

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

Maximum Load/Demand till Date

Date:	August 31, 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	188.99	400kV THP - Siliguri Fdr- I	250.74	+	
		Unit- II	187.64	400kV THP - Siliguri Fdr- II	248.69	+	
		Unit- III	139.95	400kV THP - Siliguri Fdr- IV	241.66	+	
		Unit- IV	188.03	400kV THP - Malbase Fdr- III	254.58	+	
		Unit- V	139.48	400kV Malbase - Siliguri	233.45	+	
		Unit- VI	169.28	-	-	-	
		<b>Total</b>	<b>1,013.37</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.747%</b>		
2	720MW MHP	Unit-I	140.20	400kV MHP - Jigmeling Fdr - I	190.40	+	400kV MHP-JLG III STANDBY
		Unit-II	140.50	400kV MHP - Jigmeling Fdr - II	170.00	+	
		Unit-III	140.10	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	145.40	400kV MHP - Jigmeling Fdr - IV	180.70	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>566.20</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>4.433%</b>		
3	336MW CHP	Unit- I	91.53	220kV CHP - Birpara Fdr- I	123.00	+	
		Unit- II	91.17	220kV CHP - Birpara Fdr- II	122.94	+	
		Unit- III	90.87	220kV CHP - Malbase Fdr- III	181.08	+	
		Unit- IV	91.63	220kV CHP - Semtokha Fdr- IV	-72.02	-	
		-	-	220kV Malbase - Birpara Fdr.	63.79	+	
		-	-	66kV CHP - Chumdo Fdr.	0.82	+	
		-	-	66kV CHP - Gedu Fdr.	6.80	+	
		-	-	3x3MVA, 66/11kV TFR	0.85	+	
		<b>Total</b>	<b>365.20</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.474%</b>		
4	24MW BHP (U/S)	Unit- I	11.87	220kV BHP - Semtokha Fdr.	89.68	+	
		Unit- II	11.87	66kV BHP - Lobeysa Fdr.	16.37	+	
		<b>Total</b>	<b>23.74</b>	220kV BHP - Tsirang Fdr.	-40.32	+	
	40MW BHP (L/S)	Unit- I	20.33	5MVA, 66/11kV TFR	0.00	+	
		Unit- II	20.69	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>41.02</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-1.498%</b>		
5	126MW DHPC	Unit-I	58.34	220kV DHPC - Tsirang Fdr.	118.08	+	
		Unit-II	60.33	220kV Jigmeling - Dagapela Fdr.	1.80	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>118.67</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.497%</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	37.55	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	27.06	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	45.16	+	
		-	-	132kV Motanga - Rangia Fdr.	54.33	+	
		-	-	220kV Tsirang - Jigmeling	45.12	+	
		<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.652%</b>		

**Note: Generation-Load Summary for August 31, 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	1,562.00	232.61	215.36	1,284.27	17.25
2	Eastern Grid	632.20	36.73	10.54	640.59	26.19
	<b>Total</b>	<b>2,194.20</b>	<b>269.34</b>	<b>225.90</b>	<b>1,924.86</b>	<b>43.44</b>

**Note: Generation-Load Summary for August 31, 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	1,588.21	272.36	253.62	1216.85	18.74
2	Eastern Grid	627.8	78.86	70.67	647.94	8.19
	<b>Total</b>	<b>2,216.01</b>	<b>351.22</b>	<b>324.29</b>	<b>1,864.79</b>	<b>26.93</b>

**NOTES: KHP 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:	September 1, 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	148.16	400kV THP - Siliguri Fdr- I	249.40	+	
		Unit- II	185.81	400kV THP - Siliguri Fdr- II	248.32	+	
		Unit- III	139.76	400kV THP - Siliguri Fdr- IV	240.56	+	
		Unit- IV	187.61	400kV THP - Malbase Fdr- III	247.00	+	
		Unit- V	170.36	400kV Malbase - Siliguri	234.33	+	
		Unit- VI	169.81	-	-	-	
		<b>Total</b>	<b>1,001.51</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.621%</b>		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	192.35	+	Unit I & 400kV MHP-JLG II tripped.
		Unit-II	197.87	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	197.74	400kV MHP - Jigmeling Fdr - III	199.53	+	
		Unit-IV	197.37	400kV MHP - Jigmeling Fdr - IV	199.42	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>592.98</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.283%</b>		
3	336MW CHP	Unit- I	91.52	220kV CHP - Birpara Fdr- I	120.70	+	
		Unit- II	91.37	220kV CHP - Birpara Fdr- II	120.64	+	
		Unit- III	91.31	220kV CHP - Malbase Fdr- III	167.55	+	
		Unit- IV	92.54	220kV CHP - Semtokha Fdr- IV	-51.90	-	
		-	-	220kV Malbase - Birpara Fdr.	70.83	+	
		-	-	66kV CHP - Chumdo Fdr.	1.54	+	
		-	-	66kV CHP - Gedu Fdr.	6.33	+	
		-	-	3x3MVA, 66/11kV TFR	0.79	+	
		<b>Total</b>	<b>366.74</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.297%</b>		
4	24MW BHP (U/S)	Unit- I	11.86	220kV BHP - Semtokha Fdr.	69.24	+	
		Unit- II	11.86	66kV BHP - Lobeysa Fdr.	15.27	+	
		<b>Total</b>	<b>23.72</b>	220kV BHP - Tsirang Fdr.	-19.56	-	
	40MW BHP (L/S)	Unit- I	20.42	5MVA, 66/11kV TFR	0.39	+	
		Unit- II	20.65	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>41.07</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-1.339%</b>		
5	126MW DHPC	Unit-I	50.34	220kV DHPC - Tsirang Fdr.	102.13	+	
		Unit-II	52.32	220kV Jigmeling - Dagapela Fdr.	1.00	+	
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>102.66</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.516%</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Fdr- I	40.69	+	
		Unit-II	16.50	132kV KHP - Kilikhar Fdr- II	24.08	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.26	+	
		Unit- IV	16.50	132kV Gelephu - Salakati Fdr.	49.56	+	
		-	-	132kV Motanga - Rangia Fdr.	52.57	+	
		-	-	220kV Tsirang - Jigmeling	79.46	+	
		<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.470%</b>		

**Note: Generation-Load summary for September 01, 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	1,535.70	171.46	155.16	1,284.78	16.30
2	Eastern Grid	658.98	45.01	42.36	693.43	2.65
	<b>Total</b>	<b>2,194.68</b>	<b>216.47</b>	<b>197.52</b>	<b>1,978.21</b>	<b>18.95</b>

**Note: Generation-Load Summary for September 01, 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	1545.1	228.60	209.68	1,240.13	18.92
2	Eastern Grid	628.91	45.90	38.64	659.38	7.26
	<b>Total</b>	<b>2,174.01</b>	<b>274.50</b>	<b>248.32</b>	<b>1,899.51</b>	<b>26.18</b>

**NOTES: KHP datas 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.
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