

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date: **August 8, 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	185.99	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance.
		Unit- II	182.78	400kV THP - Siliguri Line - II	357.28	+	
		Unit- III	186.06	400kV THP - Siliguri Line- IV	341.08	+	
		Unit- IV	186.26	400kV THP - Malbase Line - III	404.12	+	
		Unit- V	185.13	400kV Malbase - Siliguri Line	320.91	+	
		Unit- VI	185.31	-	-	-	
		Total	1,111.53	Auxiliary Consumption & Transformation Losses at Gen. end	0.814%		
2	720MW MHP	Unit-I	197.81	400kV MHP - Jigmeling Line - I	294.79	+	Unit-III under Restoration . 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.
		Unit-II	197.46	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	296.29	+	
		Unit-IV	197.79	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)	-19.50	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	150.50	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	225.70	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	225.70	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	25.70	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	25.80	+	
		-	-	220kV Tsirang - Jigmeling Line	73.19	+	
-	-	132kV Gelephu - Salakati Line	18.60	+			
Total	593.06	Auxiliary Consumption & Transformation Losses at Gen. end	0.334%				
3	336MW CHP	Unit- I	91.60	220kV CHP - Birpara Line- I	96.50	+	
		Unit- II	91.13	220kV CHP - Birpara Line- II	96.81	+	
		Unit- III	91.84	220kV CHP - Malbase Line- III	123.53	+	
		Unit- IV	91.59	220kV CHP - Semtokha Line- IV	30.35	+	
		-	-	220kV Malbase - Birpara Line	61.75	+	
		-	-	66kV CHP - Chumdo Line	9.74	+	
		-	-	66kV CHP - Gedu Line	6.36	+	
		-	-	3x3MVA, 66/11kV TFR	1.40	+	
		Total	366.16	Auxiliary Consumption & Transformation Losses at Gen. end	0.401%		
4	24MW BHP (U/S)	Unit- I	11.50	220kV BHP - Semtokha Line	40.10	+	
		Unit- II	11.20	66kV BHP - Lobeysa Line	24.31	+	
		Total	22.70	220kV BHP - Tsirang Line	-3.22	-	
5	40MW BHP (L/S)	Unit- I	20.10	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	20.10	30MVA ICT, 220/66kV (HV)	3.64	+	
		Total	40.20	Auxiliary Consumption & Transformation Losses at Gen. end	1.304%		
6	126MW DHP	Unit-I	49.86	220kV DHP - Tsirang Line	80.41	+	220kV DHP_Dagapela Line on standby.
		Unit-II	31.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.80	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	80.86	Auxiliary Consumption & Transformation Losses at Gen. end	0.186%		
7	60MW KHP	Unit- I	16.54	132kV KHP - Nangkhon Line	37.75	+	
		Unit-II	16.58	132kV KHP - Kilikhar Line	27.46	+	
		Unit- III	16.42	5MVA, 132/11kV TFR	0.41	+	
		Unit- IV	16.69	132kV Motanga - Rangia Line	41.62	+	
		Total	66.23	Auxiliary Consumption & Transformation Losses at Gen. end	0.929%		

Note: Generation-Load Summary (MW) for August 08, 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	1,621.45	273.93	264.24	1,274.33	9.69
2	Eastern Grid	659.29	70.36	67.77	662.12	2.59
	Total	2,280.74	344.29	332.01	1,936.45	12.29

Note: Generation-Load Summary for August 08, 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	1,671.02	221.41	205.19	1,360.00	16.22
2	Eastern Grid	842.08	67.23	64.64	864.46	2.59
	Total	2,513.10	288.64	269.83	2,224.46	18.81

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:	August 9, 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	168.10	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance.
		Unit- II	167.78	400kV THP - Siliguri Line - II	328.28	+	
		Unit- III	169.25	400kV THP - Siliguri Line- IV	313.44	+	
		Unit- IV	167.50	400kV THP - Malbase Line - III	361.57	+	
		Unit- V	166.67	400kV Malbase - Siliguri Line	295.07	+	
		Unit- VI	169.48	-	-	-	
		Total	1,008.78	Auxiliary Consumption & Transformation Losses at Generator end	0.544%		
2	720MW MHP	Unit-I	197.85	400kV MHP - Jigmeling Line - I	295.22	+	Unit-III under Restoration . 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.
		Unit-II	197.86	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	296.47	+	
		Unit-IV	197.91	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)	-32.80	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	152.71	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	232.02	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	232.02	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	19.10	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	19.10	+	
		-	-	220kV Tsirang - Jigmeling Line	72.70	+	
-	-	132kV Gelephu - Salakati Line	16.15	+			
Total	593.62	Auxiliary Consumption & Transformation Losses at Generator end	0.325%				
3	336MW CHP	Unit- I	92.05	220kV CHP - Birpara Line- I	93.09	+	
		Unit- II	91.15	220kV CHP - Birpara Line- II	93.04	+	
		Unit- III	91.62	220kV CHP - Malbase Line- III	146.46	+	
		Unit- IV	91.30	220kV CHP - Semtokha Line- IV	19.61	+	
		-	-	220kV Malbase - Birpara Line	37.92	+	
		-	-	66kV CHP - Chumdo Line	6.75	+	
		-	-	66kV CHP - Gedu Line	6.05	+	
		-	-	3x3MVA, 66/11kV TFR	0.67	+	
Total	366.12	Auxiliary Consumption & Transformation Losses at Generator end	0.123%				
4	24MW BHP (U/S)	Unit- I	11.60	220kV BHP - Semtokha Line	42.00	+	
		Unit- II	11.40	66kV BHP - Lobeysa Line	25.70	+	
		Total	23.00	220kV BHP - Tsirang Line	-5.17	-	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	20.90	30MVA ICT, 220/66kV (HV)	4.37	+	
		Total	41.40	Auxiliary Consumption & Transformation Losses at Generator end	1.522%		
6	126MW DHP	Unit-I	50.20	220kV DHP - Tsirang Line	80.22	+	220kV DHP_Dagapela Line on standby.
		Unit-II	30.50	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.00	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	80.70	Auxiliary Consumption & Transformation Losses at Generator end	0.223%		
7	60MW KHP	Unit- I	16.53	132kV KHP - Nangkhoh Line	40.87	+	
		Unit-II	16.51	132kV KHP - Kilikhar Line	24.28	+	
		Unit- III	16.55	5MVA, 132/11kV TFR	0.27	+	
		Unit- IV	16.62	132kV Motanga - Rangia Line	40.01	+	
		Total	66.21	Auxiliary Consumption & Transformation Losses at Generator end	1.193%		

Note: Generation-Load Summary (MW) for August 09, 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	1,520.00	286.46	280.36	1,160.84	6.10
2	Eastern Grid	659.83	59.62	56.90	672.91	2.72
	Total	2,179.83	346.08	337.26	1,833.75	8.82

Note: Generation-Load Summary for August 09, 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	1,680.16	196.43	177.76	1,400.24	18.67
2	Eastern Grid	840.44	51.22	50.95	872.71	0.27
	Total	2,520.60	247.65	228.71	2,272.95	18.94

NOTE-BHP and 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.
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