

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date: **November 4, 2021**
Hours: **19:00 Hours**

Date	Time	Load(MW)
1-Nov-21	19:00hrs	429.42MW

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 V on standby. Unit I under Annual Maintenance. 400kV THP-Siliguri line I under breakdown. 400kV THP-MAL line under Annual Maintenance
		Unit- II	136.68	400kV THP - Siliguri Line - II	270.04	+	
		Unit- III	128.23	400kV THP - Siliguri Line- IV	259.61	+	
		Unit- IV	129.00	400kV THP - Malbase Line - III	0.00	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-16.92	-	
		Unit- VI	138.75	-	-	-	
		Total	532.66	Auxiliary Consumption & Transformation Losses at Gen. end	0.565%		
2	720MW MHP	Unit-I	120.10	400kV MHP - Jigmeling Line - I	124.79	+	Unit-II 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 I (Interim) on standby. JLG_ALI Line II (Direct) opened (Both end).
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	130.88	400kV MHP - Jigmeling Line - III	125.62	+	
		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)	14.40	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	140.25	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	91.63	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	23.43	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	23.85	+	
		-	-	220kV Tsirang - Jigmeling Line	39.78	+	
-	-	132kV Gelephu - Salakati Line	10.01	+			
Total	250.98	Auxiliary Consumption & Transformation Losses at Gen. end	0.227%				
3	336MW CHP	Unit- I	88.96	220kV CHP - Birpara Line- I	67.78	+	
		Unit- II	90.85	220kV CHP - Birpara Line- II	67.48	+	
		Unit- III	89.56	220kV CHP - Malbase Line- III	135.36	+	
		Unit- IV	90.02	220kV CHP - Semtokha Line- IV	63.51	+	
		-	-	220kV Malbase - Birpara Line	5.94	+	
		-	-	66kV CHP - Chumdo Line	17.76	+	
		-	-	66kV CHP - Gedu Line	5.20	+	
		-	-	3x3MVA, 66/11kV TFR	1.82	+	
		Total	359.39	Auxiliary Consumption & Transformation Losses at Gen. end	0.134%		
4	24MW BHP (U/S)	Unit- I	9.70	220kV BHP - Semtokha Line	54.10	+	Lobeysa Line
		Unit- II	9.60	66kV BHP - Lobeysa Line	27.97	+	
		Total	19.30	220kV BHP - Tsirang Line	-28.42	-	
5	40MW BHP (L/S)	Unit- I	17.70	5MVA, 66/11kV TFR	0.67	+	
		Unit- II	17.80	30MVA ICT, 220/66kV (HV)	-10.51	-	
		Total	35.50	Auxiliary Consumption & Transformation Losses at Gen. end	0.876%		
6	126MW DHP	Unit-I	36.30	220kV DHP - Tsirang Line	71.90	+	220kV DHP_Dagapela Line on standby.
		Unit-II	35.98	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	6.57	+	
		-	-	5MVA, 220/33kV TFR	0.37	+	
		Total	72.28	Auxiliary Consumption & Transformation Losses at Gen. end	0.014%		
7	60MW KHP	Unit- I	11.27	132kV KHP - Nangkhon Line	24.30	+	5 MVA transformer under maintenance.
		Unit-II	11.29	132kV KHP - Kilikhar Line	20.22	+	
		Unit- III	11.30	5MVA, 132/11kV TFR	0.00		
		Unit- IV	11.30	132kV Motanga - Rangia Line	16.65	+	
		Total	45.16	Auxiliary Consumption & Transformation Losses at Gen. end	1.417%		

Note: Generation-Load Summary (MW) for November 04, 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	1,019.13	325.42	328.01	653.93	-2.59
2	Eastern Grid	296.14	77.38	76.17	258.54	1.21
	Total	1,315.27	402.80	404.18	912.47	-1.38

Note: Generation-Load Summary for November 04, 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	718.11	185.03	173.46	478.10	11.57
2	Eastern Grid	285.97	64.70	62.28	276.25	2.42
	Total	1,004.08	249.73	235.74	754.35	13.99

NOTE-BHP, MHP 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 5, 2021
Hours:	09:00 Hours

Date	Time	Load(MW)
1-Nov-21	19:00hrs	429.42MW

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 V on standby. Unit I under Annual Maintenance. 400kV THP-Siliguri line I under breakdown. 400kV THP-MAL line under Annual Maintenance .
		Unit- II	116.17	400kV THP - Siliguri Line - II	273.68	+	
		Unit- III	169.15	400kV THP - Siliguri Line- IV	264.63	+	
		Unit- IV	119.29	400kV THP - Malbase Line - III	0.00		
		Unit- V	0.00	400kV Malbase - Siliguri Line	-17.18	-	
		Unit- VI	139.21	-	-	-	
		Total	543.82	Auxiliary Consumption & Transformation Losses at Generator end	1.013%		
2	720MW MHP	Unit-I	124.28	400kV MHP - Jigmeling Line - I	127.09	+	Unit II on Standby and Unit IV under Annual Maintenance. 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. JLG_ALI Line II (Direct) opened (Both end).
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	130.85	400kV MHP - Jigmeling Line - III	128.01	+	
		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)	5.78	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	90.90	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	148.38	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	17.67	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	17.91	+	
		-	-	220kV Tsirang - Jigmeling Line	36.02	+	
-	-	132kV Gelephu - Salakati Line	11.94	+			
		Total	255.13	Auxiliary Consumption & Transformation Losses at Generator end	0.012%		
3	336MW CHP	Unit- I	91.81	220kV CHP - Birpara Line- I	44.39	+	
		Unit- II	0.00	220kV CHP - Birpara Line- II	44.44	+	
		Unit- III	90.85	220kV CHP - Malbase Line- III	118.92	+	
		Unit- IV	91.92	220kV CHP - Semtokha Line- IV	47.21	+	
		-	-	220kV Malbase - Birpara Line	-18.87	-	
		-	-	66kV CHP - Chumdo Line	13.90	+	
		-	-	66kV CHP - Gedu Line	4.11	+	
		-	-	3x3MVA, 66/11kV TFR	1.06	+	
		Total	274.58	Auxiliary Consumption & Transformation Losses at Generator end	0.200%		
4	24MW BHP (U/S)	Unit- I	9.60	220kV BHP - Semtokha Line	55.70	+	
		Unit- II	9.40	66kV BHP - Lobeysa Line	26.14	+	
		Total	19.00	220kV BHP - Tsirang Line	-28.90	-	
5	40MW BHP (L/S)	Unit- I	17.30	5MVA, 66/11kV TFR	0.41	+	
		Unit- II	17.40	30MVA ICT, 220/66kV (HV)	8.02	+	
		Total	34.70	Auxiliary Consumption & Transformation Losses at Generator end	0.652%		
6	126MW DHP	Unit-I	35.27	220kV DHP - Tsirang Line	68.88	+	220kV DHP_Dagapela Line on standby.
		Unit-II	34.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	5.77	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	69.27	Auxiliary Consumption & Transformation Losses at Generator end	0.130%		
7	60MW KHP	Unit- I	11.29	132kV KHP - Nangkhoh Line	28.30	+	5 MVA transformer under maintenance.
		Unit-II	11.26	132kV KHP - Kilikhar Line	16.32	+	
		Unit- III	11.30	5MVA, 132/11kV TFR	0.00	+	
		Unit- IV	11.24	132kV Motanga - Rangia Line	14.60	+	
		Total	45.09	Auxiliary Consumption & Transformation Losses at Generator end	1.042%		

Note: Generation-Load Summary (MW) for November 05, 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	941.37	314.26	313.53	591.09	0.73
2	Eastern Grid	300.22	70.42	69.92	265.82	0.50
	Total	1,241.59	384.68	383.45	856.91	1.23

Note: Generation-Load Summary for November 05, 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	666.24	180.26	177.51	445.98	2.75
2	Eastern Grid	289.34	50.72	49.09	278.62	1.63
	Total	955.58	230.98	226.60	724.60	4.38

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.
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