

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

Maximum Load/Demand till Date

Date:	April 18, 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	78.94	400kV THP - Siliguri Fdr- I	78.28	+	Unit- II,IV & V standby. 400kV THP-SIL II standby
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	60.31	400kV THP - Siliguri Fdr- IV	75.05	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	140.35	+	
		Unit- V	0.00	400kV Malbase - Siliguri	60.52	+	
		Unit- VI	160.25	-	-	-	
		<b>Total</b>	<b>299.50</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>5.82</b>		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	115.40	+	Unit- IV Standby & Unit I AMP(11 to 30.4.2020). 400kV MHP-JLG II & III Standby.
		Unit-II	128.24	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	100.15	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	111.80	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)	0.00	+	
		<b>Total</b>	<b>228.39</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.19</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	52.00	+	Unit-I under shutdown till 30th April and Unit III standby. 220kV CHP-Mal under shutdown till 25.4.2020.
		Unit- II	77.67	220kV CHP - Birpara Fdr- II	52.00	+	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	0.00		
		Unit- IV	76.40	220kV CHP - Semtokha Fdr- IV	27.60	+	
		-	-	220kV Malbase - Birpara Fdr.	-71.33	-	
		-	-	66kV CHP - Chumdo Fdr.	9.10	+	
		-	-	66kV CHP - Gedu Fdr.	9.00	+	
		<b>Total</b>	<b>154.07</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.79</b>		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	16.80	+	U/S Unit-I under shutdown(15.4.2020-15.5.2020) & L/S Unit I standby
		Unit- II	5.20	66kV BHP - Lobeyasa Fdr.	10.60	+	
		<b>Total</b>	<b>5.20</b>	220kV BHP - Tsirang Fdr.	-12.00	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	10.80	30MVA ICT, 220/66kV			
<b>Total</b>	<b>10.80</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.28</b>				
5	126MW DHPC	Unit-I	15.18	220kV DHPC - Tsirang Fdr.	14.96	+	Unit-II Standby
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>15.18</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.22</b>		
6	60MW KHP	Unit- I	14.00	132kV KHP - Nangkhon Fdr- I	46.09	+	220kV JLG- TSI line under breakdown.
		Unit-II	14.00	132kV KHP - Kilikhar Fdr- II	8.73	+	
		Unit- III	14.00	5MVA, 132/11kV TFR	0.45	+	
		Unit- IV	14.00	132kV Gelephu - Salakati Fdr.	-11.10	-	
		-	-	132kV Motanga - Rangia Fdr.	22.63	+	
		-	-	220kV Tsirang - Jigmeling	0.00		
		<b>Total</b>	<b>56.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.73</b>		

Note: Load summary on April 18, 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	484.75	238.23	229.68	246.52	8.55
2	Eastern Grid	284.39	45.66	43.74	238.73	1.92
	<b>Total</b>	<b>769.14</b>	<b>283.89</b>	<b>273.42</b>	<b>485.25</b>	<b>10.47</b>

Note: Load Summary on April 18, 2019 at 19:00hrs

Sl. No	Region	19:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	261.11	261.11	286.38
2	Eastern Grid	53.22	56.38	62.64
	<b>National</b>	<b>314.33</b>	<b>317.49</b>	<b>349.02</b>

NOTES:KHP,CHP,THP,DHP & MHP 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 19, 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	78.48	400kV THP - Siliguri Fdr- I	80.51	+	Unit- II,IV & V standby. 400kV THP-SIL II standby.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	60.50	400kV THP - Siliguri Fdr- IV	76.38	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	116.62	+	
		Unit- V	0.00	400kV Malbase - Siliguri	67.80	+	
		Unit- VI	140.55	-	-	-	
		<b>Total</b>	<b>279.53</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>6.02</b>		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	163.00	+	Unit-IV Standby & Unit I AMP(11 to 30.4.2020). 400kV MHP-JLG II & III Standby.
		Unit-II	147.98	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	173.92	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	159.00	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)	0.00		
		<b>Total</b>	<b>321.90</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.10</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	53.10	+	Unit-I under shutdown till 30th April & Unit III under standby. 220kV CHP-MAL under shutdown till 25.4.2020.
		Unit- II	61.00	220kV CHP - Birpara Fdr- II	53.10	+	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	0.00		
		Unit- IV	68.00	220kV CHP - Semtokha Fdr- IV	4.10	+	
		-	-	220kV Malbase - Birpara Fdr.	-83.48	-	
		-	-	66kV CHP - Chumdo Fdr.	4.70	+	
		-	-	66kV CHP - Gedu Fdr.	10.50	+	
		-	-	3x3MVA, 66/11kV TFR	0.99	+	
<b>Total</b>	<b>129.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.51</b>				
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	29.10	+	U/S Unit-I under shutdown(15.4.2020- 15.5.2020) & L/S Unit I standby
		Unit- II	6.10	66kV BHP - Lobeyasa Fdr.	9.80	+	
		<b>Total</b>	<b>6.10</b>	220kV BHP - Tsirang Fdr.	-18.20	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	13.70	30MVA ICT, 220/66kV			
<b>Total</b>	<b>13.70</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-1.79</b>				
5	126MW DHPC	Unit-I	19.16	220kV DHPC - Tsirang Fdr.	18.20	+	Unit II standby.
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>19.16</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.96</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Fdr- I	59.50	+	220kV JLG- TSI-JLG under breakdown
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	4.50	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.43	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	1.04	+	
		-	-	132kV Motanga - Rangia Fdr.	26.35	+	
		-	-	220kV Tsirang - Jigmeling	0.00		
		<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.57</b>		

**Note: Load summary on April 19, 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	447.49	200.08	192.38	247.41	7.70
2	Eastern Grid	387.90	38.51	37.04	349.39	1.47
	<b>Total</b>	<b>835.39</b>	<b>238.59</b>	<b>229.42</b>	<b>596.80</b>	<b>9.17</b>

**Note: Load Summary on April 19, 2019 at 09:00hrs**

Sl. No	Region	09:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	236.82	252.55	286.38
2	Eastern Grid	41.72	65.11	62.64
	<b>National</b>	<b>278.54</b>	<b>317.66</b>	<b>349.02</b>

**NOTES: KHP,CHP,BHP and DHP 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.
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