

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date: **November 7, 2021**
Hours: **19:00 Hours**

Date	Time	Load(MW)
5-Nov-21	19:00hrs	429.81MW

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-II under emergency shutdown. 400kV THP-Siliguri line I under breakdown. Unit-I & 400kV THP-MAL line under AMP.
		Unit- II	0.00	400kV THP - Siliguri Line - II	253.07	+	
		Unit- III	166.88	400kV THP - Siliguri Line- IV	244.56	+	
		Unit- IV	167.93	400kV THP - Malbase Line - III	0.00		
		Unit- V	0.00	400kV Malbase - Siliguri Line	-37.00	-	
		Unit- VI	167.53	-	-	-	
		Total	502.34	Auxiliary Consumption & Transformation Losses at Gen. end	0.938%		
2	720MW MHP	Unit-I	109.44	400kV MHP - Jigmeling Line - I	119.21	+	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	131.02	400kV MHP - Jigmeling Line - III	119.68	+	
		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)	29.82	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	80.72	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	124.23	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	21.67	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	22.09	+	
-	-	220kV Tsirang - Jigmeling Line	20.44	+			
-	-	132kV Gelephu - Salakati Line	5.94	+			
		Total	240.46	Auxiliary Consumption & Transformation Losses at Gen. end	0.653%		
3	336MW CHP	Unit- I	66.37	220kV CHP - Birpara Line- I	41.30	+	
		Unit- II	70.92	220kV CHP - Birpara Line- II	41.04	+	
		Unit- III	71.81	220kV CHP - Malbase Line- III	110.86	+	
		Unit- IV	65.51	220kV CHP - Semtokha Line- IV	54.93	+	
		-	-	220kV Malbase - Birpara Line	-18.63	-	
		-	-	66kV CHP - Chumdo Line	17.73	+	
		-	-	66kV CHP - Gedu Line	4.48	+	
		-	-	3x3MVA, 66/11kV TFR	1.96	+	
		Total	274.61	Auxiliary Consumption & Transformation Losses at Gen. end	0.841%		
4	24MW BHP (U/S)	Unit- I	9.20	220kV BHP - Semtokha Line	63.40	+	
		Unit- II	9.00	66kV BHP - Lobeysa Line	29.00	+	
		Total	18.20	220kV BHP - Tsirang Line	-41.60	-	
5	40MW BHP (L/S)	Unit- I	16.80	5MVA, 66/11kV TFR	0.69	+	
		Unit- II	16.70	30MVA ICT, 220/66kV (HV)	11.92	+	
		Total	33.50	Auxiliary Consumption & Transformation Losses at Gen. end	0.406%		
6	126MW DHP	Unit-I	33.32	220kV DHP - Tsirang Line	65.94	+	220kV DHP_Dagapela Line on standby.
		Unit-II	33.02	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	6.34	+	
		-	-	5MVA, 220/33kV TFR	0.27	+	
		Total	66.34	Auxiliary Consumption & Transformation Losses at Gen. end	0.196%		
7	60MW KHP	Unit- I	10.59	132kV KHP - Nangkhoh Line	22.50	+	5 MVA transformer under maintenance.
		Unit-II	10.59	132kV KHP - Kilikhar Line	19.19	+	
		Unit- III	10.55	5MVA, 132/11kV TFR	0.00		
		Unit- IV	10.51	132kV Motanga - Rangia Line	12.60	+	
		Total	42.24	Auxiliary Consumption & Transformation Losses at Gen. end	1.302%		

Note: Generation-Load Summary (MW) for November 07, 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	894.99	350.21	349.19	524.34	1.02
2	Eastern Grid	282.70	79.65	77.53	223.49	2.12
	Total	1,177.69	429.86	426.72	747.83	3.14

Note: Generation-Load Summary for November 07, 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	815.00	197.88	191.92	573.12	5.96
2	Eastern Grid	402.90	54.06	52.50	392.84	1.56
	Total	1,217.90	251.94	244.42	965.96	7.52

NOTE-BHP, MHP, KHP, DHP 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 8, 2021
Hours:	09:00 Hours

Date	Time	Load(MW)
5-Nov-21	19:00hrs	429.81MW

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-II on standby. Unit-I under Annual Maintenance. 400kV THP-Siliguri line I under breakdown. 400kV THP-MAL line under Annual Maintenance .
		Unit- II	0.00	400kV THP - Siliguri Line - II	277.00	+	
		Unit- III	158.28	400kV THP - Siliguri Line- IV	264.22	+	
		Unit- IV	100.09	400kV THP - Malbase Line - III	0.00		
		Unit- V	150.00	400kV Malbase - Siliguri Line	-20.31	-	
		Unit- VI	138.24	-	-	-	
		Total	546.61	Auxiliary Consumption & Transformation Losses at Generator end	0.986%		
2	720MW MHP	Unit-I	114.35	400kV MHP - Jigmeling Line - I	122.47	+	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	131.03	400kV MHP - Jigmeling Line - III	123.18	+	
		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)	8.70	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	91.63	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	140.95	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	16.80	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	17.06	+	
		-	-	220kV Tsirang - Jigmeling Line	31.08	+	
-	-	132kV Gelephu - Salakati Line	8.99	+			
		Total	245.38	Auxiliary Consumption & Transformation Losses at Generator end	-0.110%		
3	336MW CHP	Unit- I	68.89	220kV CHP - Birpara Line- I	45.38	+	
		Unit- II	70.71	220kV CHP - Birpara Line- II	45.11	+	
		Unit- III	71.65	220kV CHP - Malbase Line- III	122.82	+	
		Unit- IV	68.75	220kV CHP - Semtokha Line- IV	55.55	+	
		-	-	220kV Malbase - Birpara Line	-20.47	-	
		-	-	66kV CHP - Chumdo Line	13.20	+	
		-	-	66kV CHP - Gedu Line	4.97	+	
		-	-	3x3MVA, 66/11kV TFR	1.05	+	
		Total	280.00	Auxiliary Consumption & Transformation Losses at Generator end	-2.886%		
4	24MW BHP (U/S)	Unit- I	9.10	220kV BHP - Semtokha Line	56.60	+	
		Unit- II	8.90	66kV BHP - Lobeysa Line	26.09	+	
		Total	18.00	220kV BHP - Tsirang Line	-31.37	-	
5	40MW BHP (L/S)	Unit- I	16.80	5MVA, 66/11kV TFR	0.41	+	
		Unit- II	16.80	30MVA ICT, 220/66kV (HV)	8.90	+	
		Total	33.60	Auxiliary Consumption & Transformation Losses at Generator end	-0.252%		
6	126MW DHP	Unit-I	34.30	220kV DHP - Tsirang Line	67.87	+	220kV DHP_Dagapela Line on standby.
		Unit-II	33.94	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	5.52	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	68.24	Auxiliary Consumption & Transformation Losses at Generator end	0.103%		
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Line	25.75	+	Unitr I on standby. 5 MVA transformer under maintenance.
		Unit-II	14.12	132kV KHP - Kilikhar Line	15.95	+	
		Unit- III	14.09	5MVA, 132/11kV TFR	0.00		
		Unit- IV	14.13	132kV Motanga - Rangia Line	9.06	+	
		Total	42.34	Auxiliary Consumption & Transformation Losses at Generator end	1.512%		

Note: Generation-Load Summary (MW) for November 08, 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	946.45	324.44	332.71	590.93	-8.27
2	Eastern Grid	287.72	68.17	67.80	250.63	0.37
	Total	1,234.17	392.61	400.51	841.56	-7.90

Note: Generation-Load Summary for November 08, 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	659.48	175.58	166.34	298.20	9.24
2	Eastern Grid	264.71	53.13	51.60	228.76	1.53
	Total	924.19	228.71	217.94	526.96	10.77

NOTE-BHP,MHPA,KHP& 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.