

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>January 13, 2021</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	100.52	400kV THP - Siliguri Fdr- I	0.00	+	Unit-II, V & VI under shutdown. Unit-III on standby. 400kV THP-SIL Fdr I on Standby. 400kV THP-SIL Fdr II under AMP.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	56.83		
		Unit- IV	90.10	400kV THP - Malbase Fdr- III	133.11	+	
		Unit- V	0.00	400kV Malbase - Siliguri	36.00	+	
		Unit- VI	0.00	-	-	-	
		<b>Total</b>	<b>190.62</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.357%</b>		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-I on standby. Unit-II under maintenance. Unit-III under breakdown. 400kV MHP-JLG Fdr I,III & IV on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	114.87	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	115.55	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>115.55</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.588%</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	-5.41	-	Unit-I under Annual Maintenance Unit-IV under standby.
		Unit- II	48.19	220kV CHP - Birpara Fdr- II	-5.39	-	
		Unit- III	48.83	220kV CHP - Malbase Fdr- III	29.69	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	55.23	+	
		-	-	220kV Malbase - Birpara Fdr.	-21.00	-	
		-	-	66kV CHP - Chumdo Fdr.	16.59	+	
		-	-	66kV CHP - Gedu Fdr.	2.84	+	
		-	-	3x3MVA, 66/11kV TFR	2.20	+	
		<b>Total</b>	<b>97.02</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.309%</b>		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	12.52	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	6.93	66kV BHP - Lobeysa Fdr.	15.99	+	
	<b>Total</b>	<b>6.93</b>	220kV BHP - Tsirang Fdr.	-8.29	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.80	+	
Unit- II		14.08	30MVA ICT, 220/66kV				
		<b>Total</b>	<b>14.08</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.048%</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	23.49	+	Unit-I on standby.
		Unit-II	23.72	220kV Jigmeling - Dagapela Fdr.	2.63	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>23.72</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.970%</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	4.34	+	Unit-I Tripped Unit-II under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilihar Fdr- II	11.45	+	
		Unit- III	16.49	5MVA, 132/11kV TFR	0.49	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-28.40	-	
		-	-	132kV Motanga - Rangia Fdr.	-13.55	-	
		-	-	220kV Tsirang - Jigmeling	12.04	+	
		<b>Total</b>	<b>16.49</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.298%</b>		

**Note: Generation-Load Summary for January 13, 2021 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	332.37	259.30	259.76	61.03	-0.46
2	Eastern Grid	132.04	71.16	70.27	72.92	0.89
	<b>Total</b>	<b>464.41</b>	<b>330.46</b>	<b>330.03</b>	<b>133.95</b>	<b>0.43</b>

**Note: Generation-Load Summary for January 13, 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	221.37	223.52	218.56	-26.15	4.96
2	Eastern Grid	133.42	87.92	85.36	69.5	2.56
	<b>Total</b>	<b>354.79</b>	<b>311.44</b>	<b>303.92</b>	<b>43.35</b>	<b>7.52</b>

**NOTE- Eastern 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:	January 14, 2021
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	100.12	400kV THP - Siliguri Fdr- I	0.00		Unit-II, V & VI under shutdown. Unit-III on standby. 400kV THP-SIL Fdr I on Standby. 400kV THP-SIL Fdr II under AMP.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	57.10	+	
		Unit- IV	90.81	400kV THP - Malbase Fdr- III	128.37	+	
		Unit- V	0.00	400kV Malbase - Siliguri	46.00	+	
		Unit- VI	0.00	-	-	-	
		<b>Total</b>	<b>190.93</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.860%</b>		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-I on standby. Unit-II under maintenance. Unit-III under breakdown. 400kV MHP-JLG Fdr I,III & IV on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	115.01	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	115.54	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>115.54</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.459%</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	2.48	+	Unit-I under Annual Maintenance Unit-IV under standby.
		Unit- II	46.90	220kV CHP - Birpara Fdr- II	2.67	+	
		Unit- III	50.11	220kV CHP - Malbase Fdr- III	43.81	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	31.04	+	
		-	-	220kV Malbase - Birpara Fdr.	-30.00	-	
		-	-	66kV CHP - Chumdo Fdr.	11.61	+	
		-	-	66kV CHP - Gedu Fdr.	3.39	+	
		-	-	3x3MVA, 66/11kV TFR	1.60	+	
		<b>Total</b>	<b>97.01</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.423%</b>		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	19.05	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	6.93	66kV BHP - Lobeysa Fdr.	13.25	+	
	<b>Total</b>	<b>6.93</b>	220kV BHP - Tsirang Fdr.	-11.14	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.50	+	
Unit- II		14.59	30MVA ICT, 220/66kV				
		<b>Total</b>	<b>14.59</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.651%</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	23.39	+	Unit-I on standby.
		Unit-II	23.62	220kV Jigmeling - Dagapela Fdr.	1.75	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>23.62</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.974%</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	9.24	+	Unit-I on standby. Unit-II under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilihar Fdr- II	11.65	+	
		Unit- III	10.50	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	10.50	132kV Gelephu - Salakati Fdr.	-18.00	-	
		-	-	132kV Motanga - Rangia Fdr.	-6.43	-	
		-	-	220kV Tsirang - Jigmeling	10.41	+	
		<b>Total</b>	<b>21.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-1.381%</b>		

Note: Generation-Load summary for January 14, 2021 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	333.08	244.42	240.21	78.25	4.21
2	Eastern Grid	136.54	56.37	56.13	90.58	0.24
	<b>Total</b>	<b>469.62</b>	<b>300.79</b>	<b>296.34</b>	<b>168.83</b>	<b>4.45</b>

Note: Generation-Load Summary for January 14, 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	298.73	217.68	214.17	76.51	3.51
2	Eastern Grid	132.74	43.87	42.62	93.41	1.25
	<b>Total</b>	<b>431.47</b>	<b>261.55</b>	<b>256.79</b>	<b>169.92</b>	<b>4.76</b>

NOTE: All data collected from site.

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