

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

Maximum Load/Demand till Date

Date:	April 5, 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	137.61	400kV THP - Siliguri Fdr- I	86.00	+	Unit- II standby. Unit-III &IV under shutdown. 400kV THP-SIL II standby.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	80.35		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	158.50	+	
		Unit- V	69.22	400kV Malbase - Siliguri	63.22	+	
		Unit- VI	120.71	-	-	-	
		<b>Total</b>	<b>327.54</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.69</b>		
2	720MW MHP	Unit-I	130.00	400kV MHP - Jigmeling Fdr - I	0.00	+	Unit- III under standby. Unit- II & IV under shutdown.400kV MHP-JLG I,II & III 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	127.30		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>130.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.70</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	8.51	+	Unit-I & IV under shutdown.
		Unit- II	64.73	220kV CHP - Birpara Fdr- II	8.22	+	
		Unit- III	55.51	220kV CHP - Malbase Fdr- III	40.35	+	
		Unit- IV	0.00	220kV CHP - Sementokha Fdr- IV	44.74	+	
		-	-	220kV Malbase - Birpara Fdr.	-16.95	-	
		-	-	66kV CHP - Chumdo Fdr.	11.92	+	
		-	-	66kV CHP - Gedu Fdr.	3.66	+	
		-	-	3x3MVA, 66/11kV TFR	1.66	+	
<b>Total</b>	<b>120.24</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.18</b>				
4	24MW BHP (U/S)	Unit- I	4.22	220kV BHP - Sementokha Fdr.	2.66	+	U/S Unit-II under shutdown./L/S Unit I standby
		Unit- II	0.00	66kV BHP - Lobeyasa Fdr.	10.57	+	
		<b>Total</b>	<b>4.22</b>	220kV BHP - Tsirang Fdr.	0.81	+	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.84	+	
		Unit- II	11.09	30MVA ICT, 220/66kV			
<b>Total</b>	<b>11.09</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.43</b>				
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	14.70	+	Unit-I Standby
		Unit-II	15.66	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>15.66</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.96</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	11.42	+	Unit-I under shutdown. Unit II Standby
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	12.00	+	
		Unit- III	12.00	5MVA, 132/11kV TFR	0.47	+	
		Unit- IV	12.00	132kV Gelephu - Salakati Fdr.	-24.32	-	
		-	-	132kV Motanga - Rangia Fdr.	-6.21	-	
		-	-	220kV Tsirang - Jigmeling	14.06	+	
		<b>Total</b>	<b>24.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.11</b>		

**Note: Load summary on April 05, 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	478.75	235.34	230.08	229.35	5.26
2	Eastern Grid	154.00	71.29	68.48	96.77	2.81
	<b>Total</b>	<b>632.75</b>	<b>306.63</b>	<b>298.56</b>	<b>326.12</b>	<b>8.07</b>

**Note: Load Summary on April 05, 2019 at 19:00hrs**

Sl. No	Region	19:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	272.05	272.05	286.38
2	Eastern Grid	50.32	50.32	62.64
	<b>National</b>	<b>322.37</b>	<b>322.37</b>	<b>349.02</b>

**NOTES:KHP Loads 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:	April 6, 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	59.85	400kV THP - Siliguri Fdr- I	34.84	+	Unit-II & Vstandby. Unit-III & IV under shutdown. 400kV THP-SIL II & IV standby.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	82.33	+	
		Unit- V	0.00	400kV Malbase - Siliguri	23.05	+	
		Unit- VI	61.19	-	-	-	
		<b>Total</b>	<b>121.04</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>3.87</b>		
2	720MW MHP	Unit-I	134.01	400kV MHP - Jigmeling Fdr - I	0.00		Unit- III under standby. Unit- II & IV under shutdown.400kV MHP-JLG II,III & IV 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	130.90	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>134.01</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>3.11</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.87	+	Unit-I & IV under shutdown.
		Unit- II	40.38	220kV CHP - Birpara Fdr- II	0.78	+	
		Unit- III	44.47	220kV CHP - Malbase Fdr- III	51.92	+	
		Unit- IV	0.00	220kV CHP - Sementokha Fdr- IV	16.63	+	
		-	-	220kV Malbase - Birpara Fdr.	-36.71	-	
		-	-	66kV CHP - Chumdo Fdr.	7.27	+	
		-	-	66kV CHP - Gedu Fdr.	3.58	+	
		-	-	3x3MVA, 66/11kV TFR	1.28	+	
		<b>Total</b>	<b>84.85</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.52</b>		
4	24MW BHP (U/S)	Unit- I	4.39	220kV BHP - Sementokha Fdr.	16.82	+	U/S Unit-II under shutdown and LS Unit I under standby.
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	9.10	+	
		<b>Total</b>	<b>4.39</b>	220kV BHP - Tsirang Fdr.	-12.41	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.36	+	
		Unit- II	9.47	30MVA ICT, 220/66kV			
<b>Total</b>	<b>9.47</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.01</b>				
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	14.40	+	Unit I standby
		Unit-II	14.67	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>14.67</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.27</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	13.74	+	Unit-I AMP. Unit-II Standby
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	9.73	+	
		Unit- III	12.09	5MVA, 132/11kV TFR	0.50	+	
		Unit- IV	12.10	132kV Gelephu - Salakati Fdr.	-15.30	-	
		-	-	132kV Motanga - Rangia Fdr.	0.00	+	
		-	-	220kV Tsirang - Jigmeling	0.79	+	
		<b>Total</b>	<b>24.19</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.22</b>		

Note: Load summary on April 06, 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	234.42	210.80	204.15	22.83	6.65
2	Eastern Grid	158.20	43.39	40.06	115.60	3.33
	<b>Total</b>	<b>392.62</b>	<b>254.19</b>	<b>244.21</b>	<b>138.43</b>	<b>9.98</b>

Note: Load Summary on April 06, 2019 at 09:00hrs

Sl. No	Region	09:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	259.55	284.30	286.38
2	Eastern Grid	28.14	48.84	62.64
	<b>National</b>	<b>287.69</b>	<b>333.14</b>	<b>349.02</b>

NOTES: KHP 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.