

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

Maximum Load/Demand till Date

Date:	June 6, 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	167.94	400kV THP - Siliguri Fdr- I	246.04	+	
		Unit- II	167.13	400kV THP - Siliguri Fdr- II	244.33	+	
		Unit- III	170.28	400kV THP - Siliguri Fdr- IV	238.74	+	
		Unit- IV	169.70	400kV THP - Malbase Fdr- III	270.43	+	
		Unit- V	167.39	400kV Malbase - Siliguri	226.18	+	
		Unit- VI	170.57	-	-	-	
		<b>Total</b>	<b>1,013.01</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>13.47</b>		
2	720MW MHP	Unit-I	197.78	400kV MHP - Jigmeling Fdr - I	198.90	+	Unit-III & 400kV MHP-JLG III Standby.
		Unit-II	197.98	400kV MHP - Jigmeling Fdr - II	198.90	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00	+	
		Unit-IV	197.80	400kV MHP - Jigmeling Fdr - IV	193.45	+	
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		<b>Total</b>	<b>593.56</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.31</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	96.78	+	Unit-I under shutdown till 30th June, 2020. 220kV Mal-BIR under shutdown (30.05-13.06.20)
		Unit- II	91.53	220kV CHP - Birpara Fdr- II	96.46	+	
		Unit- III	91.56	220kV CHP - Malbase Fdr- III	107.12	+	
		Unit- IV	91.35	220kV CHP - Semtokha Fdr- IV	-37.99	-	
		-	-	220kV Malbase - Birpara Fdr.	0.00		
		-	-	66kV CHP - Chumdo Fdr.	4.75	+	
		-	-	66kV CHP - Gedu Fdr.	5.04	+	
		-	-	3x3MVA, 66/11kV TFR	1.43	+	
		<b>Total</b>	<b>274.44</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.85</b>		
4	24MW BHP (U/S)	Unit- I	11.25	220kV BHP - Semtokha Fdr.	64.06	+	
		Unit- II	11.25	66kV BHP - Lobeysa Fdr.	16.96	+	
		<b>Total</b>	<b>22.50</b>	220kV BHP - Tsirang Fdr.	-18.50	-	
	40MW BHP (L/S)	Unit- I	20.78	5MVA, 66/11kV TFR	1.00	+	
		Unit- II	20.00	30MVA ICT, 220/66kV	0.00		
		<b>Total</b>	<b>40.78</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.24</b>		
5	126MW DHPC	Unit-I	45.28	220kV DHPC - Tsirang Fdr.	95.05		220kV DHP-Dagapela line under break down.
		Unit-II	50.23	220kV DHP - Dagapela Fdr.	0.00	+	
		-	-	5MVA, 220/33kV TFR	0.00		
		<b>Total</b>	<b>95.51</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	38.23	+	
		Unit-II	16.50	132kV KHP - Kilihar Fdr- II	26.30	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.29	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	37.56	+	
		-	-	132kV Motanga - Rangia Fdr.	61.50	+	
		-	-	220kV Tsirang - Jigmeling	74.55	+	
		<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.18</b>		

**Note: Generation-Load Summary for June 06, 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	1,446.24	127.65	208.62	1,148.53	-80.97
2	Eastern Grid	659.56	43.80	40.31	690.31	3.49
	<b>Total</b>	<b>2,105.80</b>	<b>171.45</b>	<b>248.93</b>	<b>1,838.84</b>	<b>-77.48</b>

**Note: Generation-Load Summary for June 06, 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	601.69	66.31	64.09	493.80	2.00
2	Eastern Grid	47.50	54.08	56.42	35.00	0.09
	<b>Total</b>	<b>649.19</b>	<b>120.39</b>	<b>120.51</b>	<b>528.80</b>	<b>2.09</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>June 7, 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	186.03	400kV THP - Siliguri Fdr- I	276.77	+	
		Unit- II	184.95	400kV THP - Siliguri Fdr- II	274.56	+	
		Unit- III	187.01	400kV THP - Siliguri Fdr- IV	266.56	+	
		Unit- IV	186.66	400kV THP - Malbase Fdr- III	282.09	+	
		Unit- V	187.47	400kV Malbase - Siliguri	258.03	+	
		Unit- VI	186.98	-	-	-	
		<b>Total</b>	<b>1,119.10</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>19.12</b>		
2	720MW MHP	Unit-I	197.50	400kV MHP - Jigmeling Fdr - I	190.80	+	Unit-III & 400kV MHP-JLG III Standby
		Unit-II	195.60	400kV MHP - Jigmeling Fdr - II	196.60	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00	+	
		Unit-IV	198.60	400kV MHP - Jigmeling Fdr - IV	196.30	+	
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		<b>Total</b>	<b>591.70</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>8.00</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	110.76	+	Unit-I under shutdown till 30th June, 2020. 220kV Mal-BIR under shutdown (30.05-13.06.20)
		Unit- II	91.20	220kV CHP - Birpara Fdr- II	110.63	+	
		Unit- III	91.94	220kV CHP - Malbase Fdr- III	122.90	+	
		Unit- IV	90.56	220kV CHP - Semtokha Fdr- IV	-78.78	-	
		-	-	220kV Malbase - Birpara Fdr.	0.00	+	
		-	-	66kV CHP - Chumdo Fdr.	1.42	+	
		-	-	66kV CHP - Gedu Fdr.	5.30	+	
		-	-	3x3MVA, 66/11kV TFR	0.88	+	
		<b>Total</b>	<b>273.70</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.59</b>		
4	24MW BHP (U/S)	Unit- I	8.59	220kV BHP - Semtokha Fdr.	99.61	+	
		Unit- II	8.59	66kV BHP - Lobeysa Fdr.	13.99	+	
		<b>Total</b>	<b>17.18</b>	220kV BHP - Tsirang Fdr.	-63.02	-	
	40MW BHP (L/S)	Unit- I	16.57	5MVA, 66/11kV TFR	0.40	+	
		Unit- II	15.86	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>32.43</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-1.37</b>		
5	126MW DHPC	Unit-I	33.26	220kV DHPC - Tsirang Fdr.	67.06	+	220kV DHP-Dagapela line under breakdown.
		Unit-II	34.25	220kV DHP - Dagapela Fdr.	0.00		
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>67.51</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	43.94	+	220kV TSI_JLG line kept open to avoid overloading on 132kV MAT_Rangia line.
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	20.60	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.31	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	-4.10	-	
		-	-	132kV Motanga - Rangia Fdr.	42.71	+	
		-	-	220kV Tsirang - Jigmeling	0.00		
		<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.15</b>		

**Note: Generation-Load summary for June 07, 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	1,509.92	145.10	193.82	1,297.31	-48.72
2	Eastern Grid	657.70	35.39	26.24	622.31	9.15
	<b>Total</b>	<b>2,167.62</b>	<b>180.49</b>	<b>220.06</b>	<b>1,919.62</b>	<b>-39.57</b>

**Note: Generation-Load Summary for June 07, 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	523.65	237.21	233.31	260.40	3.90
2	Eastern Grid	66.69	42.93	42.39	49.80	0.54
	<b>Total</b>	<b>590.34</b>	<b>280.14</b>	<b>275.70</b>	<b>310.20</b>	<b>4.44</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.
  - The clocks of all the locations are not synchronized.
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