

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

Maximum Load/Demand till Date

Date:	April 4, 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	158.00	400kV THP - Siliguri Fdr- I	94.30	+	Unit- II & VI standby. Unit-III &IV under shutdown. 400kV THP-SIL II standby & Fdr-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	0.00	400kV THP - Malbase Fdr- III	157.36	+	
		Unit- V	99.79	400kV Malbase - Siliguri	71.00	+	
		Unit- VI	0.00	-	-	-	
		<b>Total</b>	<b>257.79</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>6.13</b>		
2	720MW MHP	Unit-I	139.60	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	137.40		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>139.60</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.20</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	7.11	+	Unit-I & IV under shutdown.
		Unit- II	66.98	220kV CHP - Birpara Fdr- II	6.96	+	
		Unit- III	63.72	220kV CHP - Malbase Fdr- III	47.55	+	
		Unit- IV	0.00	220kV CHP - Sementokha Fdr- IV	49.49	+	
		-	-	220kV Malbase - Birpara Fdr.	-20.00	-	
		-	-	66kV CHP - Chumdo Fdr.	12.44	+	
		-	-	66kV CHP - Gedu Fdr.	3.77	+	
		-	-	3x3MVA, 66/11kV TFR	1.66	+	
		<b>Total</b>	<b>130.70</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.72</b>		
4	24MW BHP (U/S)	Unit- I	4.31	220kV BHP - Sementokha Fdr.	-2.13	-	U/S Unit-II under shutdown./L/S Unit I standby
		Unit- II	0.00	66kV BHP - Lobeyasa Fdr.	11.55	+	
		<b>Total</b>	<b>4.31</b>	220kV BHP - Tsirang Fdr.	2.93	+	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.84	+	
		Unit- II	8.88	30MVA ICT, 220/66kV			
<b>Total</b>	<b>8.88</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.00</b>				
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	14.70	+	Unit-I Standby
		Unit-II	14.77	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>14.77</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.07</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Fdr- I	14.43	+	Unit-I under shutdown. Unit II Standby
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	13.56	+	
		Unit- III	15.00	5MVA, 132/11kV TFR	0.46	+	
		Unit- IV	14.00	132kV Gelephu - Salakati Fdr.	-17.73	-	
		-	-	132kV Motanga - Rangia Fdr.	2.13	+	
		-	-	220kV Tsirang - Jigmeling	12.64	+	
		<b>Total</b>	<b>29.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.55</b>		

Note: Load summary on April 04, 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	416.45	244.44	236.52	159.37	7.92
2	Eastern Grid	168.60	59.44	56.69	121.80	2.75
	<b>Total</b>	<b>585.05</b>	<b>303.88</b>	<b>293.21</b>	<b>281.17</b>	<b>10.67</b>

Note: Load Summary on April 04, 2019 at 19:00hrs

Sl. No	Region	19:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	277.08	277.08	286.38
2	Eastern Grid	55.15	55.15	62.64
	<b>National</b>	<b>332.23</b>	<b>332.23</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 5, 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	59.86	400kV THP - Siliguri Fdr- I	81.37	+	Unit-II & VI standby. Unit-III & IV under shutdown. 400kV THP-SIL II standby & Fdr-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	0.00	400kV THP - Malbase Fdr- III	133.13	+	
		Unit- V	159.37	400kV Malbase - Siliguri	67.00	+	
		Unit- VI	0.00	-	-	-	
		<b>Total</b>	<b>219.23</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>4.73</b>		
2	720MW MHP	Unit-I	160.00	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	157.80	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>160.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.20</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	3.33	+	Unit-I & IV under shutdown.
		Unit- II	37.47	220kV CHP - Birpara Fdr- II	3.20	+	
		Unit- III	50.71	220kV CHP - Malbase Fdr- III	52.65	+	
		Unit- IV	0.00	220kV CHP - Sementokha Fdr- IV	17.41	+	
		-	-	220kV Malbase - Birpara Fdr.	-35.00	-	
		-	-	66kV CHP - Chumdo Fdr.	6.61	+	
		-	-	66kV CHP - Gedu Fdr.	3.27	+	
		-	-	3x3MVA, 66/11kV TFR	1.28	+	
		<b>Total</b>	<b>88.18</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.43</b>		
4	24MW BHP (U/S)	Unit- I	4.48	220kV BHP - Sementokha Fdr.	13.86	+	U/S Unit-II under shutdown and LS Unit I under standby.
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	0.15	+	
		<b>Total</b>	<b>4.48</b>	220kV BHP - Tsirang Fdr.	-8.60	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.36	+	
		Unit- II	9.11	30MVA ICT, 220/66kV			
<b>Total</b>	<b>9.11</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>7.82</b>				
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	14.98	+	Unit I standby
		Unit-II	15.20	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>15.20</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.22</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	18.80	+	Unit-I AMP. Unit-II Standby
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	10.60	+	
		Unit- III	15.28	5MVA, 132/11kV TFR	0.20	+	
		Unit- IV	15.38	132kV Gelephu - Salakati Fdr.	-15.51	-	
		-	-	132kV Motanga - Rangia Fdr.	-5.27	-	
		-	-	220kV Tsirang - Jigmeling	5.17	+	
		<b>Total</b>	<b>30.66</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.06</b>		

**Note: Load summary on April 05, 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	336.20	211.13	197.93	119.90	13.20
2	Eastern Grid	190.66	58.81	55.55	137.02	3.26
	<b>Total</b>	526.86	269.94	253.48	256.92	16.46

**Note: Load Summary on April 05, 2019 at 09:00hrs**

Sl. No	Region	09:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	250.11	272.05	286.38
2	Eastern Grid	31.49	50.32	62.64
	<b>National</b>	<b>281.60</b>	<b>322.37</b>	<b>349.02</b>

**NOTES: KHP & Malbase load 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.