Siliguri Line - I	105.54	+	Unit-I under AMP. Unit-IV & V on standby. 400kV THP_SIL Line II & IV on Standby.
		Unit- II	99.97	400kV THP - Siliguri Line - II	0.00		
		Unit- III	80.28	400kV THP - Siliguri Line- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	168.45	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	83.98	+	
		Unit- VI	100.27	-	-	-	
		<b>Total</b>	<b>280.52</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>2.328%</b>	
2	720MW MHP	Unit-I	135.27	400kV MHP - Jigmeling Line - I	0.00		Unit-III under breakdown. Unit-IV on standby. 400kV MHP-JLG Line I & III on standby. 132kV MHP_Yurmoo line I & II not in service. 400/220kV ICT at JLG not in service. 400kV JLG_ALI line II on standby.
		Unit-II	184.81	400kV MHP - Jigmeling Line - II	158.66	+	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	159.07	+	
		-	-	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	314.80	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	7.00	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	5.00	+	
		-	-	220kV Tsirang - Jigmeling Line	15.00	+	
		-	-	132kV Gelephu - Salakati Line	-4.18	-	
<b>Total</b>	<b>320.08</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>0.734%</b>			
3	336MW CHP	Unit- I	44.88	220kV CHP - Birpara Line- I	45.38	+	Unit- II on standby. 220kV CHP_MAL under shutdown(17.05.2021 to 21.05.2021)
		Unit- II	0.00	220kV CHP - Birpara Line- II	45.39	+	
		Unit- III	49.34	220kV CHP - Malbase Line- III	0.00		
		Unit- IV	47.57	220kV CHP - Semtokha Line- IV	36.01	+	
		-	-	220kV Malbase - Birpara Line	-56.03	-	
		-	-	66kV CHP - Chumdo Line	6.04	+	
		-	-	66kV CHP - Gedu Line	7.06	+	
		-	-	3x3MVA, 66/11kV TFR	0.70	+	
<b>Total</b>	<b>141.79</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>0.853%</b>			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	-7.50	-	U/S Unit-I & L/S Unit-I on standby.
		Unit- II	5.20	66kV BHP - Lobeyasa Line	19.20	+	
		<b>Total</b>	<b>5.20</b>	220kV BHP - Tsirang Line	1.40	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	8.80	30MVA ICT, 220/66kV (HV)	14.84	+	
<b>Total</b>	<b>8.80</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>0.143%</b>			
5	126MW DHP	Unit-I	15.37	220kV DHP - Tsirang Line	15.16	+	Unit-II on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.00	+	
		-	-	5MVA, 220/33kV TFR	0.20	+	
		<b>Total</b>	<b>15.37</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>0.065%</b>	
6	60MW KHP	Unit- I	14.06	132kV KHP - Nangkhor Line	35.75	+	
		Unit-II	14.13	132kV KHP - Kilikhar Line	19.63	+	
		Unit- III	14.15	5MVA, 132/11kV TFR	0.35	+	
		Unit- IV	14.05	132kV Motanga - Rangia Line	22.60	+	
		<b>Total</b>	<b>56.39</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>1.170%</b>	

**Note: Generation-Load Summary (MW) for May 18, 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	451.68	212.42	205.65	224.26	6.77
2	Eastern Grid	376.47	58.25	55.24	333.22	3.01
<b>Total</b>		<b>828.15</b>	<b>270.67</b>	<b>260.89</b>	<b>557.48</b>	<b>9.78</b>

**Note: Generation-Load Summary for May 18, 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	843.50	193.53	181.08	619.76	12.45
2	Eastern Grid	460.10	37.82	35.86	452.49	1.96
<b>Total</b>		<b>1,303.60</b>	<b>231.35</b>	<b>216.94</b>	<b>1,072.25</b>	<b>14.41</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.