

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>October 17, 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	168.78	400kV THP - Siliguri Fdr- I	0.00		Unit-II, IV & 400kV THP-SIL Fdr I under Standby.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	187.38	+	
		Unit- III	130.25	400kV THP - Siliguri Fdr- IV	179.39	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	241.39	+	
		Unit- V	148.86	400kV Malbase - Siliguri	162.03	+	
		Unit- VI	170.56	-	-	-	
		<b>Total</b>	<b>618.45</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.664%</b>		
2	720MW MHP	Unit-I	80.10	400kV MHP - Jigmeling Fdr - I	193.12	+	Unit-III under maintenance (22/09/20-30/11/2020). 400kV MHP-JLG Fdr II under Breakdown. 400kV MHP-JLG Fdr III under standby.
		Unit-II	149.78	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	160.32	400kV MHP - Jigmeling Fdr - IV	194.43	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>390.20</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.679%</b>		
3	336MW CHP	Unit- I	74.56	220kV CHP - Birpara Fdr- I	86.40	+	
		Unit- II	63.47	220kV CHP - Birpara Fdr- II	86.30	+	
		Unit- III	80.70	220kV CHP - Malbase Fdr- III	109.70	+	
		Unit- IV	73.70	220kV CHP - Semtokha Fdr- IV	-5.70	-	
		-	-	220kV Malbase - Birpara Fdr.	57.71	+	
		-	-	66kV CHP - Chumdo Fdr.	6.30	+	
		-	-	66kV CHP - Gedu Fdr.	5.90	+	
		-	-	3x3MVA, 66/11kV TFR	1.32	+	
		<b>Total</b>	<b>292.43</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.756%</b>		
4	24MW BHP (U/S)	Unit- I	9.97	220kV BHP - Semtokha Fdr.	35.92	+	
		Unit- II	9.97	66kV BHP - Lobeysa Fdr.	14.98	+	
		<b>Total</b>	<b>19.94</b>	220kV BHP - Tsirang Fdr.	4.90	+	
	40MW BHP (L/S)	Unit- I	18.55	5MVA, 66/11kV TFR	0.61	+	
		Unit- II	17.94	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>36.49</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.035%</b>		
5	126MW DHPC	Unit-I	35.24	220kV DHPC - Tsirang Fdr.	70.01	+	
		Unit-II	35.25	220kV Jigmeling - Dagapela Fdr.	1.60	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>70.49</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.681%</b>		
6	60MW KHP	Unit- I	16.01	132kV KHP - Nangkhon Fdr- I	35.56	+	
		Unit-II	16.02	132kV KHP - Kilikhar Fdr- II	26.91	+	
		Unit- III	16.02	5MVA, 132/11kV TFR	0.38	+	
		Unit- IV	15.97	132kV Gelephu - Salakati Fdr.	22.30	+	
		-	-	132kV Motanga - Rangia Fdr.	56.75	+	
		-	-	220kV Tsirang - Jigmeling	53.10	+	
		<b>Total</b>	<b>64.02</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.828%</b>		

**Note: Generation-Load Summary for October 17, 2020 at 19:00hrs.**

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Load Balance (MW)
1	Western Grid	1,037.80	225.49	214.09	759.21	11.40
2	Eastern Grid	454.22	40.72	36.90	466.60	3.82
	<b>Total</b>	<b>1,492.02</b>	<b>266.21</b>	<b>250.99</b>	<b>1,225.81</b>	<b>15.22</b>

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Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Load Balance (MW)
1	Western Grid	1012.03	264.53	257.42	687.29	7.11
2	Eastern Grid	466.17	54.89	53.56	471.49	1.33
	<b>Total</b>	<b>1,478.20</b>	<b>319.42</b>	<b>310.98</b>	<b>1,158.78</b>	<b>8.44</b>

**NOTE: KHP, Motanga & MHP 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.

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<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	169.19	400kV THP - Siliguri Fdr- I	0.00		Unit-II, IV & 400kV THP-SIL Fdr I under Standby.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	183.93	+	
		Unit- III	101.16	400kV THP - Siliguri Fdr- IV	175.91	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	204.68	+	
		Unit- V	132.15	400kV Malbase - Siliguri	166.58	+	
		Unit- VI	169.39	-	-	-	
		<b>Total</b>	<b>571.89</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.289%</b>		
2	720MW MHP	Unit-I	80.18	400kV MHP - Jigmeling Fdr - I	188.68	+	Unit-III under maintenance (22/09/20-30/11/2020). 400kV MHP-JLG Fdr II under Breakdown. 400kV MHP-JLG Fdr III under standby.
		Unit-II	140.16	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	160.32	400kV MHP - Jigmeling Fdr - IV	190.05	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>380.66</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.507%</b>		
3	336MW CHP	Unit- I	70.43	220kV CHP - Birpara Fdr- I	81.69	+	
		Unit- II	63.74	220kV CHP - Birpara Fdr- II	81.49	+	
		Unit- III	70.58	220kV CHP - Malbase Fdr- III	135.05	+	
		Unit- IV	73.20	220kV CHP - Semtokha Fdr- IV	-31.77	-	
		-	-	220kV Malbase - Birpara Fdr.	57.71	+	
		-	-	66kV CHP - Chumdo Fdr.	3.50	+	
		-	-	66kV CHP - Gedu Fdr.	5.30	+	
		-	-	3x3MVA, 66/11kV TFR	1.32	+	
		<b>Total</b>	<b>277.95</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.493%</b>		
4	24MW BHP (U/S)	Unit- I	10.08	220kV BHP - Semtokha Fdr.	50.48	+	
		Unit- II	10.08	66kV BHP - Lobeysa Fdr.	14.02	+	
		<b>Total</b>	<b>20.16</b>	220kV BHP - Tsirang Fdr.	-7.87	-	
	40MW BHP (L/S)	Unit- I	18.22	5MVA, 66/11kV TFR	0.40	+	
		Unit- II	18.25	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>36.47</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.706%</b>		
5	126MW DHPC	Unit-I	35.21	220kV DHPC - Tsirang Fdr.	70.00	+	
		Unit-II	35.25	220kV Jigmeling - Dagapela Fdr.	1.10	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>70.46</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.653%</b>		
6	60MW KHP	Unit- I	15.90	132kV KHP - Nangkhon Fdr- I	36.21	+	
		Unit-II	14.51	132kV KHP - Kilikhar Fdr- II	22.13	+	
		Unit- III	14.99	5MVA, 132/11kV TFR	0.24	+	
		Unit- IV	14.56	132kV Gelephu - Salakati Fdr.	29.20	+	
		-	-	132kV Motanga - Rangia Fdr.	49.70	+	
		-	-	220kV Tsirang - Jigmeling	53.10	+	
		<b>Total</b>	<b>59.96</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.297%</b>		

**Note: Generation-Load summary for October 18, 2020 at 09:00hrs.**

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Load Balance (MW)
1	Western Grid	976.93	176.52	168.82	747.31	7.70
2	Eastern Grid	440.62	36.09	32.78	457.63	3.31
	<b>Total</b>	<b>1,417.55</b>	<b>212.61</b>	<b>201.60</b>	<b>1,204.94</b>	<b>11.01</b>

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Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Load Balance (MW)
1	Western Grid	976.26	241.87	230.35	678.95	11.52
2	Eastern Grid	396.9	56.93	52.51	395.41	4.42
	<b>Total</b>	<b>1,373.16</b>	<b>298.80</b>	<b>282.86</b>	<b>1,074.36</b>	<b>15.94</b>

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  - 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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