

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	November 18, 2021
Hours:	19:00 Hours

Date	Time	Load(MW)
18-Nov-21	18:00hrs	456.37 MW

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	0.00		Unit-I & III under AMP. Unit-V on standby. 400kV THP-Siliguri line I under breakdown. 400kV THP-MAL line under Annual Maintenance .
		Unit- II	147.76	400kV THP - Siliguri Line - II	220.78	+	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	212.57	+	
		Unit- IV	148.88	400kV THP - Malbase Line - III	0.00		
		Unit- V	0.00	400kV Malbase - Siliguri Line	-59.51	-	
		Unit- VI	139.88	-	-	-	
		Total	436.52	Auxiliary Consumption & Transformation Losses at Gen. end	0.726%		
2	720MW MHP	Unit-I	85.02	400kV MHP - Jigmeling Line - I	99.36	+	Unit-III on Standby. Unit-IV under Annual Maintenance. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby. JLG_ALI Line II (Direct) opened (Both end).
		Unit-II	115.11	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	99.96	+	
		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)	60.57	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	54.30	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	82.35	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	20.42	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	20.78	+	
		-	-	220kV Tsirang - Jigmeling Line	6.18	+	
-	-	132kV Gelephu - Salakati Line	-0.08	-			
Total	200.13	Auxiliary Consumption & Transformation Losses at Gen. end	0.405%				
3	336MW CHP	Unit- I	75.72	220kV CHP - Birpara Line- I	25.66	+	Unit-IV under AMP.
		Unit- II	64.88	220kV CHP - Birpara Line- II	25.65	+	
		Unit- III	82.90	220kV CHP - Malbase Line- III	82.29	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	63.04	+	
		-	-	220kV Malbase - Birpara Line	-21.27	-	
		-	-	66kV CHP - Chumdo Line	19.48	+	
		-	-	66kV CHP - Gedu Line	4.13	+	
		-	-	3x3MVA, 66/11kV TFR	2.02	+	
		Total	223.50	Auxiliary Consumption & Transformation Losses at Gen. end	0.550%		
4	24MW BHP (U/S)	Unit- I	7.60	220kV BHP - Semtokha Line	66.70	+	Lobeysa Line
		Unit- II	7.40	66kV BHP - Lobeysa Line	30.04	+	
		Total	15.00	220kV BHP - Tsirang Line	-53.99	-	
5	40MW BHP (L/S)	Unit- I	14.30	5MVA, 66/11kV TFR	0.71	+	
		Unit- II	14.30	30MVA ICT, 220/66kV (HV)	16.19	+	
		Total	28.60	Auxiliary Consumption & Transformation Losses at Gen. end	0.321%		
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	52.80	+	Unit I on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	53.01	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	13.25	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	53.01	Auxiliary Consumption & Transformation Losses at Gen. end	-0.170%		
7	60MW KHP	Unit- I	12.09	132kV KHP - Nangkor Line	16.82	+	Unit-IV under AMP.
		Unit-II	12.09	132kV KHP - Kilikhar Line	18.00	+	
		Unit- III	12.13	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	0.00	132kV Motanga - Rangia Line	11.30	+	
		Total	36.31	Auxiliary Consumption & Transformation Losses at Gen. end	3.002%		

Note: Generation-Load Summary (MW) for November 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, %)	Auxiliary Consumption & Transformation Losses (MW) at Generator end.
1	Western Grid	756.63	346.57	355.37	403.88	-8.80
2	Eastern Grid	236.44	94.75	92.85	147.87	1.90
Total		993.07	441.32	448.22	551.75	-6.90

Note: Generation-Load Summary for November 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)	Auxiliary Consumption & Transformation Losses
1	Western Grid	567.55	225.97	221.66	302.71	4.31
2	Eastern Grid	163.50	64.19	63.30	138.18	0.89
Total		731.05	290.16	284.96	440.89	5.20

NOTE-BHP, MHPA and Rangia 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:	November 19, 2021
Hours:	09:00 Hours

Date	Time	Load(MW)
19-Nov-21	18:00hrs	456.37 MW

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	0.00		Unit-I & III under AMP. Unit-V on standby. 400kV THP-Siliguri line I under breakdown. 400kV THP-MAL line under Annual Maintenance .
		Unit- II	147.13	400kV THP - Siliguri Line - II	209.92	+	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	201.78	+	
		Unit- IV	128.95	400kV THP - Malbase Line - III	0.00		
		Unit- V	0.00	400kV Malbase - Siliguri Line	-56.87	-	
		Unit- VI	139.80	-	-	-	
		Total	415.88	Auxiliary Consumption & Transformation Losses at Generator end	1.005%		
2	720MW MHP	Unit-I	86.64	400kV MHP - Jigmeling Line - I	102.52	+	Unit-III on Standby. Unit IV under Annual Maintenance. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby. JLG_ALI Line II(Direct) opened (Both end).
		Unit-II	119.83	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	103.09	+	
		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)	43.84	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	63.36	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	96.03	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	19.65	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	19.91	+	
		-	-	220kV Tsirang - Jigmeling Line	8.26	+	
-	-	132kV Gelephu - Salakati Line	6.76	+			
		Total	206.47	Auxiliary Consumption & Transformation Losses at Generator end	0.417%		
3	336MW CHP	Unit- I	75.72	220kV CHP - Birpara Line- I	24.21	+	Unit-IV under AMP.
		Unit- II	64.88	220kV CHP - Birpara Line- II	24.30	+	
		Unit- III	82.90	220kV CHP - Malbase Line- III	87.24	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	56.09	+	
		-	-	220kV Malbase - Birpara Line	-27.74	-	
		-	-	66kV CHP - Chumdo Line	15.10	+	
		-	-	66kV CHP - Gedu Line	4.67	+	
		-	-	3x3MVA, 66/11kV TFR	1.37	+	
		Total	223.50	Auxiliary Consumption & Transformation Losses at Generator end	4.707%		
4	24MW BHP (U/S)	Unit- I	7.50	220kV BHP - Semtokha Line	55.00	+	
		Unit- II	7.30	66kV BHP - Lobeysa Line	27.22	+	
		Total	14.80	220kV BHP - Tsirang Line	-39.44	-	
5	40MW BHP (L/S)	Unit- I	13.90	5MVA, 66/11kV TFR	0.46	+	
		Unit- II	14.60	30MVA ICT, 220/66kV (HV)	13.90	+	
		Total	28.50	Auxiliary Consumption & Transformation Losses at Generator end	0.139%		
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	52.77	+	Unit I on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	52.97	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	12.67	+	
		-	-	5MVA, 220/33kV TFR	0.19	+	
		Total	52.97	Auxiliary Consumption & Transformation Losses at Generator end	0.019%		
7	60MW KHP	Unit- I	12.08	132kV KHP - Nangkhoh Line	20.02	+	Unit-IV under AMP.
		Unit-II	12.09	132kV KHP - Kilikhar Line	15.57	+	
		Unit- III	12.07	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	0.00	132kV Motanga - Rangia Line	7.33	+	
		Total	36.24	Auxiliary Consumption & Transformation Losses at Generator end	0.966%		

Note: Generation-Load Summary (MW) for November 19, 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	735.65	351.79	349.69	375.60	2.10
2	Eastern Grid	242.71	77.49	76.28	173.48	1.21
	Total	978.36	429.28	425.97	549.08	3.31

Note: Generation-Load Summary for November 19, 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	568.80	202.59	199.71	333.22	2.88
2	Eastern Grid	229.37	49.82	47.98	212.54	1.84
	Total	798.17	252.41	247.69	545.76	4.72

NOTE-BHP, MHPA & Rangia 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.