

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

Maximum Load/Demand till Date

Date:	January 6, 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	129.92	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	90.87	+	
		Unit- IV	139.33	400kV THP - Malbase Fdr- III	173.73	+	
		Unit- V	0.00	400kV Malbase - Siliguri	75.00	+	
		Unit- VI	0.00	-	-	-	
		<b>Total</b>	<b>269.25</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.727%</b>		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-I on standby. Unit-II under shutdown. Unit-III under breakdown. 400kV MHP-JLG Fdr I,III & IV on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	115.45	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	115.51	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>115.51</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.052%</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	-2.31	-	Unit I & II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	-2.43	-	
		Unit- III	44.75	220kV CHP - Malbase Fdr- III	56.70	+	
		Unit- IV	56.20	220kV CHP - Semtokha Fdr- IV	27.00	+	
		-	-	220kV Malbase - Birpara Fdr.	-25.00	-	
		-	-	66kV CHP - Chumdo Fdr.	16.32	+	
		-	-	66kV CHP - Gedu Fdr.	3.40	+	
		-	-	3x3MVA, 66/11kV TFR	1.90	+	
		<b>Total</b>	<b>100.95</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.367%</b>		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	11.56	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	6.99	66kV BHP - Lobeysa Fdr.	15.86	+	
		<b>Total</b>	<b>6.99</b>	220kV BHP - Tsirang Fdr.	-6.56	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	1.00	+	
		Unit- II	14.76	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>14.76</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-0.506%</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	23.96	+	Unit-I on standby.
		Unit-II	24.22	220kV Jigmeling - Dagapela Fdr.	2.70	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>24.22</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.073%</b>		
6	60MW KHP	Unit- I	10.15	132kV KHP - Nangkhon Fdr- I	5.52	+	Unit-III & Unit-IV on standby.
		Unit-II	10.09	132kV KHP - Kilihar Fdr- II	13.86	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.51	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-21.49	-	
		-	-	132kV Motanga - Rangia Fdr.	2.15	+	
		-	-	220kV Tsirang - Jigmeling	15.37	+	
		<b>Total</b>	<b>20.24</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.729%</b>		

Note: Generation-Load Summary for January 06, 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	416.17	264.67	262.20	136.13	2.47
2	Eastern Grid	135.75	55.01	54.60	96.11	0.41
	<b>Total</b>	<b>551.92</b>	<b>319.68</b>	<b>316.80</b>	<b>232.24</b>	<b>2.88</b>

Note: Generation-Load Summary for January 06, 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	425.27	294.47	289.22	119.35	5.25
2	Eastern Grid	136.86	41.82	40.42	106.49	1.40
	<b>Total</b>	<b>562.13</b>	<b>336.29</b>	<b>329.64</b>	<b>225.84</b>	<b>6.65</b>

NOTE- 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:	January 7, 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	120.00	400kV THP - Siliguri Fdr- I	0.00		Unit-II & V under shutdown. Unit-VI under maintenance 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	76.00	+	
		Unit- IV	110.00	400kV THP - Malbase Fdr- III	148.00	+	
		Unit- V	0.00	400kV Malbase - Siliguri	65.00	+	
		Unit- VI	0.00	-	-	-	
		<b>Total</b>	<b>230.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.609%</b>		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-I on standby. Unit-II under shutdown. Unit-III under breakdown. 400kV MHP-JLG Fdr I, III & IV on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	115.42	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	115.51	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>115.51</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.078%</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	4.42	+	Unit-I & II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	4.19	+	
		Unit- III	40.19	220kV CHP - Malbase Fdr- III	44.81	+	
		Unit- IV	55.30	220kV CHP - Semtokha Fdr- IV	24.32	+	
		-	-	220kV Malbase - Birpara Fdr.	-29.00	-	
		-	-	66kV CHP - Chumdo Fdr.	9.70	+	
		-	-	66kV CHP - Gedu Fdr.	4.10	+	
		-	-	3x3MVA, 66/11kV TFR	1.40	+	
		<b>Total</b>	<b>95.49</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.670%</b>		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	17.31	+	U/S Unit-I & L/S Unit-I under AMP.
		Unit- II	7.30	66kV BHP - Lobeysa Fdr.	11.90	+	
	<b>Total</b>	<b>7.30</b>	<b>220kV BHP - Tsirang Fdr.</b>	<b>-8.76</b>	<b>-</b>		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	1.80	+	
Unit- II		15.00	30MVA ICT, 220/66kV				
		<b>Total</b>	<b>15.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.224%</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	23.98	+	Unit-I on standby.
		Unit-II	24.20	220kV Jigmeling - Dagapela Fdr.	1.70	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>24.20</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.909%</b>		
6	60MW KHP	Unit- I	10.51	132kV KHP - Nangkhon Fdr- I	9.50	+	Unit-III & Unit-IV on standby.
		Unit-II	10.52	132kV KHP - Kilihar Fdr- II	10.87	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-13.50	-	
		-	-	132kV Motanga - Rangia Fdr.	-0.71	-	
		-	-	220kV Tsirang - Jigmeling	10.70	+	
		<b>Total</b>	<b>21.03</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.236%</b>		

Note: Generation-Load summary for January 07, 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	371.99	240.68	233.56	120.61	7.12
2	Eastern Grid	136.54	46.03	45.68	101.21	0.35
	<b>Total</b>	<b>508.53</b>	<b>286.71</b>	<b>279.24</b>	<b>221.82</b>	<b>7.47</b>

Note: Generation-Load Summary for January 07, 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	282.37	276.29	270.70	-7.07	5.59
2	Eastern Grid	135.39	42.30	40.93	106.24	1.37
	<b>Total</b>	<b>417.76</b>	<b>318.59</b>	<b>311.63</b>	<b>99.17</b>	<b>6.96</b>

NOTE: MHP,KHP & Motanga data collected from site.

1. 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:

- i) 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.
- ii) The clocks of all the locations are not synchronized.

2. This report is generated to give an idea of the generation & load flow for the system at a particular instant.