

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>June 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	188.78	400kV THP - Siliguri Fdr- I	268.19	+	
		Unit- II	183.02	400kV THP - Siliguri Fdr- II	265.12	+	
		Unit- III	187.57	400kV THP - Siliguri Fdr- IV	258.57	+	
		Unit- IV	187.06	400kV THP - Malbase Fdr- III	309.80	+	
		Unit- V	187.32	400kV Malbase - Siliguri	242.13	+	
		Unit- VI	185.65	-	-	-	
		<b>Total</b>	<b>1,119.40</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>17.72</b>		
2	720MW MHP	Unit-I	197.12	400kV MHP - Jigmeling Fdr - I	0.00	+	Unit-III & 400kV MHP-JLG III Standby 400kV MHP_JLG I under maintenance.
		Unit-II	197.80	400kV MHP - Jigmeling Fdr - II	294.17	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	197.90	400kV MHP - Jigmeling Fdr - IV	294.93	+	
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		<b>Total</b>	<b>592.82</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>3.72</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	86.17	+	Unit-I under shutdown till 30th June, 2020.
		Unit- II	90.97	220kV CHP - Birpara Fdr- II	85.97	+	
		Unit- III	91.39	220kV CHP - Malbase Fdr- III	113.00	+	
		Unit- IV	91.22	220kV CHP - Semtokha Fdr- IV	-24.56	-	
		-	-	220kV Malbase - Birpara Fdr.	55.46	+	
		-	-	66kV CHP - Chumdo Fdr.	4.28	+	
		-	-	66kV CHP - Gedu Fdr.	6.15	+	
		-	-	3x3MVA, 66/11kV TFR	1.21	+	
		<b>Total</b>	<b>273.58</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.36</b>		
4	24MW BHP (U/S)	Unit- I	10.98	220kV BHP - Semtokha Fdr.	47.53	+	
		Unit- II	10.98	66kV BHP - Lobeysa Fdr.	15.73	+	
		<b>Total</b>	<b>21.96</b>	220kV BHP - Tsirang Fdr.	-2.11	-	
	40MW BHP (L/S)	Unit- I	20.17	5MVA, 66/11kV TFR	0.71	+	
		Unit- II	19.44	30MVA ICT, 220/66kV	0.00		
		<b>Total</b>	<b>39.61</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.29</b>		
5	126MW DHPC	Unit-I	36.29	220kV DHPC - Tsirang Fdr.	72.04	+	
		Unit-II	36.21	220kV Jigmeling - Dagapela Fdr.	1.41	+	
		-	-	5MVA, 220/33kV TFR	0.00		
		<b>Total</b>	<b>72.50</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.46</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.	29.17	+	
		-	-	132kV Motanga - Rangia Fdr.	56.79	+	
		-	-	220kV Tsirang - Jigmeling	67.93	+	
		<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 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	1,527.05	197.51	179.67	1,261.61	17.84
2	Eastern Grid	658.82	51.69	47.16	675.06	4.53
	<b>Total</b>	<b>2,185.87</b>	<b>249.20</b>	<b>226.83</b>	<b>1,936.67</b>	<b>22.37</b>

**Note: Generation-Load Summary for June 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	700.06	242.82	235.09	418.92	7.73
2	Eastern Grid	65.56	59.58	59.31	44.30	0.27
	<b>Total</b>	<b>765.62</b>	<b>302.40</b>	<b>294.40</b>	<b>463.22</b>	<b>8.00</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 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	187.00	400kV THP - Siliguri Fdr- I	273.35	+	
		Unit- II	186.00	400kV THP - Siliguri Fdr- II	269.79	+	
		Unit- III	186.86	400kV THP - Siliguri Fdr- IV	261.95	+	
		Unit- IV	187.00	400kV THP - Malbase Fdr- III	298.76	+	
		Unit- V	187.00	400kV Malbase - Siliguri	249.75	+	
		Unit- VI	186.48	-	-	-	
		<b>Total</b>	<b>1,120.34</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>16.49</b>		
2	720MW MHP	Unit-I	197.90	400kV MHP - Jigmeling Fdr - I	0.00	+	Unit-III & 400kV MHP-JLG III Standby. 400kV MHP_JLG I under maintenance.
		Unit-II	197.91	400kV MHP - Jigmeling Fdr - II	295.63	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00	+	
		Unit-IV	197.87	400kV MHP - Jigmeling Fdr - IV	296.00	+	
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		<b>Total</b>	<b>593.68</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.05</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	89.25	+	Unit-I under shutdown till 30th June, 2020.
		Unit- II	91.32	220kV CHP - Birpara Fdr- II	89.29	+	
		Unit- III	91.57	220kV CHP - Malbase Fdr- III	130.67	+	
		Unit- IV	91.97	220kV CHP - Semtokha Fdr- IV	-45.06	-	
		-	-	220kV Malbase - Birpara Fdr.	46.50	+	
		-	-	66kV CHP - Chumdo Fdr.	2.65	+	
		-	-	66kV CHP - Gedu Fdr.	6.54	+	
		-	-	3x3MVA, 66/11kV TFR	0.95	+	
		<b>Total</b>	<b>274.86</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.57</b>		
4	24MW BHP (U/S)	Unit- I	11.79	220kV BHP - Semtokha Fdr.	65.67	+	
		Unit- II	11.79	66kV BHP - Lobeysa Fdr.	15.68	+	
		<b>Total</b>	<b>23.58</b>	220kV BHP - Tsirang Fdr.	-16.51	-	
	40MW BHP (L/S)	Unit- I	20.93	5MVA, 66/11kV TFR	0.44	+	
		Unit- II	20.18	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>41.11</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.59</b>		
5	126MW DHPC	Unit-I	38.27	220kV DHPC - Tsirang Fdr.	75.97	+	
		Unit-II	38.17	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>76.44</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.47</b>		
6	60MW KHP	Unit- I	16.47	132kV KHP - Nangkhon Fdr- I	42.11	+	
		Unit-II	16.46	132kV KHP - Kilikhar Fdr- II	21.60	+	
		Unit- III	16.10	5MVA, 132/11kV TFR	0.37	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	27.89	+	
		-	-	132kV Motanga - Rangia Fdr.	50.22	+	
		-	-	220kV Tsirang - Jigmeling	56.55	+	
		<b>Total</b>	<b>65.53</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.45</b>		

**Note: Generation-Load summary for June 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	1,536.33	199.90	182.96	1,279.88	16.94
2	Eastern Grid	659.21	46.02	42.52	669.74	3.50
	<b>Total</b>	<b>2,195.54</b>	<b>245.92</b>	<b>225.48</b>	<b>1,949.62</b>	<b>20.44</b>

**Note: Generation-Load Summary for June 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	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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