

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>June 21, 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	187.35	400kV THP - Siliguri Fdr- I	270.13	+	
		Unit- II	186.74	400kV THP - Siliguri Fdr- II	266.47	+	
		Unit- III	187.71	400kV THP - Siliguri Fdr- IV	259.83	+	
		Unit- IV	187.27	400kV THP - Malbase Fdr- III	305.99	+	
		Unit- V	186.67	400kV Malbase - Siliguri	244.90	+	
		Unit- VI	186.18	-	-	-	
		<b>Total</b>	<b>1,121.92</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>19.50</b>		
2	720MW MHP	Unit-I	197.72	400kV MHP - Jigmeling Fdr - I	198.54	+	Unit-III shutdown & 400kV MHP-JLG IV Standby
		Unit-II	197.77	400kV MHP - Jigmeling Fdr - II	199.27	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	193.45	+	
		Unit-IV	197.83	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		<b>Total</b>	<b>593.32</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.06</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	91.21	+	Unit I under shutdown till 30th June,2020.
		Unit- II	91.57	220kV CHP - Birpara Fdr- II	90.76	+	
		Unit- III	91.53	220kV CHP - Malbase Fdr- III	126.63	+	
		Unit- IV	91.53	220kV CHP - Semtokha Fdr- IV	-44.92	-	
		-	-	220kV Malbase - Birpara Fdr.	53.09	+	
		-	-	66kV CHP - Chumdo Fdr.	3.43	+	
		-	-	66kV CHP - Gedu Fdr.	6.20	+	
		-	-	3x3MVA, 66/11kV TFR	1.02	+	
		<b>Total</b>	<b>274.63</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.30</b>		
4	24MW BHP (U/S)	Unit- I	11.83	220kV BHP - Semtokha Fdr.	68.42	+	
		Unit- II	11.83	66kV BHP - Lobeysa Fdr.	16.12	+	
		<b>Total</b>	<b>23.66</b>	220kV BHP - Tsirang Fdr.	-19.52	-	
	40MW BHP (L/S)	Unit- I	20.95	5MVA, 66/11kV TFR	0.56	+	
		Unit- II	20.18	30MVA ICT, 220/66kV	0.00		
		<b>Total</b>	<b>41.13</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.79</b>		
5	126MW DHPC	Unit-I	48.31	220kV DHPC - Tsirang Fdr.	96.05	+	
		Unit-II	48.20	220kV Jigmeling - Dagapela Fdr.	1.60	+	
		-	-	5MVA, 220/33kV TFR	0.00		
		<b>Total</b>	<b>96.51</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.46</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Fdr- I	41.37	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	23.40	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.24	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	41.70	+	
		-	-	132kV Motanga - Rangia Fdr.	38.64	+	
		-	-	220kV Tsirang - Jigmeling	72.84	+	
		<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.99</b>		

**Note: Generation-Load Summary for June 21, 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	1,557.85	208.62	190.75	1,276.39	17.87
2	Eastern Grid	659.32	60.56	57.51	671.60	3.05
	<b>Total</b>	<b>2,217.17</b>	<b>269.18</b>	<b>248.26</b>	<b>1,947.99</b>	<b>20.92</b>

**Note: Generation-Load Summary for June 21, 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	560.37	227.66	220.91	292.53	6.75
2	Eastern Grid	57.81	60.17	59.80	37.82	0.37
	<b>Total</b>	<b>618.18</b>	<b>287.83</b>	<b>280.71</b>	<b>330.35</b>	<b>7.12</b>

**NOTE: KHP,MHEP, Motanga datas 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 22, 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	186.63	400kV THP - Siliguri Fdr- I	270.10	+	
		Unit- II	187.01	400kV THP - Siliguri Fdr- II	268.65	+	
		Unit- III	186.60	400kV THP - Siliguri Fdr- IV	261.85	+	
		Unit- IV	187.88	400kV THP - Malbase Fdr- III	303.24	+	
		Unit- V	186.84	400kV Malbase - Siliguri	246.74	+	
		Unit- VI	186.18	-	-	-	
		<b>Total</b>	<b>1,121.14</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>17.30</b>		
2	720MW MHP	Unit-I	197.00	400kV MHP - Jigmeling Fdr - I	197.00	+	Unit-III shutdown & 400kV MHP-JLG IV Standby.
		Unit-II	195.45	400kV MHP - Jigmeling Fdr - II	196.30	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	195.00	+	
		Unit-IV	198.54	400kV MHP - Jigmeling Fdr - IV	0.00	+	
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		<b>Total</b>	<b>590.99</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.69</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	90.37	+	Unit-I under shutdown till 30th June, 2020.
		Unit- II	91.78	220kV CHP - Birpara Fdr- II	90.25	+	
		Unit- III	91.31	220kV CHP - Malbase Fdr- III	142.73	+	
		Unit- IV	91.81	220kV CHP - Semtokha Fdr- IV	-59.25	-	
		-	-	220kV Malbase - Birpara Fdr.	38.18	+	
		-	-	66kV CHP - Chumdo Fdr.	1.16	+	
		-	-	66kV CHP - Gedu Fdr.	7.12	+	
		-	-	3x3MVA, 66/11kV TFR	0.73	+	
		<b>Total</b>	<b>274.90</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.79</b>		
4	24MW BHP (U/S)	Unit- I	11.81	220kV BHP - Semtokha Fdr.	76.70	+	
		Unit- II	11.81	66kV BHP - Lobeysa Fdr.	15.63	+	
		<b>Total</b>	<b>23.62</b>	220kV BHP - Tsirang Fdr.	-26.89	-	
	40MW BHP (L/S)	Unit- I	21.00	5MVA, 66/11kV TFR	0.46	+	
		Unit- II	20.18	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>41.18</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-1.10</b>		
5	126MW DHPC	Unit-I	46.27	220kV DHPC - Tsirang Fdr.	92.03	+	
		Unit-II	46.21	220kV Jigmeling - Dagapela Fdr.	0.90	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>92.48</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.45</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	43.05	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	21.68	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.23	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	39.17	+	
		-	-	132kV Motanga - Rangia Fdr.	42.20	+	
		-	-	220kV Tsirang - Jigmeling	62.46	+	
		<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.04</b>		

**Note: Generation-Load summary for June 22, 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	1,553.32	224.72	207.18	1,266.14	17.54
2	Eastern Grid	656.99	49.78	46.05	669.67	3.73
	<b>Total</b>	<b>2,210.31</b>	<b>274.50</b>	<b>253.23</b>	<b>1,935.81</b>	<b>21.27</b>

**Note: Generation-Load Summary for June 22, 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	549.52	236.65	220.85	277.67	15.80
2	Eastern Grid	65.95	55.45	55.15	45.70	0.30
	<b>Total</b>	<b>615.47</b>	<b>292.10</b>	<b>276.00</b>	<b>323.37</b>	<b>16.10</b>

**NOTES: KHP, MHP & Motanga 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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