

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>May 15, 2020</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	0.00	400kV THP - Siliguri Fdr- I	0.00		Unit-I, IV, V & 400kV THP-SIL I under standby. 400kV Tala-Malbase Fdr III under shutdown (12-14.05.2020)
		Unit- II	107.52	400kV THP - Siliguri Fdr- II	149.16	+	
		Unit- III	89.90	400kV THP - Siliguri Fdr- IV	143.34	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	0.00		
		Unit- V	0.00	400kV Malbase - Siliguri	-36.25	-	
		Unit- VI	99.85	-	-	-	
		<b>Total</b>	<b>297.27</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>4.77</b>		
2	720MW MHP	Unit-I	79.94	400kV MHP - Jigmeling Fdr - I	0.00	+	Unit- II & IV Standby. 400kV MHP-JLG I & IV Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	123.00	+	
		Unit-III	168.97	400kV MHP - Jigmeling Fdr - III	123.00	+	
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	0.00	+	
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		<b>Total</b>	<b>248.91</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.91</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	17.01	+	Unit-I under shutdown till 30th June Unit-III PTW
		Unit- II	78.64	220kV CHP - Birpara Fdr- II	16.84	+	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	80.72	+	
		Unit- IV	68.95	220kV CHP - Semtokha Fdr- IV	21.50	+	
		-	-	220kV Malbase - Birpara Fdr.	-34.21	-	
		-	-	66kV CHP - Chumdo Fdr.	5.85	+	
		-	-	66kV CHP - Gedu Fdr.	4.00	+	
		<b>Total</b>	<b>147.59</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.57</b>		
4	24MW BHP (U/S)	Unit- I	4.94	220kV BHP - Semtokha Fdr.	6.65	+	L/S Unit-II Standby and U/S unit II under maintenance
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	8.42	+	
		<b>Total</b>	<b>4.94</b>	220kV BHP - Tsirang Fdr.	-0.40	-	
	40MW BHP (L/S)	Unit- I	10.20	5MVA, 66/11kV TFR	0.44	+	
		Unit- II	0.00	30MVA ICT, 220/66kV	0.00		
		<b>Total</b>	<b>10.20</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.03</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	17.99	+	Unit-I Standby
		Unit-II	18.19	220kV Jigmeling - Dagapela Fdr.	0.00		
		-	-	5MVA, 220/33kV TFR	0.00		
		<b>Total</b>	<b>18.19</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.20</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	25.03	+	Unit-I standby
		Unit-II	15.03	132kV KHP - Kilihar Fdr- II	19.00	+	
		Unit- III	14.98	5MVA, 132/11kV TFR	0.23	+	
		Unit- IV	14.99	132kV Gelephu - Salakati Fdr.	-8.47	-	
		-	-	132kV Motanga - Rangia Fdr.	17.41	+	
		-	-	220kV Tsirang - Jigmeling	28.55	+	
		<b>Total</b>	<b>45.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.74</b>		

**Note: Generation-Load Summary for May 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	478.19	193.75	188.18	255.89	5.57
2	Eastern Grid	293.91	67.52	63.87	254.94	3.65
	<b>Total</b>	<b>772.10</b>	<b>261.27</b>	<b>252.05</b>	<b>510.83</b>	<b>9.22</b>

**Note: Generation-Load Summary for May 15, 2019 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	532.09	255.62	251.23	242.18	4.39
2	Eastern Grid	47.43	65.30	64.95	16.42	0.35
	<b>Total</b>	<b>579.52</b>	<b>320.92</b>	<b>316.18</b>	<b>258.60</b>	<b>4.74</b>

**NOTE: KHP & Motanga 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**

<b>Date:</b>	<b>May 16, 2020</b>
<b>Hours:</b>	<b>09:00 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	149.67	400kV THP - Siliguri Fdr- I	0.00		Unit- II, IV, VI & 400kV THP-SIL I under standby.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	152.00	+	
		Unit- III	169.86	400kV THP - Siliguri Fdr- IV	143.00	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	187.25		
		Unit- V	169.39	400kV Malbase - Siliguri	131.68	-	
		Unit- VI	0.00	-	-	-	
		<b>Total</b>	<b>488.92</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>6.67</b>		
2	720MW MHP	Unit-I	179.22	400kV MHP - Jigmeling Fdr - I	0.00	+	Unit- II on Standby. 400kV MHP-JLG I & IV Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	219.78	+	
		Unit-III	180.11	400kV MHP - Jigmeling Fdr - III	218.97	+	
		Unit-IV	80.86	400kV MHP - Jigmeling Fdr - IV	0.00	+	
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		<b>Total</b>	<b>440.19</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.44</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	46.58	+	Unit-I under shutdown till 30th June
		Unit- II	73.42	220kV CHP - Birpara Fdr- II	46.28	+	
		Unit- III	73.15	220kV CHP - Malbase Fdr- III	102.50	+	
		Unit- IV	83.97	220kV CHP - Semtokha Fdr- IV	21.44	+	
		-	-	220kV Malbase - Birpara Fdr.	-3.92	-	
		-	-	66kV CHP - Chumdo Fdr.	5.78	+	
		-	-	66kV CHP - Gedu Fdr.	4.76	+	
		<b>Total</b>	<b>230.54</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.34</b>		
4	24MW BHP (U/S)	Unit- I	5.32	220kV BHP - Semtokha Fdr.	5.20	+	L/S Unit-II Standby and U/S unit II under maintenance
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	8.32	+	
		<b>Total</b>	<b>5.32</b>	220kV BHP - Tsirang Fdr.	3.31	+	
	40MW BHP (L/S)	Unit- I	11.89	5MVA, 66/11kV TFR	0.43	+	
		Unit- II	0.00	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>11.89</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.05</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	19.96	+	Unit I standby.
		Unit-II	20.16	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>20.16</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.20</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	43.66	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	20.90	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.10	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	4.20	+	
		-	-	132kV Motanga - Rangia Fdr.	34.39	+	
		-	-	220kV Tsirang - Jigmeling	21.84	+	
		<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.34</b>		

**Note: Generation-Load summary for May 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	756.83	219.37	210.21	515.62	9.16
2	Eastern Grid	506.19	50.69	47.91	477.34	2.78
	<b>Total</b>	<b>1,263.02</b>	<b>270.06</b>	<b>258.12</b>	<b>992.96</b>	<b>11.94</b>

**Note: Generation-Load Summary for May 16, 2019 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	550.46	232.79	225.12	302.58	7.67
2	Eastern Grid	60.25	48.77	48.36	26.57	0.41
	<b>Total</b>	<b>610.71</b>	<b>281.56</b>	<b>273.48</b>	<b>329.15</b>	<b>8.08</b>

**NOTES: KHP & Motanga 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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