

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>June 16, 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	187.08	400kV THP - Siliguri Fdr- I	269.24	+	
		Unit- II	186.77	400kV THP - Siliguri Fdr- II	266.88	+	
		Unit- III	186.97	400kV THP - Siliguri Fdr- IV	259.91	+	
		Unit- IV	186.54	400kV THP - Malbase Fdr- III	307.04	+	
		Unit- V	187.67	400kV Malbase - Siliguri	243.65	+	
		Unit- VI	186.50	-	-	-	
		<b>Total</b>	<b>1,121.53</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>18.46</b>		
2	720MW MHP	Unit-I	197.32	400kV MHP - Jigmeling Fdr - I	194.90	+	Unit-III shutdown & 400kV MHP-JLG IV Standby
		Unit-II	195.45	400kV MHP - Jigmeling Fdr - II	197.90	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	195.32		
		Unit-IV	198.54	400kV MHP - Jigmeling Fdr - IV	0.00	+	
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		<b>Total</b>	<b>591.31</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>3.19</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	98.49	+	Unit-I under shutdown till 30th June, 2020.
		Unit- II	90.71	220kV CHP - Birpara Fdr- II	98.59	+	
		Unit- III	91.29	220kV CHP - Malbase Fdr- III	131.44	+	
		Unit- IV	91.64	220kV CHP - Semtokha Fdr- IV	-66.73	-	
		-	-	220kV Malbase - Birpara Fdr.	61.79	+	
		-	-	66kV CHP - Chumdo Fdr.	2.71	+	
		-	-	66kV CHP - Gedu Fdr.	6.54	+	
		-	-	3x3MVA, 66/11kV TFR	1.21	+	
		<b>Total</b>	<b>273.64</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.39</b>		
4	24MW BHP (U/S)	Unit- I	11.81	220kV BHP - Semtokha Fdr.	89.78	+	
		Unit- II	11.81	66kV BHP - Lobeysa Fdr.	18.22	+	
		<b>Total</b>	<b>23.62</b>	220kV BHP - Tsirang Fdr.	-43.27	-	
	40MW BHP (L/S)	Unit- I	20.96	5MVA, 66/11kV TFR	0.99	+	
		Unit- II	20.18	30MVA ICT, 220/66kV	0.00		
		<b>Total</b>	<b>41.14</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.96</b>		
5	126MW DHPC	Unit-I	63.54	220kV DHPC - Tsirang Fdr.	126.18	+	
		Unit-II	63.35	220kV Jigmeling - Dagapela Fdr.	1.41	+	
		-	-	5MVA, 220/33kV TFR	0.00		
		<b>Total</b>	<b>126.89</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.71</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	39.49	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	25.37	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.33	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	34.03	+	
		-	-	132kV Motanga - Rangia Fdr.	54.86	+	
		-	-	220kV Tsirang - Jigmeling	78.84	+	
		<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.81</b>		

**Note: Generation-Load Summary for June 16, 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	1,586.82	209.43	191.24	1,298.55	18.19
2	Eastern Grid	657.31	59.14	55.14	677.01	4.00
	<b>Total</b>	<b>2,244.13</b>	<b>268.57</b>	<b>246.38</b>	<b>1,975.56</b>	<b>22.19</b>

**Note: Generation-Load Summary for June 16, 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	1,095.45	258.86	252.61	789.96	6.25
2	Eastern Grid	65.74	55.86	55.56	56.51	0.30
	<b>Total</b>	<b>1,161.19</b>	<b>314.72</b>	<b>308.17</b>	<b>846.47</b>	<b>6.55</b>

**NOTE: All Loads and generation 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>June 17, 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	187.00	400kV THP - Siliguri Fdr- I	273.31	+	
		Unit- II	185.88	400kV THP - Siliguri Fdr- II	272.00	+	
		Unit- III	187.53	400kV THP - Siliguri Fdr- IV	264.25	+	
		Unit- IV	187.37	400kV THP - Malbase Fdr- III	295.01	+	
		Unit- V	186.70	400kV Malbase - Siliguri	251.62	+	
		Unit- VI	187.91	-	-	-	
		<b>Total</b>	<b>1,122.39</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>17.82</b>		
2	720MW MHP	Unit-I	197.83	400kV MHP - Jigmeling Fdr - I	197.65	+	Unit-III shutdown & 400kV MHP-JLG IV Standby.
		Unit-II	196.52	400kV MHP - Jigmeling Fdr - II	198.62	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	193.23	+	
		Unit-IV	197.61	400kV MHP - Jigmeling Fdr - IV	0.00	+	
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		<b>Total</b>	<b>591.96</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.46</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	90.81	+	Unit-I under shutdown till 30th June, 2020.
		Unit- II	92.18	220kV CHP - Birpara Fdr- II	90.63	+	
		Unit- III	91.69	220kV CHP - Malbase Fdr- III	124.08	+	
		Unit- IV	90.90	220kV CHP - Semtokha Fdr- IV	-42.26	-	
		-	-	220kV Malbase - Birpara Fdr.	55.03	+	
		-	-	66kV CHP - Chumdo Fdr.	2.13	+	
		-	-	66kV CHP - Gedu Fdr.	6.37	+	
		-	-	3x3MVA, 66/11kV TFR	0.87	+	
		<b>Total</b>	<b>274.77</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.14</b>		
4	24MW BHP (U/S)	Unit- I	10.39	220kV BHP - Semtokha Fdr.	60.42	+	
		Unit- II	10.39	66kV BHP - Lobeysa Fdr.	14.80	+	
		<b>Total</b>	<b>20.78</b>	220kV BHP - Tsirang Fdr.	-16.45	-	
	40MW BHP (L/S)	Unit- I	19.48	5MVA, 66/11kV TFR	0.48	+	
		Unit- II	18.73	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>38.21</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.26</b>		
5	126MW DHPC	Unit-I	43.25	220kV DHPC - Tsirang Fdr.	86.00	+	
		Unit-II	43.22	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>86.47</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.47</b>		
6	60MW KHP	Unit- I	15.65	132kV KHP - Nangkhon Fdr- I	42.00	+	
		Unit-II	15.64	132kV KHP - Kilikhar Fdr- II	21.10	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.37	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	37.46	+	
		-	-	132kV Motanga - Rangia Fdr.	49.53	+	
		-	-	220kV Tsirang - Jigmeling	65.81	+	
		<b>Total</b>	<b>64.29</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.82</b>		

**Note: Generation-Load summary for June 17, 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	1,542.62	179.16	158.99	1,297.65	20.17
2	Eastern Grid	656.25	45.57	42.29	676.49	3.28
	<b>Total</b>	<b>2,198.87</b>	<b>224.73</b>	<b>201.28</b>	<b>1,974.14</b>	<b>23.45</b>

**Note: Generation-Load Summary for June 17, 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	519.16	219.92	217.48	273.91	2.44
2	Eastern Grid	65.84	53.51	52.82	37.66	0.69
	<b>Total</b>	<b>585.00</b>	<b>273.43</b>	<b>270.30</b>	<b>311.57</b>	<b>3.13</b>

**NOTES: KHP & Mat 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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