

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>March 6, 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	Name of Feeders	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	70.35	400kV THP - Siliguri Fdr- I	0.00		Unit-III on standby. Unit-IV, V & VI under shutdown. 400kV THP-SIL Fdr I on standby. 400kV THP-SIL Fdr IV under AMP.
		Unit- II	60.09	400kV THP - Siliguri Fdr- II	26.46	+	
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	101.03	+	
		Unit- V	0.00	400kV Malbase - Siliguri	10.00	+	
		Unit- VI	0.00	-	-	-	
		<b>Total</b>	<b>130.44</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.262%</b>		
2	720MW MHP	Unit-I	100.03	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II under maintenance. Unit-III under breakdown. Unit- IV on standby. 400kV MHP-JLG Fdr I, II & III on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	98.40	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>100.03</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.630%</b>		
3	336MW CHP	Unit- I	41.00	220kV CHP - Birpara Fdr- I	-13.43	-	Unit I,II & III under ROV 220kV CHP-BIR fdr II under AMP.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	0.00		
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	24.36	+	
		Unit- IV	47.00	220kV CHP - Semtokha Fdr- IV	54.31	+	
		-	-	220kV Malbase - Birpara Fdr.	-39.00	-	
		-	-	66kV CHP - Chumdo Fdr.	15.48	+	
		-	-	66kV CHP - Gedu Fdr.	3.83	+	
		-	-	3x3MVA, 66/11kV TFR	2.09	+	
		<b>Total</b>	<b>88.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.545%</b>		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	9.68	+	U/S Unit-I on standby L/S Unit-I on standby
		Unit- II	5.20	66kV BHP - Lobeysa Fdr.	15.20	+	
		<b>Total</b>	<b>5.20</b>	220kV BHP - Tsirang Fdr.	-9.05	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.85	+	
		Unit- II	11.34	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>11.34</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.846%</b>		
5	126MW DHPC	Unit-I	18.46	220kV DHPC - Tsirang Fdr.	18.26	+	Unit-II AMP
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.	2.70	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>18.46</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.083%</b>		
6	60MW KHP	Unit- I	10.07	132kV KHP - Nangkhon Fdr- I	5.83	+	Unit-III on standby. Unit-IV under Annual Maintenance.
		Unit-II	10.09	132kV KHP - Kilihar Fdr- II	13.44	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.49	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-36.04	-	
		-	-	132kV Motanga - Rangia Fdr.	-10.14	-	
		-	-	220kV Tsirang - Jigmeling	5.31	+	
		<b>Total</b>	<b>20.16</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.984%</b>		

**Note: Generation-Load Summary for March 06, 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	253.44	264.10	262.43	-15.97	1.67
2	Eastern Grid	120.19	73.28	71.25	52.22	2.03
	<b>Total</b>	<b>373.63</b>	<b>337.38</b>	<b>333.68</b>	<b>36.25</b>	<b>3.70</b>

**Note: Generation-Load Summary for March 06, 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	345.24	289.73	282.04	22.39	7.69
2	Eastern Grid	113.41	84.63	82.96	61.9	1.67
	<b>Total</b>	<b>458.65</b>	<b>374.36</b>	<b>365.00</b>	<b>84.29</b>	<b>9.36</b>

**NOTE- Eastern & MAL data collected from 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:	March 7, 2021
Hours:	09:00 Hours

Date	Time	Load(MW)
27-Dec-18	18:18hrs	399.35MW

Sl. No.	Hydropower Plant	Unit	MW	Name of Feeders	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	100.00	400kV THP - Siliguri Fdr- I	0.00		Unit-III on standby. Unit-IV,V &VI under shutdown. 400kV THP-SIL Fdr I on standby. 400kV Tala-SIL IV under AMP.
		Unit- II	60.00	400kV THP - Siliguri Fdr- II	52.00	+	
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	103.00	+	
		Unit- V	0.00	400kV Malbase - Siliguri	40.00	-	
		Unit- VI	0.00	-	-	-	
		<b>Total</b>	<b>160.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>3.125%</b>		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-I standby. Unit-II under maintenance. Unit-III under breakdown. 400kV MHP-JLG Fdr I, II & III on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	100.04	400kV MHP - Jigmeling Fdr - IV	99.78	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>100.04</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.260%</b>		
3	336MW CHP	Unit- I	40.68	220kV CHP - Birpara Fdr- I	3.00	-	Unit- II on standby. Unit-III under AMP 220kV CHP-BIR II under AMP.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	0.00		
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	24.00	+	
		Unit- IV	35.00	220kV CHP - Semtokha Fdr- IV	32.10	+	
		-	-	220kV Malbase - Birpara Fdr.	-14.00	-	
		-	-	66kV CHP - Chumdo Fdr.	13.50	+	
		-	-	66kV CHP - Gedu Fdr.	2.40	+	
		-	-	3x3MVA, 66/11kV TFR	1.57	+	
		<b>Total</b>	<b>75.68</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-1.176%</b>		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	15.50	+	U/S Unit-I on standby. L/S Unit-I on standby.
		Unit- II	5.40	66kV BHP - Lobeysa Fdr.	11.10	+	
	<b>Total</b>	<b>5.40</b>	220kV BHP - Tsirang Fdr.	-10.25	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.88	+	
Unit- II		11.30	30MVA ICT, 220/66kV				
		<b>Total</b>	<b>11.30</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-3.174%</b>		
5	126MW DHPC	Unit-I	18.73	220kV DHPC - Tsirang Fdr.	18.30	+	Unit-II under AMP..
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.	1.40	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>18.73</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.296%</b>		
6	60MW KHP	Unit- I	10.11	132kV KHP - Nangkhon Fdr- I	9.05	+	Unit-III on standby. Unit-IV under Annual Maintenance.
		Unit-II	10.09	132kV KHP - Kilikhar Fdr- II	10.48	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.35	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-21.80	-	
		-	-	132kV Motanga - Rangia Fdr.	-6.31	-	
		-	-	220kV Tsirang - Jigmeling	4.54	+	
		<b>Total</b>	<b>20.20</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.564%</b>		

Note: Generation-Load summary for March 07, 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	271.11	185.57	182.96	81.00	2.61
2	Eastern Grid	120.24	53.11	52.53	71.67	0.58
	<b>Total</b>	<b>391.35</b>	<b>238.68</b>	<b>235.49</b>	<b>152.67</b>	<b>3.19</b>

Note: Generation-Load Summary for March 07, 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	223.40	266.89	262.70	-70.62	4.19
2	Eastern Grid	113.00	71.26	69.96	68.87	1.30
	<b>Total</b>	<b>336.40</b>	<b>338.15</b>	<b>332.66</b>	<b>-1.75</b>	<b>5.49</b>

**NOTE: 66kV OLA-JEM & 66kV SEM-OLA tripped at 8:54 hours and changed at 9:01 hours & 8:55 hours, respectively.**

- 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.