

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date: **October 11, 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	136.85	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	177.63	+	
		Unit- III	89.50	400kV THP - Siliguri Line- IV	168.72	+	
		Unit- IV	109.58	400kV THP - Malbase Line - III	262.18	+	
		Unit- V	137.62	400kV Malbase - Siliguri Line	146.62	+	
		Unit- VI	139.45	-	-	-	
		Total	613.00	Auxiliary Consumption & Transformation Losses at Gen. end	0.729%		
2	720MW MHP	Unit-I	99.59	400kV MHP - Jigmeling Line - I	168.14	+	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	120.27	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	120.42	400kV MHP - Jigmeling Line - III	169.31	+	
		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)	0.60	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	82.17	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	125.16	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	125.16	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.80	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.20	+	
		-	-	220kV Tsirang - Jigmeling Line	45.15	+	
-	-	132kV Gelephu - Salakati Line	0.00				
Total	340.28	Auxiliary Consumption & Transformation Losses at Gen. end	0.832%				
3	336MW CHP	Unit- I	72.38	220kV CHP - Birpara Line- I	75.21	+	66kV CHP_Gedu line opened at 10:01hrs(08/10/2021) to regulate 66kV voltage.
		Unit- II	85.30	220kV CHP - Birpara Line- II	75.19	+	
		Unit- III	85.74	220kV CHP - Malbase Line- III	93.85	+	
		Unit- IV	84.40	220kV CHP - Semtokha Line- IV	53.67	+	
		-	-	220kV Malbase - Birpara Line	49.55	+	
		-	-	66kV CHP - Chumdo Line	27.89	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	1.50	+	
		Total	327.82	Auxiliary Consumption & Transformation Losses at Gen. end	0.156%		
4	24MW BHP (U/S)	Unit- I	9.40	220kV BHP - Semtokha Line	31.20	+	
		Unit- II	9.30	66kV BHP - Lobeysa Line	28.20	+	
		Total	18.70	220kV BHP - Tsirang Line	-7.32	-	
5	40MW BHP (L/S)	Unit- I	17.50	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	17.30	30MVA ICT, 220/66kV (HV)	11.77	+	
		Total	34.80	Auxiliary Consumption & Transformation Losses at Gen. end	0.991%		
6	126MW DHP	Unit-I	55.86	220kV DHP - Tsirang Line	55.56	+	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	0.29	+	
		Total	55.86	Auxiliary Consumption & Transformation Losses at Gen. end	0.018%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	36.71	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	28.23	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.46	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	51.80	+	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Gen. end	0.915%		

Note: Generation-Load Summary (MW) for October 11, 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	1,050.18	312.11	309.19	692.92	2.92
2	Eastern Grid	406.28	67.14	63.71	384.29	3.43
	Total	1,456.46	379.25	372.90	1,077.21	6.35

Note: Generation-Load Summary for October 11, 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	1,206.87	217.84	205.25	906.05	12.59
2	Eastern Grid	517.01	57.51	53.70	542.48	3.81
	Total	1,723.88	275.35	258.95	1,448.53	16.40

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 12, 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	68.19	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	176.28	+	
		Unit- III	148.55	400kV THP - Siliguri Line- IV	167.40	+	
		Unit- IV	120.12	400kV THP - Malbase Line - III	234.94	+	
		Unit- V	108.31	400kV Malbase - Siliguri Line	150.33	+	
		Unit- VI	139.62	-	-	-	
		Total	584.79	Auxiliary Consumption & Transformation Losses at Generator end	1.055%		
2	720MW MHP	Unit-I	129.79	400kV MHP - Jigmeling Line - I	173.96	+	MHP Unit II under Maintenance. 400kV MHP- JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line I (Interim) on standby. 132kV Gelephu_Salakati line under shutdown.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	120.69	400kV MHP - Jigmeling Line - III	174.05	+	
		Unit-IV	100.04	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)	-26.37	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	90.90	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	142.58	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	141.35	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	9.97	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	10.14	+	
		-	-	220kV Tsirang - Jigmeling Line	52.24	+	
-	-	132kV Gelephu - Salakati Line	0.00				
Total	350.52	Auxiliary Consumption & Transformation Losses at Generator end	0.716%				
3	336MW CHP	Unit- I	74.73	220kV CHP - Birpara Line- I	61.94	+	66kV CHP_Gedu line opened at 10:01hrs (08/10/2021) to regulate 66kV voltage.
		Unit- II	74.02	220kV CHP - Birpara Line- II	61.89	+	
		Unit- III	76.72	220kV CHP - Malbase Line- III	102.79	+	
		Unit- IV	74.49	220kV CHP - Semtokha Line- IV	52.82	+	
		-	-	220kV Malbase - Birpara Line	22.05	+	
		-	-	66kV CHP - Chumdo Line	18.85	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	0.80	+	
Total	299.96	Auxiliary Consumption & Transformation Losses at Generator end	0.290%				
4	24MW BHP (U/S)	Unit- I	9.30	220kV BHP - Semtokha Line	25.30	+	
		Unit- II	9.10	66kV BHP - Lobeysa Line	26.19	+	
		Total	18.40	220kV BHP - Tsirang Line	-0.86	-	
5	40MW BHP (L/S)	Unit- I	16.90	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	16.90	30MVA ICT, 220/66kV (HV)	9.19	+	
		Total	33.80	Auxiliary Consumption & Transformation Losses at Generator end	1.284%		
6	126MW DHP	Unit-I	55.38	220kV DHP - Tsirang Line	55.06	+	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	1.76	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	55.38	Auxiliary Consumption & Transformation Losses at Generator end	0.036%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Line	41.68	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	23.63	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.32	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	34.63	+	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	0.561%		

Note: Generation-Load Summary (MW) for October 12, 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	992.33	300.20	294.23	639.89	5.97
2	Eastern Grid	416.52	59.30	56.42	409.46	2.88
	Total	1,408.85	359.50	350.65	1,049.35	8.85

Note: Generation-Load Summary for October 12, 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	1,056.74	201.01	191.68	788.73	9.33
2	Eastern Grid	506.87	39.72	36.09	534.15	3.63
	Total	1,563.61	240.73	227.77	1,322.88	12.96

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.
 - 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.