

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>November 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	0.00	400kV THP - Siliguri Fdr- I	169.46	+	Unit-IV under Standby Unit- I,II, 400kV THP-SIL Fdr IV, 400kV Tala-Malbase & ICT under Shutdown.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	165.69	+	
		Unit- III	99.19	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	0.00		
		Unit- V	100.15	400kV Malbase - Siliguri	0.00		
		Unit- VI	140.53	-	-	-	
		<b>Total</b>	<b>339.87</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.389%</b>		
2	720MW MHP	Unit-I	60.12	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II on Standby. Unit-III under AMP(22/09/20- 30/11/2020). 400kV MHP-Jigmeling Fdr I under shutdown. 400kV MHP-Jigmeling Fdr II under Breakdown.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	95.52	+	
		Unit-IV	130.65	400kV MHP - Jigmeling Fdr - IV	94.79	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>190.77</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.241%</b>		
3	336MW CHP	Unit- I	72.53	220kV CHP - Birpara Fdr- I	26.46	+	Unit II under Annual Maintenance
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	26.39	+	
		Unit- III	52.37	220kV CHP - Malbase Fdr- III	91.82	+	
		Unit- IV	75.05	220kV CHP - Semtokha Fdr- IV	36.41	+	
		-	-	220kV Malbase - Birpara Fdr.	-26.00	-	
		-	-	66kV CHP - Chumdo Fdr.	12.69	+	
		-	-	66kV CHP - Gedu Fdr.	4.13	+	
		-	-	3x3MVA, 66/11kV TFR		+	
		<b>Total</b>	<b>199.95</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.025%</b>		
4	24MW BHP (U/S)	Unit- I	6.02	220kV BHP - Semtokha Fdr.	17.87	+	
		Unit- II	6.02	66kV BHP - Lobeysa Fdr.	15.09	+	
		<b>Total</b>	<b>12.04</b>	220kV BHP - Tsirang Fdr.	2.52	+	
	40MW BHP (L/S)	Unit- I	12.37	5MVA, 66/11kV TFR		+	
		Unit- II	11.85	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>24.22</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.151%</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	42.31	+	Unit I on Standby
		Unit-II	42.50	220kV Jigmeling - Dagapela Fdr.	2.10	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>42.50</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.447%</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	17.48	+	Unit I under Annual Maintenance.
		Unit-II	11.01	132kV KHP - Kilikhar Fdr- II	16.03	+	
		Unit- III	12.14	5MVA, 132/11kV TFR	0.67	+	
		Unit- IV	12.12	132kV Gelephu - Salakati Fdr.	1.20	+	
		-	-	132kV Motanga - Rangia Fdr.	19.95	+	
		-	-	220kV Tsirang - Jigmeling	41.97	+	
		<b>Total</b>	<b>35.27</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>3.090%</b>		

**Note: Generation-Load Summary for November 15, 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	618.58	214.61	208.97	362.00	5.64
2	Eastern Grid	226.04	56.55	55.00	211.46	1.55
	<b>Total</b>	<b>844.62</b>	<b>271.16</b>	<b>263.97</b>	<b>573.46</b>	<b>7.19</b>

**Note: Generation-Load Summary for November 15, 2019 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	652.68	284.62	278.22	342.53	6.40
2	Eastern Grid	230.05	68.72	62.66	186.86	6.06
	<b>Total</b>	<b>882.73</b>	<b>353.34</b>	<b>340.88</b>	<b>529.39</b>	<b>12.46</b>

**NOTE: MHP, MAL, DHP,KHP & Motanga data 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

Date:	November 16, 2020
Hours:	09:00 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	0.00	400kV THP - Siliguri Fdr- I	162.79	+	Unit- IV on Standby Unit-I & II under maintenace 400kV THP-SIL Fdr IV 400kV Tala-Malbase & ICT under shutdown.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	159.52	+	
		Unit- III	98.93	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	0.00		
		Unit- V	89.72	400kV Malbase - Siliguri	0.00		
		Unit- VI	139.42	-	-	-	
		<b>Total</b>	<b>328.07</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.756%</b>		
2	720MW MHP	Unit-I	65.30	400kV MHP - Jigmeling Fdr - I	0.00		Unit-III under AMP (22/09/20-30/11/2020) Unit-II on standby 400kV MHP-JLG Fdr II under Breakdown 400kV MHP-JLG Fdr I under shutdown
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	98.02	+	
		Unit-IV	130.64	400kV MHP - Jigmeling Fdr - IV	97.31	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>195.94</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.311%</b>		
3	336MW CHP	Unit- I	61.00	220kV CHP - Birpara Fdr- I	25.98	+	Unit II under Annual Maintenance
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	25.96	+	
		Unit- III	54.00	220kV CHP - Malbase Fdr- III	86.69	+	
		Unit- IV	50.00	220kV CHP - Semtokha Fdr- IV	11.54	+	
		-	-	220kV Malbase - Birpara Fdr.	-24.20	-	
		-	-	66kV CHP - Chumdo Fdr.	8.26	+	
		-	-	66kV CHP - Gedu Fdr.	3.48	+	
		<b>Total</b>	<b>165.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.145%</b>		
4	24MW BHP (U/S)	Unit- I	5.97	220kV BHP - Semtokha Fdr.	30.91	+	
		Unit- II	5.97	66kV BHP - Lobeysa Fdr.	13.22	+	
		<b>Total</b>	<b>11.94</b>	220kV BHP - Tsirang Fdr.	-7.90	-	
	40MW BHP (L/S)	Unit- I	12.53	5MVA, 66/11kV TFR	0.40	+	
		Unit- II	11.98	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>24.51</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.734%</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	42.00	+	Unit-I on Standby
		Unit-II	42.22	220kV Jigmeling - Dagapela Fdr.	1.50	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>42.22</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.521%</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	20.36	+	Unit I under Annual Maintenance
		Unit-II	13.02	132kV KHP - Kilikhar Fdr- II	13.31	+	
		Unit- III	11.10	5MVA, 132/11kV TFR	0.38	+	
		Unit- IV	11.10	132kV Gelephu - Salakati Fdr.	4.60	+	
		-	-	132kV Motanga - Rangia Fdr.	15.03	+	
		-	-	220kV Tsirang - Jigmeling	31.58	+	
		<b>Total</b>	<b>35.22</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>3.336%</b>		

**Note: Generation-Load summary for November 16, 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	571.74	190.11	183.92	350.05	6.19
2	Eastern Grid	231.16	47.78	46.00	214.96	1.79
	<b>Total</b>	<b>802.90</b>	<b>237.89</b>	<b>229.92</b>	<b>565.01</b>	<b>7.98</b>

**Note: Generation-Load Summary for November 16, 2019 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	509.64	262.07	253.83	238.07	8.24
2	Eastern Grid	221.46	55.49	51.30	175.47	4.19
	<b>Total</b>	<b>731.10</b>	<b>317.56</b>	<b>305.13</b>	<b>413.54</b>	<b>12.43</b>

**NOTES: KHP,MHP & Motanga datas collected from site.**

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