

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	September 1, 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	185.76	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	185.73	400kV THP - Siliguri Line - II	363.87	+	
		Unit- III	184.11	400kV THP - Siliguri Line- IV	347.58	+	
		Unit- IV	185.79	400kV THP - Malbase Line - III	393.99	+	
		Unit- V	185.59	400kV Malbase - Siliguri Line	329.67	+	
		Unit- VI	185.53	-	-	-	
		Total	1,112.51	Auxiliary Consumption & Transformation Losses at Gen. end	0.635%		
2	720MW MHP	Unit-I	197.93	400kV MHP - Jigmeling Line - I	391.34	+	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. (There is a MW power difference of 12MW between MHP fdr sending end and Jigmeling fdr receiving end)
		Unit-II	196.65	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	197.65	400kV MHP - Jigmeling Line - III	393.43	+	
		Unit-IV	196.99	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)	-22.10	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	197.07	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	298.37	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	297.66	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	38.78	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	38.94	+	
		-	-	220kV Tsirang - Jigmeling Line	100.57	+	
-	-	132kV Gelephu - Salakati Line	28.60	+			
Total	789.22	Auxiliary Consumption & Transformation Losses at Gen. end	0.564%				
3	336MW CHP	Unit- I	92.01	220kV CHP - Birpara Line- I	100.46	+	
		Unit- II	91.42	220kV CHP - Birpara Line- II	99.93	+	
		Unit- III	91.37	220kV CHP - Malbase Line- III	141.07	+	
		Unit- IV	91.84	220kV CHP - Semtokha Line- IV	10.97	+	
		-	-	220kV Malbase - Birpara Line	54.81	+	
		-	-	66kV CHP - Chumdo Line	5.91	+	
		-	-	66kV CHP - Gedu Line	6.45	+	
		-	-	3x3MVA, 66/11kV TFR	0.60	+	
Total	366.64	Auxiliary Consumption & Transformation Losses at Gen. end	0.341%				
4	24MW BHP (U/S)	Unit- I	12.40	220kV BHP - Semtokha Line	74.80	+	
		Unit- II	12.30	66kV BHP - Lobeysa Line	11.12	+	
		Total	24.70	220kV BHP - Tsirang Line	-20.99	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	-11.80	-	
		Total	41.80	Auxiliary Consumption & Transformation Losses at Gen. end	1.008%		
6	126MW DHP	Unit-I	63.57	220kV DHP - Tsirang Line	126.09	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.06	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.81	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	126.63	Auxiliary Consumption & Transformation Losses at Gen. end	0.190%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Line	35.38	+	
		Unit-II	15.60	132kV KHP - Kilikhar Line	28.56	+	
		Unit- III	16.04	5MVA, 132/11kV TFR	0.50	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	45.72	+	
		Total	64.64	Auxiliary Consumption & Transformation Losses at Gen. end	0.312%		

Note: Generation-Load Summary (MW) for September 01, 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	1,672.28	275.39	267.97	1,296.32	7.42
2	Eastern Grid	853.86	87.01	82.36	867.42	4.65
	Total	2,526.14	362.40	350.33	2,163.74	12.07

Note: Generation-Load Summary for September 01, 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	1,444.67	173.88	166.47	1,268.79	7.41
2	Eastern Grid	659.76	225.43	56.76	436.33	168.67
	Total	2,104.43	399.31	223.23	1,705.12	176.08

NOTE-BHP and MHP 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.

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	September 2, 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	185.56	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	186.21	400kV THP - Siliguri Line - II	368.21	+	
		Unit- III	185.20	400kV THP - Siliguri Line- IV	351.59	+	
		Unit- IV	184.93	400kV THP - Malbase Line - III	387.11	+	
		Unit- V	185.82	400kV Malbase - Siliguri Line	339.00	+	
		Unit- VI	186.42	-	-	-	
		Total	1,114.14	Auxiliary Consumption & Transformation Losses at Generator end	0.649%		
2	720MW MHP	Unit-I	197.78	400kV MHP - Jigmeling Line - I	390.69	+	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. (There is a MW power difference of 12MW between MHP fdr sending end and Jigmeling fdr receiving end)
		Unit-II	195.88	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	197.09	400kV MHP - Jigmeling Line - III	392.94	+	
		Unit-IV	196.02	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)	-49.00	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	203.62	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	307.77	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	307.77	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.00	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	20.00	+	
		-	-	220kV Tsirang - Jigmeling Line	90.50	+	
-	-	132kV Gelephu - Salakati Line	23.15	+			
Total	786.77	Auxiliary Consumption & Transformation Losses at Generator end	0.399%				
3	336MW CHP	Unit- I	92.16	220kV CHP - Birpara Line- I	98.10	+	
		Unit- II	91.15	220kV CHP - Birpara Line- II	98.39	+	
		Unit- III	91.42	220kV CHP - Malbase Line- III	148.58	+	
		Unit- IV	90.98	220kV CHP - Semtokha Line- IV	6.27	+	
		-	-	220kV Malbase - Birpara Line	43.00	+	
		-	-	66kV CHP - Chumdo Line	6.18	+	
		-	-	66kV CHP - Gedu Line	5.98	+	
		-	-	3x3MVA, 66/11kV TFR	0.80	+	
Total	365.71	Auxiliary Consumption & Transformation Losses at Generator end	0.386%				
4	24MW BHP (U/S)	Unit- I	12.40	220kV BHP - Semtokha Line	87.71	+	
		Unit- II	12.20	66kV BHP - Lobeyssa Line	8.50	+	
		Total	24.60	220kV BHP - Tsirang Line	-31.10	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	-15.50	-	
		Total	41.80	Auxiliary Consumption & Transformation Losses at Generator end	0.602%		
6	126MW DHP	Unit-I	63.59	220kV DHP - Tsirang Line	126.17	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.21	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.20	+	
		-	-	5MVA, 220/33kV TFR	0.40	+	
		Total	126.80	Auxiliary Consumption & Transformation Losses at Generator end	0.181%		
7	60MW KHP	Unit- I	16.52	132kV KHP - Nangkhoh Line	41.54	+	
		Unit-II	16.62	132kV KHP - Kilikhar Line	22.14	+	
		Unit- III	15.23	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.30	132kV Motanga - Rangia Line	28.86	+	
		Total	64.67	Auxiliary Consumption & Transformation Losses at Generator end	1.067%		

Note: Generation-Load Summary (MW) for September 02, 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	1,673.05	284.26	276.19	1,298.29	8.07
2	Eastern Grid	851.44	70.77	66.94	871.17	3.83
	Total	2,524.49	355.03	343.13	2,169.46	11.90

Note: Generation-Load Summary for September 02, 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	1,527.70	118.82	108.06	1,317.48	10.76
2	Eastern Grid	659.74	105.87	101.40	645.27	4.47
	Total	2,187.44	224.69	209.46	1,962.75	15.23

NOTE-BHP and MHP 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.