

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>April 25, 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	Transmission Lines and Elements	Load (MW)	Sign	Remarks
1	1020MW THP	Unit-I	99.70	400kV THP - Siliguri Line - I	42.08	+	Unit- III & IV under AMP. Unit-II & VI on standby. 400kV THP-SIL Line II & 400kV THP-SIL Line IV on Standby.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	133.24	+	
		Unit- V	79.94	400kV Malbase - Siliguri Line	20.02	+	
		Unit- VI	0.00	-	-	-	
		<b>Total</b>	<b>179.64</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>2.405%</b>	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00		Unit I Standby Unit-III under breakdown. 400kV MHP_JLG Line I, II & III Standby. 132kV MHP_Yurmoo line I & II are not in service. 400/220kV ICT at JLG not in service 400kV JIG-ALI Line-I under shutdown.
		Unit-II	55.21	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00		
		Unit-IV	85.50	400kV MHP - Jigmeling Line - IV	139.11	+	
		-	-	132kV MHP - Yurmoo Line - I	0.00		
		-	-	132kV MHP - Yurmoo Line - II	0.00		
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II	136.00	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	4.50	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	4.50	+	
		-	-	220kV Tsirang - Jigmeling Line	11.07	+	
		-	-	132kV Gelephu - Salakati Line	-35.69	-	
<b>Total</b>	<b>140.71</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>1.137%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	6.76	+	Unit-I Standby. Unit-IV under AMP. 220kV CHP_BIR line II standby.
		Unit- II	51.27	220kV CHP - Birpara Line- II	0.00		
		Unit- III	47.95	220kV CHP - Malbase Line- III	24.00	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	47.82	+	
		-	-	220kV Malbase - Birpara Line	-7.62	-	
		-	-	66kV CHP - Chumdo Line	12.59	+	
		-	-	66kV CHP - Gedu Line	3.60	+	
		-	-	3x3MVA, 66/11kV TFR	1.65	+	
<b>Total</b>	<b>99.22</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>2.822%</b>			
4	24MW BHP (U/S)	Unit- I	4.00	220kV BHP - Semtokha Line	1.00	+	U/S Unit-II & L/S Unit-I Standby 220kV BHP-Tsirang line under shutdown
		Unit- II	0.00	66kV BHP - Lobeysa Line	10.80	+	
		<b>Total</b>	<b>4.00</b>	220kV BHP - Tsirang Line	0.00		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.86	+	
		Unit- II	8.50	30MVA ICT, 220/66kV (HV)	7.66	+	
<b>Total</b>	<b>8.50</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>-1.280%</b>			
5	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	13.73	+	Unit-I Standby.
		Unit-II	13.96	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	2.00	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		<b>Total</b>	<b>13.96</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>-0.501%</b>	
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	9.64	+	Unit-I and Unit-II Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	15.62	+	
		Unit- III	13.15	5MVA, 132/11kV TFR	0.20	+	
		Unit- IV	13.11	132kV Motanga - Rangia Line	0.00	+	
		<b>Total</b>	<b>26.26</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>3.035%</b>	

**Note: Generation-Load Summary (MW) for April 25, 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	305.32	233.01	228.12	61.24	4.89
2	Eastern Grid	166.97	77.73	75.33	100.31	2.40
<b>Total</b>		<b>472.29</b>	<b>310.74</b>	<b>303.45</b>	<b>161.55</b>	<b>7.29</b>

**Note: Generation-Load Summary for April 25, 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	409.63	232.80	221.97	176.83	10.83
2	Eastern Grid	219.74	66.48	64.63	153.26	1.85
<b>Total</b>		<b>629.37</b>	<b>299.28</b>	<b>286.60</b>	<b>330.09</b>	<b>12.68</b>

**NOTE-BHP & MHP 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.

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>April 26, 2021</b>
<b>Hours:</b>	<b>09:00 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	Transmission Lines and Elements	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	118.93	400kV THP - Siliguri Line - I	63.25	+	Unit III & IV under AMP. Unit II & VI on standby. 400kV THP-SIL Line II & 400kV THP-SIL Line IV on Standby.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	127.07	+	
		Unit- V	80.01	400kV Malbase - Siliguri Line	44.86	+	
		Unit- VI	0.00	-	-	-	
		<b>Total</b>	<b>198.94</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>4.333%</b>	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00		Unit-I under AMP. Unit -III under breakdown. 400kV MHP-JLG Line I, II & III on standby. 400kV JLG_ALI line II under shutdown. 132kV MHP_Yurmo line I & II not in service. 400/220kV ICT at JLG not in service
		Unit-II	70.26	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00		
		Unit-IV	129.20	400kV MHP - Jigmeling Line - IV	199.26	+	
		-	-	132kV MHP - Yurmo Line - I	0.00		
		-	-	132kV MHP - Yurmo Line - II	0.00		
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I	188.30		
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	5.80	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	5.80	+	
		-	-	220kV Tsirang - Jigmeling Line	12.57	+	
		-	-	132kV Gelephu - Salakati Line	-16.12	-	
<b>Total</b>	<b>199.46</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>0.100%</b>			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	9.36	+	Unit-I on Standby. Unit-IV under AMP. 220kV CHP-BIR line II standby.
		Unit- II	49.62	220kV CHP - Birpara Line- II	0.00		
		Unit- III	47.32	220kV CHP - Malbase Line- III	42.30	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	32.26	+	
		-	-	220kV Malbase - Birpara Line	-18.85	-	
		-	-	66kV CHP - Chumdo Line	7.82	+	
		-	-	66kV CHP - Gedu Line	3.82	+	
		-	-	3x3MVA, 66/11kV TFR	0.70	+	
<b>Total</b>	<b>96.94</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>0.701%</b>			
4	24MW BHP (U/S)	Unit- I	4.10	220kV BHP - Semtokha Line	1.50	+	U/S Unit-II .& L/S Unit-I Standby 220kV BHP-Tsirang line under shutdown
		Unit- II	0.00	66kV BHP - Lobeyasa Line	10.40	+	
		<b>Total</b>	<b>4.10</b>	220kV BHP - Tsirang Line	0.00	+	
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.98	+	
		Unit- II	8.80	30MVA ICT, 220/66kV (HV)	7.28	+	
<b>Total</b>	<b>8.80</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>0.155%</b>			
5	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	14.02	+	Unit-I standby.
		Unit-II	14.19	220kV DHP - Dagapela Line	0.00	+	
		-	-	220kV Jigmeling - Dagapela Line	0.90	+	
		-	-	5MVA, 220/33kV TFR	0.18	+	
		<b>Total</b>	<b>14.19</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>-0.070%</b>	
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	17.92	+	Unit-I on standby.
		Unit-II	11.07	132kV KHP - Kilikhar Line	14.71	+	
		Unit- III	11.10	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	11.08	132kV Motanga - Rangia Line	12.57	+	
		<b>Total</b>	<b>33.25</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>0.971%</b>	

**Note: Generation-Load Summary (MW) for April 26, 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	322.97	211.78	203.37	98.62	8.41
2	Eastern Grid	232.71	60.53	60.01	184.75	0.52
<b>Total</b>		<b>555.68</b>	<b>272.31</b>	<b>263.38</b>	<b>283.37</b>	<b>8.93</b>

**Note: Generation-Load Summary for April 26, 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	329.32	199.43	190.79	129.89	8.64
2	Eastern Grid	218.74	48.52	44.12	170.22	4.40
<b>Total</b>		<b>548.06</b>	<b>247.95</b>	<b>234.91</b>	<b>300.11</b>	<b>13.04</b>

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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.
  - The clocks of all the locations are not synchronized.
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