

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

Maximum Load/Demand till Date

Date:	February 26, 2021
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	80.96	400kV THP - Siliguri Fdr- I	37.06	+	Unit-III on standby. Unit-IV, V & VI under shutdown. 400kV THP-SIL Fdr II on standby. 400kV THP-SIL Fdr IV under AMP.
		Unit- II	70.23	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	108.23	+	
		Unit- V	0.00	400kV Malbase - Siliguri	21.00	+	
		Unit- VI	0.00	-	-	-	
		<b>Total</b>	<b>151.19</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>3.902%</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, II & III on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	90.45	400kV MHP - Jigmeling Fdr - IV	90.43	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>90.45</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.022%</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.00		Unit-I & III under Annual Maintenance 220kV CHP-BIR I on Standby.
		Unit- II	38.87	220kV CHP - Birpara Fdr- II	-15.02	-	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	10.87	+	
		Unit- IV	36.13	220kV CHP - Semtokha Fdr- IV	59.17	+	
		-	-	220kV Malbase - Birpara Fdr.	-33.00	-	
		-	-	66kV CHP - Chumdo Fdr.	15.40	+	
		-	-	66kV CHP - Gedu Fdr.	2.69	+	
		-	-	3x3MVA, 66/11kV TFR	2.00	+	
		<b>Total</b>	<b>75.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.147%</b>		
4	24MW BHP (U/S)	Unit- I	5.10	220kV BHP - Semtokha Fdr.	4.28	+	U/S Unit-II under AMP. L/S Unit-I on standby
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	14.19	+	
	<b>Total</b>	<b>5.10</b>	220kV BHP - Tsirang Fdr.	-3.53	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	1.40	+	
Unit- II		10.87	30MVA ICT, 220/66kV				
		<b>Total</b>	<b>10.87</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-2.317%</b>		
5	126MW DHPC	Unit-I	17.84	220kV DHPC - Tsirang Fdr.	17.66	+	Unit-II under AMP
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.	2.50	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>17.84</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.009%</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	5.65	+	Unit-I on standby. Unit-IV under Annual Maintenance.
		Unit-II	10.09	132kV KHP - Kilihar Fdr- II	13.71	+	
		Unit- III	10.09	5MVA, 132/11kV TFR	0.48	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-33.77	-	
		-	-	132kV Motanga - Rangia Fdr.	-4.56	-	
		-	-	220kV Tsirang - Jigmeling	10.43	+	
		<b>Total</b>	<b>20.18</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.710%</b>		

Note: Generation-Load Summary for February 26, 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	260.00	239.53	236.43	10.04	3.10
2	Eastern Grid	110.63	68.96	68.60	52.10	0.37
	<b>Total</b>	<b>370.63</b>	<b>308.49</b>	<b>305.03</b>	<b>62.14</b>	<b>3.47</b>

Note: Generation-Load Summary for February 26, 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	340.16	274.52	269.10	24.44	5.42
2	Eastern Grid	98.45	85.79	85.29	53.86	0.50
	<b>Total</b>	<b>438.61</b>	<b>360.31</b>	<b>354.39</b>	<b>78.30</b>	<b>5.92</b>

NOTE- MAL,BHP,KHP,MHP & 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:	February 27, 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	60.77	400kV THP - Siliguri Fdr- I	23.17	+	Unit-III on standby. Unit-IV,V &VI under shutdown. 400kV THP-SIL Fdr II on standby. 400kV Tala-SIL IV under AMP.
		Unit- II	58.41	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	91.02	+	
		Unit- V	0.00	400kV Malbase - Siliguri	10.00	+	
		Unit- VI	0.00	-	-	-	
		<b>Total</b>	<b>119.18</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>4.187%</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,II & III on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	90.42	400kV MHP - Jigmeling Fdr - IV	90.40		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>90.42</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.022%</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.00		Unit-I & III under AMP. 220kV CHP-BIR I on Standby
		Unit- II	38.75	220kV CHP - Birpara Fdr- II	-5.13	-	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	22.16	+	
		Unit- IV	36.07	220kV CHP - Semtokha Fdr- IV	40.60	+	
		-	-	220kV Malbase - Birpara Fdr.	-27.00	-	
		-	-	66kV CHP - Chumdo Fdr.	11.63	+	
		-	-	66kV CHP - Gedu Fdr.	3.13	+	
		-	-	3x3MVA, 66/11kV TFR	1.40	+	
		<b>Total</b>	<b>74.82</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.377%</b>		
4	24MW BHP (U/S)	Unit- I	5.22	220kV BHP - Semtokha Fdr.	8.25	+	U/S Unit-II under AMP. L/S Unit-I on standby.
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	11.50	+	
	<b>Total</b>	<b>5.22</b>	<b>220kV BHP - Tsirang Fdr.</b>	<b>-4.51</b>	<b>-</b>		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.89	+	
Unit- II		10.97	30MVA ICT, 220/66kV				
		<b>Total</b>	<b>10.97</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.371%</b>		
5	126MW DHPC	Unit-I	17.57	220kV DHPC - Tsirang Fdr.	17.37	+	Unit-II under AMP
		Unit-II	0.00	220kV Jigmeling - Dagapela Fdr.	1.80	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>17.57</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.138%</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	5.65	+	Unit-I & II on standby. Unit-IV under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	10.01	+	
		Unit- III	16.33	5MVA, 132/11kV TFR	0.38	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-21.48	-	
		-	-	132kV Motanga - Rangia Fdr.	-10.88	-	
		-	-	220kV Tsirang - Jigmeling	11.02	+	
		<b>Total</b>	<b>16.33</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.776%</b>		

Note: Generation-Load summary for February 27, 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	227.76	215.70	211.22	1.04	4.48
2	Eastern Grid	106.75	59.73	59.42	58.04	0.31
	<b>Total</b>	<b>334.51</b>	<b>275.43</b>	<b>270.64</b>	<b>59.08</b>	<b>4.79</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	275.33	255.29	250.55	-2.06	4.74
2	Eastern Grid	112.66	52.58	52.55	82.18	0.03
	<b>Total</b>	<b>387.99</b>	<b>307.87</b>	<b>303.10</b>	<b>80.12</b>	<b>4.77</b>

NOTE: KHP,MAL,MHP and Motanga data collected from site.

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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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