

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>November 18, 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	0.00	+	Unit-IV & 400kV THP-SIL Fdr I under Standby Unit- I,II,400kV Tala-Malbase & ICT under Shutdown.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	164.50	+	
		Unit- III	99.86	400kV THP - Siliguri Fdr- IV	157.95	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	0.00		
		Unit- V	88.64	400kV Malbase - Siliguri	0.00		
		Unit- VI	139.69	-	-	-	
		<b>Total</b>	<b>328.19</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.749%</b>		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-I 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	49.98	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	65.45	+	
		Unit-IV	80.25	400kV MHP - Jigmeling Fdr - IV	65.09	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>130.23</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.238%</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	11.39	+	Unit I on Standby. Unit II under Annual Maintenance
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	11.03	+	
		Unit- III	81.34	220kV CHP - Malbase Fdr- III	77.97	+	
		Unit- IV	80.80	220kV CHP - Semtokha Fdr- IV	41.21	+	
		-	-	220kV Malbase - Birpara Fdr.	-42.16	-	
		-	-	66kV CHP - Chumdo Fdr.	14.00	+	
		-	-	66kV CHP - Gedu Fdr.	3.76	+	
		-	-	3x3MVA, 66/11kV TFR	1.80	+	
		<b>Total</b>	<b>162.14</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.604%</b>		
4	24MW BHP (U/S)	Unit- I	5.85	220kV BHP - Semtokha Fdr.	18.38	+	
		Unit- II	5.85	66kV BHP - Lobeysa Fdr.	16.68	+	
		<b>Total</b>	<b>11.70</b>	220kV BHP - Tsirang Fdr.	0.41	+	
	40MW BHP (L/S)	Unit- I	12.39	5MVA, 66/11kV TFR	0.70	+	
		Unit- II	11.91	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>24.30</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.472%</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	41.16	+	Unit I on Standby
		Unit-II	41.22	220kV Jigmeling - Dagapela Fdr.	2.30	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>41.22</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.146%</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	16.03	+	Unit I under Annual Maintenance.
		Unit-II	11.10	132kV KHP - Kilihar Fdr- II	15.56	+	
		Unit- III	11.09	5MVA, 132/11kV TFR	0.48	+	
		Unit- IV	11.08	132kV Gelephu - Salakati Fdr.	-5.84	-	
		-	-	132kV Motanga - Rangia Fdr.	13.48	+	
		-	-	220kV Tsirang - Jigmeling	38.87	+	
		<b>Total</b>	<b>33.27</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>3.607%</b>		

**Note: Generation-Load Summary for November 18, 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	567.55	225.97	221.66	302.71	4.31
2	Eastern Grid	163.50	64.19	63.30	138.18	0.89
	<b>Total</b>	<b>731.05</b>	<b>290.16</b>	<b>284.96</b>	<b>440.89</b>	<b>5.20</b>

**Note: Generation-Load Summary for November 18, 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	604.62	284.91	276.81	295.01	8.10
2	Eastern Grid	215.9	61.33	63.61	179.27	-2.28
	<b>Total</b>	<b>820.52</b>	<b>346.24</b>	<b>340.42</b>	<b>474.28</b>	<b>5.82</b>

**NOTE: 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 19, 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	0.00	+	Unit-IV & 400kV THP-SIL Fdr I under Standby Unit- I,II,400kV Tala-Malbase & ICT under Shutdown.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	165.22	+	
		Unit- III	99.04	400kV THP - Siliguri Fdr- IV	159.36	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	0.00		
		Unit- V	90.23	400kV Malbase - Siliguri	0.00		
		Unit- VI	139.23	-	-	-	
		<b>Total</b>	<b>328.50</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.193%</b>		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-III under AMP (22/09/2030/11/2020) Unit-I on Standby 400kV MHP-JLG Fdr II under Breakdown 400kV MHP-JLG Fdr I under shutdown
		Unit-II	45.20	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	96.47	+	
		Unit-IV	147.70	400kV MHP - Jigmeling Fdr - IV	95.54	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>192.90</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.461%</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	21.38	+	Unit I on Standby. Unit II under Annual Maintenance
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	21.06	+	
		Unit- III	81.39	220kV CHP - Malbase Fdr- III	89.74	+	
		Unit- IV	82.41	220kV CHP - Semtokha Fdr- IV	16.76	+	
		-	-	220kV Malbase - Birpara Fdr.	-33.80	-	
		-	-	66kV CHP - Chumdo Fdr.	8.71	+	
		-	-	66kV CHP - Gedu Fdr.	4.55	+	
		-	-	3x3MVA, 66/11kV TFR	1.10	+	
		<b>Total</b>	<b>163.80</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.305%</b>		
4	24MW BHP (U/S)	Unit- I	5.77	220kV BHP - Semtokha Fdr.	27.54	+	
		Unit- II	5.77	66kV BHP - Lobeysa Fdr.	13.43	+	
	<b>Total</b>	<b>11.54</b>	220kV BHP - Tsirang Fdr.	-5.46	-		
	40MW BHP (L/S)	Unit- I	12.37	5MVA, 66/11kV TFR	0.38	+	
Unit- II		11.86	30MVA ICT, 220/66kV				
		<b>Total</b>	<b>24.23</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.495%</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	40.65	+	Unit-I on Standby
		Unit-II	40.73	220kV Jigmeling - Dagapela Fdr.	1.50	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>40.73</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.196%</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	20.40	+	Unit I under Annual Maintenance
		Unit-II	12.17	132kV KHP - Kilikhar Fdr- II	14.74	+	
		Unit- III	12.14	5MVA, 132/11kV TFR	0.38	+	
		Unit- IV	12.16	132kV Gelephu - Salakati Fdr.	5.49	+	
		-	-	132kV Motanga - Rangia Fdr.	15.04	+	
		-	-	220kV Tsirang - Jigmeling	32.99	+	
		<b>Total</b>	<b>36.47</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.605%</b>		

Note: Generation-Load summary for November 19, 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	568.80	202.59	199.71	333.22	2.88
2	Eastern Grid	229.37	49.82	47.98	212.54	1.84
	<b>Total</b>	<b>798.17</b>	<b>252.41</b>	<b>247.69</b>	<b>545.76</b>	<b>4.72</b>

Note: Generation-Load Summary for November 19, 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	519.67	261.57	257.38	247.6	4.19
2	Eastern Grid	218.66	53.31	48.16	175.85	5.15
	<b>Total</b>	<b>738.33</b>	<b>314.88</b>	<b>305.54</b>	<b>423.45</b>	<b>9.34</b>

NOTES: KHP & 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.