

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: August 16, 2022
Hours: 19:00 Hours

Date **Time** **Load(MW)**
 15-Aug-22 19:30 hrs 521.02

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	185.97	400kV THP - Siliguri Line - I	342.88	400kV THP_ Siliguri Line IV under shutdown.
		Unit- II	184.42	400kV THP - Siliguri Line - II	340.01	
		Unit- III	185.50	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	185.31	400kV THP - Malbase Line - III	420.86	
		Unit- V	185.33	400kV Malbase - Siliguri Line	305.06	
		Unit- VI	185.36	-	-	
		Total	1,111.89	Auxiliary Consumption & Transformation Losses at Generator end	0.73%	
2	720MW MHP	Unit-I	170.18	400kV MHP - Jigmeling Line - I	215.68	400kV MHP-JLG Line IV under breakdown. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on Standby. 400kV JLG_ALI Line I (Direct) under breakdown.
		Unit-II	170.11	400kV MHP - Jigmeling Line - II	216.20	
		Unit-III	135.46	400kV MHP - Jigmeling Line - III	210.69	
		Unit-IV	170.64	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)	76.53	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	223.96	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	336.62	
		-	-	80MVA, 220/132kV ICT - I (HV)	44.11	
		-	-	80MVA, 220/132kV ICT - II (HV)	44.86	
		-	-	220kV Tsirang - Jigmeling Line	-19.78	
-	-	132kV Gelephu - Salakati Line	18.41			
Total	646.39	Auxiliary Consumption & Transformation Losses at Generator end	0.59%			
3	336MW CHP	Unit- I	91.44	220kV CHP - Birpara Line- I	81.15	
		Unit- II	91.07	220kV CHP - Birpara Line- II	81.21	
		Unit- III	91.74	220kV CHP - Malbase Line- III	102.41	
		Unit- IV	58.38	220kV CHP - Semtokha Line- IV	47.14	
		-	-	220kV Malbase - Birpara Line	53.96	
		-	-	66kV CHP - Chumdo Line	13.93	
		-	-	66kV CHP - Gedu Line	5.85	
		-	-	3x3MVA, 66/11kV TFR	1.44	
Total	332.63	Auxiliary Consumption & Transformation Losses at Generator end	-0.15%			
4	24MW BHP (U/S)	Unit- I	11.86	220kV BHP - Semtokha Line	54.56	
		Unit- II	11.86	66kV BHP - Lobeyasa Line	26.35	
		Total	23.72	220kV BHP - Tsirang Line	-16.62	
5	40MW BHP (L/S)	Unit- I	20.40	5MVA, 66/11kV TFR	0.73	
		Unit- II	21.03	30MVA ICT, 220/66kV (HV)	3.70	
		Total	41.43	Auxiliary Consumption & Transformation Losses at Generator end	0.20%	
6	126MW DHP	Unit-I	44.40	220kV DHP - Tsirang Line	0.00	220kV DHP_Tsirang Line on Standby.
		Unit-II	45.05	220kV DHP - Dagapela Line	88.93	
		-	-	220kV Jigmeling - Dagapela Line	-33.16	
		-	-	5MVA, 220/33kV TFR	0.50	
Total	89.45	Auxiliary Consumption & Transformation Losses at Gen. end	0.02%			
7	60MW KHP	Unit- I	16.59	132kV KHP - Nangkhoh Line	37.24	
		Unit-II	16.57	132kV KHP - Kilikhar Line	28.03	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.80	
		Unit- IV	16.49	132kV Motanga - Rangia Line	31.79	
		Total	66.15	Auxiliary Consumption & Transformation Losses at Generator end	0.12%	

Note: Generation-Load Summary (MW) for August 16, 2022 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)
1	Western Grid	1,599.12	381.47	373.68	1,204.27	7.79
2	Eastern Grid	712.54	115.14	111.24	610.78	3.90
Total		2,311.66	496.61	484.92	1,815.05	11.69

Note: Generation-Load Summary for August 16, 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)
1	Western Grid	1,654.29	288.20	281.00	1,279.78	7.20
2	Eastern Grid	659.43	75.13	71.86	670.61	3.27
Total		2,313.72	363.33	352.86	1,950.39	10.47

NOTE-

- The Instantaneous load balance,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

Coincidental Maximum Load

Date: August 17, 2022
Hours: 09:00 Hours

Date: 15-Aug-22 **Time:** 19:30 hrs **Load(MW):** 521.02

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	187.23	400kV THP - Siliguri Line - I	347.00	400kV THP_Siliguri Line IV under shutdown.
		Unit- II	187.70	400kV THP - Siliguri Line - II	348.00	
		Unit- III	187.60	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	187.70	400kV THP - Malbase Line - III	411.00	
		Unit- V	187.00	400kV Malbase - Siliguri Line	312.73	
		Unit- VI	187.00	-	-	
		Total	1,124.23	Auxiliary Consumption & Transformation Losses at Generator end	1.62%	
2	720MW MHP	Unit-I	155.13	400kV MHP - Jigmeling Line - I	202.27	400kV MHP-JLG Line IV under breakdown. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II(Interim) on Standby. 400kV JLG_ALI Line I(Direct) under breakdown.
		Unit-II	155.08	400kV MHP - Jigmeling Line - II	202.62	
		Unit-III	135.36	400kV MHP - Jigmeling Line - III	197.53	
		Unit-IV	160.63	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)	61.97	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	213.06	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	321.65	
		-	-	80MVA, 220/132kV ICT - I (HV)	32.68	
		-	-	80MVA, 220/132kV ICT - II (HV)	34.24	
		-	-	220kV Tsirang - Jigmeling Line	-5.66	
-	-	132kV Gelephu - Salakati Line	15.40			
Total	606.20	Auxiliary Consumption & Transformation Losses at Generator end	0.62%			
3	336MW CHP	Unit- I	92.21	220kV CHP - Birpara Line- I	77.80	
		Unit- II	91.59	220kV CHP - Birpara Line- II	77.50	
		Unit- III	92.09	220kV CHP - Malbase Line- III	101.60	
		Unit- IV	67.00	220kV CHP - Semtokha Line- IV	63.70	
		-	-	220kV Malbase - Birpara Line	48.80	
		-	-	66kV CHP - Chumdo Line	11.70	
		-	-	66kV CHP - Gedu Line	6.00	
		-	-	3x3MVA, 66/11kV TFR	0.62	
Total	342.89	Auxiliary Consumption & Transformation Losses at Generator end	1.16%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	36.70	BHP (U/S) Unit- I & BHP (L/S) Unit- I under Shutdown.
		Unit- II	12.30	66kV BHP - Lobeysa Line	21.24	
		Total	12.30	220kV BHP - Tsirang Line	-25.22	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.48	
		Unit- II	21.30	30MVA ICT, 220/66kV (HV)	9.75	
		Total	21.30	Auxiliary Consumption & Transformation Losses at Generator end	1.19%	
6	126MW DHP	Unit-I	44.41	220kV DHP - Tsirang Line	0.00	220kV DHP_TSI Line on Standby.
		Unit-II	44.01	220kV DHP - Dagapela Line	87.98	
		-	-	220kV Jigmeling - Dagapela Line	-31.08	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	88.42	Auxiliary Consumption & Transformation Losses at Generator end	0.27%			
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Line	42.10	
		Unit-II	16.59	132kV KHP - Kilikhar Line	23.04	
		Unit- III	16.60	5MVA, 132/11kV TFR	0.37	
		Unit- IV	16.40	132kV Motanga - Rangia Line	25.51	
		Total	66.09	Auxiliary Consumption & Transformation Losses at Generator end	0.88%	

Note: Generation-Load Summary (MW) for August 17, 2022 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)
1	Western Grid	1,589.14	351.89	329.05	1,211.83	22.84
2	Eastern Grid	672.29	122.09	117.73	575.62	4.36
Total		2,261.43	473.98	446.78	1,787.45	27.20

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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)
1	Western Grid	1,563.22	272.82	269.85	1,226.90	2.97
2	Eastern Grid	659.32	56.74	54.07	666.08	2.67
Total		2,222.54	329.56	323.92	1,892.98	5.64

NOTE: BHP, THP & CHP data collected from site.

1. The Instantaneous load balance,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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2. This report is generated to give an idea of the generation & load flow for the system at a particular instant.