

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

Maximum Load/Demand till Date

Date:	December 6, 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- I, II under shutdown. Unit-IV & V on stand by. 400kV THP-SIL Fdr I under shutdown. 400kV THP-SIL Fdr IV on Standby.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	108.81	+	
		Unit- III	139.89	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	165.81	+	
		Unit- V	0.00	400kV Malbase - Siliguri	87.00	+	
		Unit- VI	139.17	-	-	-	
		<b>Total</b>	<b>279.06</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.591%</b>		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II under shutdown. Unit-III under breakdown. Unit-I on standby. 400kV MHP-JLG Fdr I & III under standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	74.62	+	
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00	+	
		Unit-IV	150.59	400kV MHP - Jigmeling Fdr - IV	74.83		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>150.59</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.757%</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	29.23	+	Unit I & Unit II under Annual Maintenance. 220kV CHP-Malbase Fdr III under AMP.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	29.03	+	
		Unit- III	67.16	220kV CHP - Malbase Fdr- III	0.00		
		Unit- IV	66.35	220kV CHP - Semtokha Fdr- IV	52.76	+	
		-	-	220kV Malbase - Birpara Fdr.	-25.10	-	
		-	-	66kV CHP - Chumdo Fdr.	15.61	+	
		-	-	66kV CHP - Gedu Fdr.	3.96	+	
		-	-	3x3MVA, 66/11kV TFR	1.87	+	
		<b>Total</b>	<b>133.51</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.786%</b>		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	12.64	+	U/S Unit-I & L/S Unit-I standby.
		Unit- II	10.16	66kV BHP - Lobeysa Fdr.	16.15	+	
	<b>Total</b>	<b>10.16</b>	220kV BHP - Tsirang Fdr.	-1.06	-		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.90	+	
Unit- II		19.14	30MVA ICT, 220/66kV				
		<b>Total</b>	<b>19.14</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.287%</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	33.01	+	Unit I on Standby
		Unit-II	33.24	220kV Jigmeling - Dagapela Fdr.	1.90	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>33.24</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.692%</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	13.94	+	Unit I under Annual Maintenance. Unit IV on Standby.
		Unit-II	14.16	132kV KHP - Kilikhar Fdr- II	13.37	+	
		Unit- III	14.11	5MVA, 132/11kV TFR	0.48	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-14.00	-	
		-	-	132kV Motanga - Rangia Fdr.	-1.10	+	
		-	-	220kV Tsirang - Jigmeling	29.25	+	
		<b>Total</b>	<b>28.27</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.698%</b>		

Note: Generation-Load Summary for December 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	475.11	216.89	212.40	228.97	4.49
2	Eastern Grid	178.86	73.76	72.14	134.35	1.62
	<b>Total</b>	<b>653.97</b>	<b>290.65</b>	<b>284.54</b>	<b>363.32</b>	<b>6.11</b>

Note: Generation-Load Summary for December 06, 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	509.73	286.01	278.17	209.32	7.84
2	Eastern Grid	173.43	74.64	72.41	113.19	2.23
	<b>Total</b>	<b>683.16</b>	<b>360.65</b>	<b>350.58</b>	<b>322.51</b>	<b>10.07</b>

NOTE-Data collected from MHPA,Motanga and KHP

- 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:	December 7, 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- I, II under shutdown. Unit-IV & V on stand by. 400kV THP-SIL Fdr I under shutdown. 400kV THP-SIL Fdr IV on Standby.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	103.86	+	
		Unit- III	120.17	400kV THP - Siliguri Fdr- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	151.92	+	
		Unit- V	0.00	400kV Malbase - Siliguri	86.00	+	
		Unit- VI	139.94	-	-	-	
		<b>Total</b>	<b>260.11</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.665%</b>		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit-II under shutdown. Unit-III under breakdown. Unit-I on standby. 400kV MHP-JLG Fdr I on Standby & Fdr-III under standby.
		Unit-II	0.00	400kV MHP - Jigmeling Fdr - II	81.98		
		Unit-III	0.00	400kV MHP - Jigmeling Fdr - III	0.00	+	
		Unit-IV	165.12	400kV MHP - Jigmeling Fdr - IV	82.37	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>165.12</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.466%</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	19.08	+	Unit I & II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Fdr- II	19.36	+	
		Unit- III	69.32	220kV CHP - Malbase Fdr- III	59.14	+	
		Unit- IV	67.47	220kV CHP - Semtokha Fdr- IV	23.10	+	
		-	-	220kV Malbase - Birpara Fdr.	-13.00	-	
		-	-	66kV CHP - Chumdo Fdr.	11.48	+	
		-	-	66kV CHP - Gedu Fdr.	3.01	+	
		-	-	3x3MVA, 66/11kV TFR	1.23	+	
		<b>Total</b>	<b>136.79</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.285%</b>		
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	27.75	+	U/S Unit-I under annual maintenance & L/S Unit-I standby.
		Unit- II	10.16	66kV BHP - Lobeysa Fdr.	14.27	+	
		<b>Total</b>	<b>10.16</b>	220kV BHP - Tsirang Fdr.	-12.82	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	19.97	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>19.97</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.100%</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	35.30	+	Unit-I Standby
		Unit-II	35.53	220kV Jigmeling - Dagapela Fdr.	1.55	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>35.53</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.647%</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	15.66	+	Unit I under Annual Maintenance. Unit IV on Standby.
		Unit-II	14.00	132kV KHP - Kilihar Fdr- II	11.37	+	
		Unit- III	14.00	5MVA, 132/11kV TFR	0.36	+	
		Unit- IV	0.00	132kV Gelephu - Salakati Fdr.	-8.40	-	
		-	-	132kV Motanga - Rangia Fdr.	2.59	+	
		-	-	220kV Tsirang - Jigmeling	20.90	+	
		<b>Total</b>	<b>28.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.179%</b>		

Note: Generation-Load summary for December 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	462.56	226.36	222.93	215.30	3.43
2	Eastern Grid	193.12	55.48	54.10	158.54	1.38
	<b>Total</b>	<b>655.68</b>	<b>281.84</b>	<b>277.03</b>	<b>373.84</b>	<b>4.81</b>

Note: Generation-Load Summary for December 07, 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	344.61	245.82	245.80	93.78	0.02
2	Eastern Grid	172.12	67.97	64.06	109.16	3.91
	<b>Total</b>	<b>516.73</b>	<b>313.79</b>	<b>309.86</b>	<b>202.94</b>	<b>3.93</b>

NOTES: Data collected from MHPA,DHP,MAL,KHP,GEL,MOT & JLG

- 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.