

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>January 24, 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	69.03	400kV THP - Siliguri Fdr- I	0.00		Unit-III on standby. Unit-IV, V & VI under shutdown. 400kV THP-SIL Fdr I on Standby.400kV THP-SIL Fdr II under AMP.
		Unit- II	100.86	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	45.75	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	119.35	+	
		Unit- V	0.00	400kV Malbase - Siliguri	30.00	+	
		Unit- VI	0.00	-	-	-	
		<b>Total</b>	<b>169.89</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.819%</b>		
2	720MW MHP	Unit-I	95.50	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II under maintenance. Unit-III under breakdown.Unit-IV on standby.400kV MHP-JLGFdr I,III & IV on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	93.10	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>95.50</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.513%</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	-9.43	-	Unit-I under Annual Maintenance Unit-III on standby.
		Unit- II	40.14	220kV CHP - Birpara Fdr- II	-9.39	-	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	27.64	+	
		Unit- IV	50.18	220kV CHP - Semtokha Fdr- IV	52.61	+	
		-	-	220kV Malbase - Birpara Fdr.	-38.00	-	
		-	-	66kV CHP - Chumdo Fdr.	23.83	+	
		-	-	66kV CHP - Gedu Fdr.	1.70	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
		<b>Total</b>	<b>90.32</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.391%</b>		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	11.97	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	6.43	66kV BHP - Lobeysa Fdr.	15.58	+	
		<b>Total</b>	<b>6.43</b>	220kV BHP - Tsirang Fdr.	-8.48	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.80	+	
		Unit- II	13.61	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>13.61</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.848%</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	20.97	+	Unit-I on standby.
		Unit-II	21.20	220kV Jigmeling - Dagapela Fdr.	2.68	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>21.20</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.085%</b>		
6	60MW KHP	Unit- I	10.47	132kV KHP - Nangkhon Fdr- I	8.60	+	Unit-IV on standby. Unit-II under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilihar Fdr- II	11.66	+	
		Unit- III	10.53	5MVA, 132/11kV TFR	0.35	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-29.80	-	
		-	-	132kV Motanga - Rangia Fdr.	-16.61	-	
		-	-	220kV Tsirang - Jigmeling	10.12	+	
		<b>Total</b>	<b>21.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.857%</b>		

**Note: Generation-Load Summary for January 24, 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	301.45	272.40	267.73	18.93	4.67
2	Eastern Grid	116.50	79.93	77.14	46.69	2.79
	<b>Total</b>	<b>417.95</b>	<b>352.33</b>	<b>344.87</b>	<b>65.62</b>	<b>7.46</b>

**Note: Generation-Load Summary for January 24, 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	355.54	252.48	251.40	80.88	1.08
2	Eastern Grid	114.30	56.94	56.37	79.54	0.57
	<b>Total</b>	<b>469.84</b>	<b>309.42</b>	<b>307.77</b>	<b>160.42</b>	<b>1.65</b>

**NOTE- KHP,Motanga & MAL 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 25, 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	78.00	400kV THP - Siliguri Fdr- I	0.00		Unit-III on standby.Unit-IV, V & VI under shutdown. 400kV THP-SIL Fdr I on Standby.400kV THP-SIL Fdr II under AMP.
		Unit- II	99.20	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	49.80	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	123.24	+	
		Unit- V	0.00	400kV Malbase - Siliguri	36.00	+	
		Unit- VI	0.00	-	-	-	
		<b>Total</b>	<b>177.20</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.348%</b>		
2	720MW MHP	Unit-I	109.78	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II under maintenance. Unit-III under breakdown.Unit IV on standby.400kV MHP-JLGFdr I,III & IV on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	109.40	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>109.78</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.346%</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	0.80	+	Unit-I under Annual Maintenance Unit-III on standby.
		Unit- II	36.22	220kV CHP - Birpara Fdr- II	0.80	+	
		Unit- III	0.00	220kV CHP - Malbase Fdr- III	27.71	+	
		Unit- IV	49.24	220kV CHP - Semtokha Fdr- IV	34.27	+	
		-	-	220kV Malbase - Birpara Fdr.	-21.00	-	
		-	-	66kV CHP - Chumdo Fdr.	16.80	+	
		-	-	66kV CHP - Gedu Fdr.	0.97	+	
		-	-	3x3MVA, 66/11kV TFR	1.45	+	
		<b>Total</b>	<b>85.46</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>3.113%</b>		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	7.84	+	U/S Unit-I & L/S Unit-I under AMP. L/S Unit-II tripped at 09:00 hours.
		Unit- II	6.50	66kV BHP - Lobeysa Fdr.	11.96	+	
		<b>Total</b>	<b>6.50</b>	220kV BHP - Tsirang Fdr.	-14.01	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	0.00	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>0.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-2.769%</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	21.57	+	Unit-I on standby.
		Unit-II	21.80	220kV Jigmeling - Dagapela Fdr.	1.80	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>21.80</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.055%</b>		
6	60MW KHP	Unit- I	10.11	132kV KHP - Nangkhon Fdr- I	4.30	+	Unit-IV on standby. Unit-II under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	15.23	+	
		Unit- III	10.06	5MVA, 132/11kV TFR	0.12	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-17.71	-	
		-	-	132kV Motanga - Rangia Fdr.	-14.78	-	
		-	-	220kV Tsirang - Jigmeling	5.51	+	
		<b>Total</b>	<b>20.17</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.563%</b>		

Note: Generation-Load summary for January 25, 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	290.96	219.05	213.98	66.40	5.07
2	Eastern Grid	129.95	58.55	57.65	76.91	0.90
<b>Total</b>		<b>420.91</b>	<b>277.60</b>	<b>271.63</b>	<b>143.31</b>	<b>5.97</b>

Note: Generation-Load Summary for January 25, 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	254.91	241.21	236.03	8.33	5.18
2	Eastern Grid	117.67	38.20	38.95	84.84	-0.75
<b>Total</b>		<b>372.58</b>	<b>279.41</b>	<b>274.98</b>	<b>93.17</b>	<b>4.43</b>

NOTE: MAL & Eastern loads 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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