

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

Maximum Load/Demand till Date

Date:	January 15, 2020
Hours:	19:00 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	0.00	400kV THP - Siliguri Fdr- I	72.91	+	Unit- III & V AND 400kV THP_SIL II standby. Unit-I & II under shutdown. 400kV THP_SILL-IV under shutdown.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	139.21	400kV THP - Malbase Fdr- III	142.39	+	
		Unit- V	0.00	400kV Malbase - Siliguri	51.42	+	
		Unit- VI	80.54	-	-	-	
		<b>Total</b>	<b>219.75</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>4.45</b>		
2	720MW MHP	Unit-I	109.88	400kV MHP - Jigmeling Fdr - I	0.00		Unit-III under maintenance. Unit-II & IV standby. 400kV MHP-JLG I & II under shutdown. 400kV MHP-JLG IV standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	107.88	+	
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>109.88</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.00</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.00		220kV CHP-BIR I standby
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	-4.58	-	
		Unit- III	54.88	220kV CHP - Malbase Fdr- III	34.76	+	
		Unit- IV	54.22	220kV CHP - Sementokha Fdr- IV	55.51	+	
		-	-	220kV Malbase - Birpara Fdr.	-33.45	-	
		-	-	66kV CHP - Chumdo Fdr.	15.47	+	
		-	-	66kV CHP - Gedu Fdr.	6.17	+	
		<b>Total</b>	<b>109.10</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.07</b>		
4	24MW BHP (U/S)	Unit- I	6.42	220kV BHP - Sementokha Fdr.	10.81	+	U/S Unit-II & L/S Unit I under maintenance.
		Unit- II	0.00	66kV BHP - Lobeysha Fdr.	17.82	+	
		<b>Total</b>	<b>6.42</b>	220kV BHP - Tsirang Fdr.	-9.64	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.92	+	
		Unit- II	13.48	30MVA ICT, 220/66kV			
<b>Total</b>	<b>13.48</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.01</b>				
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	20.39	+	Unit I at Standby.
		Unit-II	20.63	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>20.63</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.24</b>		
6	60MW KHP	Unit- I	16.05	132kV KHP - Nangkhon Fdr- I	10.25	+	Unit-II & III Annual Maintenance. Unit-IV Standby
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	4.38	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.61	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-19.40	-	
		-	-	132kV Motanga - Rangia Fdr.	-8.33	-	
		-	-	220kV Tsirang - Jigmeling	8.15	+	
		<b>Total</b>	<b>16.05</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.81</b>		

**Note: Load summary on January 15, 2020 at 19:00hrs.**

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	369.38	274.93	270.32	86.30	4.61
2	Eastern Grid	125.93	53.93	51.12	80.15	2.81
	<b>Total</b>	<b>495.31</b>	<b>328.86</b>	<b>321.44</b>	<b>166.45</b>	<b>7.42</b>

**Note: Load Summary on January 15, 2019 at 19:00hrs**

Sl. No	Region	19:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	258.84	258.84	308.60
2	Eastern Grid	56.42	58.43	65.91
	<b>National</b>	<b>315.26</b>	<b>317.27</b>	<b>374.51</b>

**NOTES: Eastern 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:	January 16, 2020
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	0.00	400kV THP - Siliguri Fdr- I	51.00	+	Unit- III & V at standby. Unit-I & II under shutdown. 400kV THP_SILI-IV under shutdown.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	90.00	400kV THP - Malbase Fdr- III	114.00	+	
		Unit- V	0.00	400kV Malbase - Siliguri	36.00	+	
		Unit- VI	80.00	-	-	-	
		<b>Total</b>	<b>170.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>5.00</b>		
2	720MW MHP	Unit-I	105.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-III under maintenance. Unit-I & II standby. 400kV MHP-JLG I & II under shutdown. 400kV MHP-JLG IV standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	105.00	+	
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>105.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.00</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.00		Unit-I & II under shutdownn. 220kV CHP-BIR I Standby
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	-7.90	-	
		Unit- III	34.05	220kV CHP - Malbase Fdr- III	26.10	+	
		Unit- IV	34.20	220kV CHP - Sementokha Fdr- IV	34.10	+	
		-	-	220kV Malbase - Birpara Fdr.	-36.00	-	
		-	-	66kV CHP - Chumdo Fdr.	12.00	+	
		-	-	66kV CHP - Gedu Fdr.	3.90	+	
		<b>Total</b>	<b>68.25</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-1.20</b>		
4	24MW BHP (U/S)	Unit- I	6.60	220kV BHP - Sementokha Fdr.	17.50	+	U/S Unit-II & L/S Unit I under maintenace.
		Unit- II	0.00	66kV BHP - Lobeyasa Fdr.	13.91	+	
		<b>Total</b>	<b>6.60</b>	220kV BHP - Tsirang Fdr.	-13.40	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	13.30	30MVA ICT, 220/66kV			
<b>Total</b>	<b>13.30</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.00</b>				
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	20.40	+	Unit-I at Standby
		Unit-II	20.66	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>20.66</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.26</b>		
6	60MW KHP	Unit- I	12.44	132kV KHP - Nangkhor Fdr- I	18.39	+	Unit-II & III Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	3.23	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	10.26	132kV Gelephu - Salakati Fdr.	-14.80	-	
		-	-	132kV Motanga - Rangia Fdr.	-3.13	-	
		-	-	220kV Tsirang - Jigmeling	1.44	+	
		<b>Total</b>	<b>22.70</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.68</b>		

**Note: Load summary on January 16, 2020 at 09:00hrs.**

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	278.81	234.27	229.21	43.10	5.06
2	Eastern Grid	127.70	42.07	41.39	87.07	0.68
	<b>Total</b>	<b>406.51</b>	<b>276.34</b>	<b>270.60</b>	<b>130.17</b>	<b>5.74</b>

**Note: Load Summary on January 16, 2019 at 09:00hrs**

Sl. No	Region	09:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	224.91	252.70	308.60
2	Eastern Grid	49.95	61.13	65.91
	<b>National</b>	<b>274.86</b>	<b>313.83</b>	<b>374.51</b>

**NOTES:Eastern and Western 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.