

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

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>June 18, 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	186.26	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance
		Unit- II	183.10	400kV THP - Siliguri Line - II	356.07	+	
		Unit- III	185.64	400kV THP - Siliguri Line- IV	340.73	+	
		Unit- IV	185.56	400kV THP - Malbase Line - III	405.39	+	
		Unit- V	184.73	400kV Malbase - Siliguri Line	322.48	+	
		Unit- VI	185.76	-	-	-	
		<b>Total</b>	<b>1,111.05</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.797%</b>		
2	720MW MHP	Unit-I	197.48	400kV MHP - Jigmeling Line - I	292.07	+	Unit-III on breakdown 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line II(Interim) under shutdown 400kV JLG_ALI Line I(Direct) not in service 500MVA,400/220kV ICT open at 17:00hrs
		Unit-II	197.64	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	293.44	+	
		Unit-IV	197.69	400kV MHP - Jigmeling Line - IV	0.00		
		-	-	132kV MHP - Yurmo Line - I	0.00		
		-	-	132kV MHP - Yurmo Line - II	3.63		
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	229.10	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	346.00	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	30.20	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	30.20	+	
		-	-	220kV Tsirang - Jigmeling Line	63.37	+	
-	-	132kV Gelephu - Salakati Line	54.49	+			
<b>Total</b>	<b>592.81</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.619%</b>				
3	336MW CHP	Unit- I	91.88	220kV CHP - Birpara Line- I	116.17	+	
		Unit- II	91.37	220kV CHP - Birpara Line- II	116.22	+	
		Unit- III	90.59	220kV CHP - Malbase Line- III	150.57	+	
		Unit- IV	91.32	220kV CHP - Semtokha Line- IV	-33.26	-	
		-	-	220kV Malbase - Birpara Line	73.74	+	
		-	-	66kV CHP - Chumdo Line	6.87	+	
		-	-	66kV CHP - Gedu Line	5.43	+	
		-	-	3x3MVA, 66/11kV TFR	1.07	+	
		<b>Total</b>	<b>365.16</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.572%</b>		
4	24MW BHP (U/S)	Unit- I	8.10	220kV BHP - Semtokha Line	89.08	+	30MVA ICT(220/66kV) under shutdown.
		Unit- II	7.80	66kV BHP - Lobeyasa Line	14.00	+	
		<b>Total</b>	<b>15.90</b>	220kV BHP - Tsirang Line	-58.20	-	
	40MW BHP (L/S)	Unit- I	15.10	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	15.10	30MVA ICT, 220/66kV (HV)	0.00		
<b>Total</b>	<b>30.20</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.738%</b>				
5	126MW DHP	Unit-I	63.58	220kV DHP - Tsirang Line	126.39	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.23	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.60	+	
		-	-	5MVA, 220/33kV TFR	0.38	+	
		<b>Total</b>	<b>126.81</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.032%</b>		
6	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Line	43.66	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	21.60	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	13.25	+	
		<b>Total</b>	<b>66.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.668%</b>		

**Note: Generation-Load Summary (MW) for June 18, 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	1,649.12	260.34	250.61	1,325.41	9.73
2	Eastern Grid	658.81	79.34	75.23	642.84	4.11
<b>Total</b>		<b>2,307.93</b>	<b>339.68</b>	<b>325.84</b>	<b>1,968.25</b>	<b>13.84</b>

**Note: Generation-Load Summary for June 18, 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	1,588.11	217.88	200.43	1,280.74	17.45
2	Eastern Grid	659.55	56.35	51.99	692.69	4.36
<b>Total</b>		<b>2,247.66</b>	<b>274.23</b>	<b>252.42</b>	<b>1,973.43</b>	<b>21.81</b>

**NOTE-BHP,KHP & MHP 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**

<b>Date:</b>	<b>June 20, 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	186.16	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance.
		Unit- II	186.16	400kV THP - Siliguri Line - II	360.14	+	
		Unit- III	185.70	400kV THP - Siliguri Line- IV	343.48	+	
		Unit- IV	185.42	400kV THP - Malbase Line - III	402.94	+	
		Unit- V	185.30	400kV Malbase - Siliguri Line	324.30	+	
		Unit- VI	185.49	-	-	-	
		<b>Total</b>	<b>1,114.23</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.688%</b>		
2	720MW MHP	Unit-I	197.34	400kV MHP - Jigmeling Line - I	294.23	+	Unit-III on breakdown 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II(Interim) under shutdown 400kV JLG_ALI Line I(Direct) not in service
		Unit-II	197.70	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.81	+	
		Unit-IV	197.73	400kV MHP - Jigmeling Line - IV	0.00		
		-	-	132kV MHP - Yurmoo Line - I	0.00		
		-	-	132kV MHP - Yurmoo Line - II	0.00		
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	-23.50	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	239.20	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	364.49	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	33.80	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	33.90	+	
		-	-	220kV Tsirang - Jigmeling Line	91.70	+	
-	-	132kV Gelephu - Salakati Line	35.79	+			
<b>Total</b>	<b>592.77</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.461%</b>				
3	336MW CHP	Unit- I	91.34	220kV CHP - Birpara Line- I	106.67	+	
		Unit- II	91.19	220kV CHP - Birpara Line- II	106.82	+	
		Unit- III	91.36	220kV CHP - Malbase Line- III	146.51	+	
		Unit- IV	91.82	220kV CHP - Semtokha Line- IV	-16.17	-	
		-	-	220kV Malbase - Birpara Line	60.00	+	
		-	-	66kV CHP - Chumdo Line	6.26	+	
		-	-	66kV CHP - Gedu Line	4.80	+	
		-	-	3x3MVA, 66/11kV TFR	0.89	+	
		<b>Total</b>	<b>365.71</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>2.715%</b>		
4	24MW BHP (U/S)	Unit- I	7.10	220kV BHP - Semtokha Line	59.82	+	30MVA ICT(220/66kV) under shutdown.
		Unit- II	6.90	66kV BHP - Lobeyasa Line	13.20	+	
		<b>Total</b>	<b>14.00</b>	220kV BHP - Tsirang Line	-31.61	-	
	40MW BHP (L/S)	Unit- I	13.90	5MVA, 66/11kV TFR	0.87	+	
		Unit- II	13.90	30MVA ICT, 220/66kV (HV)	0.00		
<b>Total</b>	<b>27.80</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-1.148%</b>				
5	126MW DHP	Unit-I	63.62	220kV DHP - Tsirang Line	126.34	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.22	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.00	+	
		-	-	5MVA, 220/33kV TFR	0.20		
		<b>Total</b>	<b>126.84</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.237%</b>		
6	60MW KHP	Unit- I	16.61	132kV KHP - Nangkhon Line	61.40	+	
		Unit-II	16.55	132kV KHP - Kilikhar Line	4.14	+	
		Unit- III	16.58	5MVA, 132/11kV TFR	0.23	+	
		Unit- IV	16.66	132kV Motanga - Rangia Line	44.06	+	
		<b>Total</b>	<b>66.40</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.949%</b>		

**Note: Generation-Load Summary (MW) for June 20, 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	1,648.58	255.47	239.05	1,301.41	16.42
2	Eastern Grid	659.17	67.33	63.97	683.54	3.36
<b>Total</b>		<b>2,307.75</b>	<b>322.80</b>	<b>303.02</b>	<b>1,984.95</b>	<b>19.78</b>

**Note: Generation-Load Summary for June 20, 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	1,588.34	210.08	191.50	1,306.95	18.58
2	Eastern Grid	659.41	49.12	44.96	681.60	4.16
<b>Total</b>		<b>2,247.75</b>	<b>259.20</b>	<b>236.46</b>	<b>1,988.55</b>	<b>22.74</b>

**NOTE-BHP 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.