

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

Maximum Load/Demand till Date

Date:	February 27, 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	0.00	400kV THP - Siliguri Fdr- I	0.00		Unit-III & IV at standby. Unit- I,II & 400kV Feeder I under AMP. 400kV THP_SILI II Standby
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	38.00	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	147.63	+	
		Unit- V	59.06	400kV Malbase - Siliguri	14.00	+	
		Unit- VI	130.08	-	-	-	
		<b>Total</b>	<b>189.14</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>3.51</b>		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II standby and Unit-IV under shutdown.Unit-III under breakdown. 400kV MHP-JLG I, II & III Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	85.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	83.00	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>85.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.00</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.00		Unit-I & III under shutdown. 220kV CHP-Birpara Fdr I standby.
		Unit- II	39.69	220kV CHP - Birpara Fdr- II	-25.24	-	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	-1.72	+	
		Unit- IV	42.72	220kV CHP - Sementokha Fdr- IV	87.05	+	
		-	-	220kV Malbase - Birpara Fdr.	-38.00	-	
		-	-	66kV CHP - Chumdo Fdr.	17.80	+	
		-	-	66kV CHP - Gedu Fdr.	2.67	+	
		-	-	3x3MVA, 66/11kV TFR	2.08	+	
		<b>Total</b>	<b>82.41</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.23</b>		
4	24MW BHP (U/S)	Unit- I	6.21	220kV BHP - Sementokha Fdr.	-19.56	-	U/S Unit-II and LS Unit II under shutdown.
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	16.03	+	
		<b>Total</b>	<b>6.21</b>	220kV BHP - Tsirang Fdr.	20.76	+	
	40MW BHP (L/S)	Unit- I	12.10	5MVA, 66/11kV TFR	0.86	+	
		Unit- II	0.00	30MVA ICT, 220/66kV			
<b>Total</b>	<b>12.10</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.22</b>				
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	18.95	+	Unit I under maintenance
		Unit-II	19.20	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>19.20</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.25</b>		
6	60MW KHP	Unit- I	12.67	132kV KHP - Nangkhon Fdr- I	8.67	+	Unit- III & IV Annual Maintenance
		Unit-II	10.08	132kV KHP - Kilikhar Fdr- II	13.02	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.60	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-12.04	-	
		-	-	132kV Motanga - Rangia Fdr.	1.20	-	
		-	-	220kV Tsirang - Jigmeling	37.00	+	
		<b>Total</b>	<b>22.75</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.46</b>		

**Note: Load summary on February 27, 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	309.06	283.30	279.55	-11.24	3.75
2	Eastern Grid	107.75	72.59	70.13	72.16	2.46
	<b>Total</b>	416.81	355.89	349.68	60.92	6.21

**Note: Load Summary on February 27, 2019 at 19:00hrs**

Sl. No	Region	19:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	285.13	285.13	308.60
2	Eastern Grid	62.50	62.50	65.91
	<b>National</b>	<b>347.63</b>	<b>347.63</b>	<b>374.51</b>

**NOTES: KHP, Malbase & JLG 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

Date:	February 28, 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- III & IV standby. Unit- I & II under shutdown. 400kV THP_SILI-I under AMP 400kV THP-SIL II Standby
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	21.60	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	114.22	+	
		Unit- V	58.43	400kV Malbase - Siliguri	4.00	-	
		Unit- VI	81.43	-	-	-	
		<b>Total</b>	<b>139.86</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>4.04</b>		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II standby and Unit-IV and Unit-I under shutdown. 400kV MHP-JLG I, II & III Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	85.31	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	85.09	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>85.31</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.22</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.00		Unit-I & III under shutdown. 220kV CHP-Birpara Fdr I annual maintenance
		Unit- II	31.75	220kV CHP - Birpara Fdr- II	-11.66	-	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	18.52	+	
		Unit- IV	33.24	220kV CHP - Sementokha Fdr- IV	41.17	+	
		-	-	220kV Malbase - Birpara Fdr.	-37.38	-	
		-	-	66kV CHP - Chumdo Fdr.	12.05	+	
		-	-	66kV CHP - Gedu Fdr.	2.78	+	
		<b>Total</b>	<b>64.99</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.06</b>		
4	24MW BHP (U/S)	Unit- I	5.45	220kV BHP - Sementokha Fdr.	9.98	+	U/S Unit-II and LS Unit II under shutdown.
		Unit- II	0.00	66kV BHP - Lobeyasa Fdr.	13.17	+	
		<b>Total</b>	<b>5.45</b>	220kV BHP - Tsirang Fdr.	-7.13	-	
	40MW BHP (L/S)	Unit- I	11.12	5MVA, 66/11kV TFR	0.74	+	
		Unit- II	0.00	30MVA ICT, 220/66kV			
<b>Total</b>	<b>11.12</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.19</b>				
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	21.91	+	Unit I under maintenance
		Unit-II	22.12	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>22.12</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.21</b>		
6	60MW KHP	Unit- I	12.44	132kV KHP - Nangkhon Fdr- I	16.70	+	Unit-III & IV AMP
		Unit-II	10.11	132kV KHP - Kilikhar Fdr- II	5.02	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	7.49	+	
		-	-	132kV Motanga - Rangia Fdr.	-24.20	-	
		-	-	220kV Tsirang - Jigmeling	12.67	+	
		<b>Total</b>	<b>22.55</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.43</b>		

Note: Load summary on February 28, 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	243.54	254.31	249.19	-23.44	5.12
2	Eastern Grid	107.86	52.15	51.50	68.38	0.65
	<b>Total</b>	<b>351.40</b>	<b>306.46</b>	<b>300.69</b>	<b>44.94</b>	<b>5.77</b>

Note: Load Summary on February 28, 2019 at 09:00hrs

Sl. No	Region	09:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	245.90	219.38	257.31
2	Eastern Grid	38.25	53.11	66.55
	<b>National</b>	<b>284.15</b>	<b>272.49</b>	<b>323.86</b>

NOTES: KHP generation & JLG load 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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