

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

Maximum Load/Demand till Date

Date:	April 9, 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	158.14	400kV THP - Siliguri Fdr- I	59.18	+	Unit- II & V standby. Unit-III & IV under shutdown. 400kV THP-SIL II standby & 400kV Mal-Siliguri under shutdown.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00	+	
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	56.03	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	127.65	+	
		Unit- V	0.00	400kV Malbase - Siliguri	0.00	+	
		Unit- VI	90.76	-	-	-	
		<b>Total</b>	<b>248.90</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>6.04</b>		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	0.00		Unit- I under standby. Unit- II & III under shutdown. Unit IV & 400kV MHP-JLG IV tripped at 18:41 hrs. 400kV MHP-JLG I,II & III 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	0.00	400kV MHP - Jigmeling Fdr - IV	0.00		
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>0.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.00</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	37.50	+	Unit-I, IV & 220kV CHP-Mal under shutdown. 220kV MAL-Birpara tripped at 18:43 hrs.
		Unit- II	82.60	220kV CHP - Birpara Fdr- II	37.42	+	
		Unit- III	50.37	220kV CHP - Malbase Fdr- III	0.00	+	
		Unit- IV	0.00	220kV CHP - Semtokha Fdr- IV	36.38	+	
		-	-	220kV Malbase - Birpara Fdr.	0.00	+	
		-	-	66kV CHP - Chumdo Fdr.	10.45	+	
		-	-	66kV CHP - Gedu Fdr.	8.43	+	
		-	-	3x3MVA, 66/11kV TFR	1.49	+	
		<b>Total</b>	<b>132.97</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.30</b>		
4	24MW BHP (U/S)	Unit- I	4.31	220kV BHP - Semtokha Fdr.	16.34	+	U/S Unit-II under shutdown. L/S Unit I standby
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	11.60	+	
		<b>Total</b>	<b>4.31</b>	220kV BHP - Tsirang Fdr.	-14.64	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.07	+	
		Unit- II	9.36	30MVA ICT, 220/66kV			
<b>Total</b>	<b>9.36</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.30</b>				
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	14.85	+	Unit-I Standby
		Unit-II	15.19	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>15.19</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.34</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	14.50	+	Unit-I AMP & II Standby
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	14.92	+	
		Unit- III	15.31	5MVA, 132/11kV TFR	0.60		
		Unit- IV	15.33	132kV Gelephu - Salakati Fdr.	-26.39	-	
		-	-	132kV Motanga - Rangia Fdr.	6.32	+	
		-	-	220kV Tsirang - Jigmeling	0.11	+	
		<b>Total</b>	<b>30.64</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.62</b>		

Note: Load summary on April 09, 2020 at 19:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	410.73	220.49	212.51	190.13	7.98
2	Eastern Grid	30.64	50.82	50.20	-20.07	0.62
	<b>Total</b>	<b>441.37</b>	<b>271.31</b>	<b>262.71</b>	<b>170.06</b>	<b>8.60</b>

Note: Load Summary on April 09, 2019 at 19:00hrs

Sl. No	Region	19:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	275.94	277.08	286.38
2	Eastern Grid	49.45	49.45	62.64
	<b>National</b>	<b>325.39</b>	<b>326.53</b>	<b>349.02</b>

NOTES:KHP Loads 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:	April 10, 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	158.78	400kV THP - Siliguri Fdr- I	97.90	+	Unit- II & V standby. Unit-III & IV under shutdown. 400kV THP-SIL II standby. 400kV MAL_SIL under shutdown.
		Unit- II	0.00	400kV THP - Siliguri Fdr- II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Fdr- IV	94.02		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	63.16	+	
		Unit- V	0.00	400kV Malbase - Siliguri	0.00	+	
		Unit- VI	99.46	-	-	-	
		<b>Total</b>	<b>258.24</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>3.16</b>		
2	720MW MHP	Unit-I	94.70	400kV MHP - Jigmeling Fdr - I	85.80		Unit-II & III Standby. 400kV MHP-JLG II & III 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	80.60	400kV MHP - Jigmeling Fdr - IV	85.10	+	
		-	-	200MVA, 400/132kV ICT			
		-	-	(Local Load)			
		<b>Total</b>	<b>175.30</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>4.40</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	48.88	+	Unit-I & IV under shutdown. 220kV CHP-MAL under shutdown
		Unit- II	62.68	220kV CHP - Birpara Fdr- II	48.97	+	
		Unit- III	62.52	220kV CHP - Malbase Fdr- III	0.00	+	
		Unit- IV	0.00	220kV CHP - Sementokha Fdr- IV	12.35	+	
		-	-	220kV Malbase - Birpara Fdr.	-82.29	-	
		-	-	66kV CHP - Chumdo Fdr.	7.26	+	
		-	-	66kV CHP - Gedu Fdr.	6.01	+	
		<b>Total</b>	<b>125.20</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.61</b>		
4	24MW BHP (U/S)	Unit- I	4.87	220kV BHP - Sementokha Fdr.	26.08	+	U/S Unit-II under shutdown and LS Unit I under standby.
		Unit- II	0.00	66kV BHP - Lobeysa Fdr.	10.37	+	
		<b>Total</b>	<b>4.87</b>	220kV BHP - Tsirang Fdr.	-24.30	-	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	10.11	30MVA ICT, 220/66kV			
<b>Total</b>	<b>10.11</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.94</b>				
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	22.97	+	Unit I standby.
		Unit-II	23.19	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>23.19</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.22</b>		
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	22.03	+	Unit-I & Unit-II standby. 220kV JLG-TSI line tripped and was declared faulty
		Unit-II	0.00	132kV KHP - Kilikhar Fdr- II	4.49	+	
		Unit- III	13.83	5MVA, 132/11kV TFR	0.39	+	
		Unit- IV	13.77	132kV Gelephu - Salakati Fdr.	-12.01	-	
		-	-	132kV Motanga - Rangia Fdr.	-4.80	-	
		-	-	220kV Tsirang - Jigmeling	0.00	+	
		<b>Total</b>	<b>27.60</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.69</b>		

Note: Load summary on April 10, 2020 at 09:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	421.61	214.13	208.20	207.48	5.93
2	Eastern Grid	202.90	48.81	43.72	154.09	5.09
	<b>Total</b>	<b>624.51</b>	<b>262.94</b>	<b>251.92</b>	<b>361.57</b>	<b>11.02</b>

Note: Load Summary on April 10, 2019 at 09:00hrs

Sl. No	Region	09:00Hrs Load (MW)	Day Peak Load (MW)	Month Peak Load (MW)
1	Western Grid	242.07	276.70	286.38
2	Eastern Grid	34.97	51.71	62.64
	<b>National</b>	<b>277.04</b>	<b>328.41</b>	<b>349.02</b>

NOTES: KHP load 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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