

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date: **October 10, 2021**
Hours: **19:00 Hours**

Date	Time	Load(MW)
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	137.38	400kV THP - Siliguri Line - I	0.00		Unit-II on Standby. 400kV THP-Siliguri line I under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	208.93	+	
		Unit- III	138.67	400kV THP - Siliguri Line- IV	199.63	+	
		Unit- IV	138.58	400kV THP - Malbase Line - III	281.14	+	
		Unit- V	137.44	400kV Malbase - Siliguri Line	176.79	+	
		Unit- VI	139.78	-	-	-	
		Total	691.85	Auxiliary Consumption & Transformation Losses at Gen. end	0.311%		
2	720MW MHP	Unit-I	135.09	400kV MHP - Jigmeling Line - I	198.49	+	Unit-IV on Standby. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo lineI & II not in service. 400kV JLG_ALI Line I (Interim) on standby. 132kV Gelephu_Salakati line under shutdown.
		Unit-II	130.16	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	135.86	400kV MHP - Jigmeling Line - III	199.69	+	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00		
		-	-	132kV MHP - Yurmo Line - I	0.00		
		-	-	132kV MHP - Yurmo Line - II	0.00		
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	0.20	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	96.72	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	147.89	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	147.89	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	24.50	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	24.90	+	
		-	-	220kV Tsirang - Jigmeling Line	52.30	+	
-	-	132kV Gelephu - Salakati Line	0.00				
Total	401.11	Auxiliary Consumption & Transformation Losses at Gen. end	0.730%				
3	336MW CHP	Unit- I	88.55	220kV CHP - Birpara Line- I	77.97	+	66kV CHP_Gedu line opened at 10:01hrs(08/10/2021) to regulate 66kV voltage.
		Unit- II	87.06	220kV CHP - Birpara Line- II	78.01	+	
		Unit- III	86.56	220kV CHP - Malbase Line- III	103.76	+	
		Unit- IV	89.11	220kV CHP - Semtokha Line- IV	61.03	+	
		-	-	220kV Malbase - Birpara Line	46.63	+	
		-	-	66kV CHP - Chumdo Line	28.10	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	1.50	+	
Total	351.28	Auxiliary Consumption & Transformation Losses at Gen. end	0.259%				
4	24MW BHP (U/S)	Unit- I	9.70	220kV BHP - Semtokha Line	25.40	+	
		Unit- II	9.50	66kV BHP - Lobeysa Line	29.60	+	
		Total	19.20	220kV BHP - Tsirang Line	-2.04	-	
5	40MW BHP (L/S)	Unit- I	17.40	5MVA, 66/11kV TFR	0.00	+	
		Unit- II	17.30	30MVA ICT, 220/66kV (HV)	11.11	+	
		Total	34.70	Auxiliary Consumption & Transformation Losses at Gen. end	1.744%		
6	126MW DHP	Unit-I	57.32	220kV DHP - Tsirang Line	57.02	+	DHP Unit II on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	2.60	+	
		-	-	5MVA, 220/33kV TFR	0.12	+	
		Total	57.32	Auxiliary Consumption & Transformation Losses at Gen. end	0.314%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Line	37.02	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	27.97	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.44	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	47.24	+	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Gen. end	0.864%		

Note: Generation-Load Summary (MW) for October 10, 2021 at 19:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW, %)	Auxiliary Consumption & Transformation Losses (MW) at Generator end.
1	Western Grid	1,154.35	314.09	312.51	787.96	1.58
2	Eastern Grid	467.11	79.67	76.17	439.74	3.50
	Total	1,621.46	393.76	388.68	1,227.70	5.08

Note: Generation-Load Summary for October 10, 2020 at 19:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses
1	Western Grid	1,291.43	196.92	187.47	1,003.44	9.45
2	Eastern Grid	511.88	61.52	58.04	541.43	3.48
	Total	1,803.31	258.44	245.51	1,544.87	12.93

NOTE-BHP and MHPA 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

Date:	October 11, 2021
Hours:	09:00 Hours

Date	Time	Load(MW)
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	137.11	400kV THP - Siliguri Line - I	0.00		Unit-II on standby. 400kV THP-Siliguri line I under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	195.49	+	
		Unit- III	90.11	400kV THP - Siliguri Line- IV	187.60	+	
		Unit- IV	139.81	400kV THP - Malbase Line - III	248.40	+	
		Unit- V	136.91	400kV Malbase - Siliguri Line	174.83	+	
		Unit- VI	139.99	-	-	-	
		Total	643.93	Auxiliary Consumption & Transformation Losses at Generator end	1.932%		
2	720MW MHP	Unit-I	100.25	400kV MHP - Jigmeling Line - I	179.42	+	MHP Unit IV under shutdown. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line I (Interim) on standby. 132kV Gelephu_Salakati line under shutdown.
		Unit-II	130.05	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	131.26	400kV MHP - Jigmeling Line - III	180.29	+	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00		
		-	-	132kV MHP - Yurmo Line - I	0.00		
		-	-	132kV MHP - Yurmo Line - II	0.00		
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	-29.00	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	94.50	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	144.70	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	144.70	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	12.70	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	12.80	+	
		-	-	220kV Tsirang - Jigmeling Line	55.46	+	
-	-	132kV Gelephu - Salakati Line	0.00				
Total	361.56	Auxiliary Consumption & Transformation Losses at Generator end	0.512%				
3	336MW CHP	Unit- I	79.51	220kV CHP - Birpara Line- I	68.08	+	66kV CHP_Gedu line opened at 10:01hrs (08/10/2021) to regulate 66kV voltage.
		Unit- II	79.94	220kV CHP - Birpara Line- II	68.08	+	
		Unit- III	79.95	220kV CHP - Malbase Line- III	107.78	+	
		Unit- IV	80.70	220kV CHP - Semtokha Line- IV	56.08	+	
		-	-	220kV Malbase - Birpara Line	27.69	+	
		-	-	66kV CHP - Chumdo Line	18.15	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	0.90	+	
Total	320.10	Auxiliary Consumption & Transformation Losses at Generator end	0.322%				
4	24MW BHP (U/S)	Unit- I	9.60	220kV BHP - Semtokha Line	22.60	+	
		Unit- II	9.40	66kV BHP - Lobeysa Line	27.20	+	
		Total	19.00	220kV BHP - Tsirang Line	2.24	-	
5	40MW BHP (L/S)	Unit- I	17.00	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	17.00	30MVA ICT, 220/66kV (HV)	8.80	+	
		Total	34.00	Auxiliary Consumption & Transformation Losses at Generator end	0.132%		
6	126MW DHP	Unit-I	56.37	220kV DHP - Tsirang Line	56.12	+	DHP Unit II on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.80	+	
		-	-	5MVA, 220/33kV TFR	0.20	+	
		Total	56.37	Auxiliary Consumption & Transformation Losses at Generator end	0.089%		
7	60MW KHP	Unit- I	16.55	132kV KHP - Nangkhon Line	41.70	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	23.62	+	
		Unit- III	16.55	5MVA, 132/11kV TFR	0.33	+	
		Unit- IV	16.52	132kV Motanga - Rangia Line	35.10	+	
		Total	66.12	Auxiliary Consumption & Transformation Losses at Generator end	0.718%		

Note: Generation-Load Summary (MW) for October 11, 2021 at 09:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW) at Generator end.
1	Western Grid	1,073.40	296.17	284.38	721.77	11.79
2	Eastern Grid	427.68	64.14	61.82	419.00	2.32
	Total	1,501.08	360.31	346.20	1,140.77	14.11

Note: Generation-Load Summary for October 11, 2020 at 09:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses
1	Western Grid	1,292.92	201.96	189.73	1,024.20	12.23
2	Eastern Grid	526.66	37.92	35.93	555.50	1.99
	Total	1,819.58	239.88	225.66	1,579.70	14.22

NOTE-BHP & MHPA 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.
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