

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: August 30, 2022
Hours: 19:00 Hours

Date **Time** **Load(MW)**
 30-Aug-22 19:23 hrs 536.69

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	184.47	400kV THP - Siliguri Line - I	327.59	400kV Malbase_Siliguri Line under shutdown.
		Unit- II	185.09	400kV THP - Siliguri Line - II	326.26	
		Unit- III	185.24	400kV THP - Siliguri Line- IV	317.29	
		Unit- IV	183.22	400kV THP - Malbase Line - III	128.88	
		Unit- V	184.63	400kV Malbase - Siliguri Line	0.00	
		Unit- VI	185.82	-	-	
		Total	1,108.47	Auxiliary Consumption & Transformation Losses at Generator end	0.76%	
2	720MW MHP	Unit-I	197.80	400kV MHP - Jigmeling Line - I	360.71	400kV MHP-JLG Line II & III on Standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	197.65	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	135.32	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	197.67	400kV MHP - Jigmeling Line - IV	362.01	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	78.32	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	159.26	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	239.29	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	238.35	
		-	-	80MVA, 220/132kV ICT - I (HV)	41.20	
		-	-	80MVA, 220/132kV ICT - II (HV)	41.98	
		-	-	220kV Tsirang - Jigmeling Line	-14.92	
-	-	132kV Gelephu - Salakati Line	12.40			
Total	728.44	Auxiliary Consumption & Transformation Losses at Generator end	0.79%			
3	336MW CHP	Unit- I	91.51	220kV CHP - Birpara Line- I	80.25	
		Unit- II	90.88	220kV CHP - Birpara Line- II	80.47	
		Unit- III	91.49	220kV CHP - Malbase Line- III	108.32	
		Unit- IV	75.31	220kV CHP - Semtokha Line- IV	57.56	
		-	-	220kV Malbase - Birpara Line	47.61	
		-	-	66kV CHP - Chumdo Line	15.51	
		-	-	66kV CHP - Gedu Line	5.95	
		-	-	3x3MVA, 66/11kV TFR	1.32	
Total	349.19	Auxiliary Consumption & Transformation Losses at Generator end	-0.05%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	48.90	
		Unit- II	12.10	66kV BHP - Lobeyssa Line	27.50	
		Total	24.40	220kV BHP - Tsirang Line	-11.80	
5	40MW BHP (L/S)	Unit- I	20.40	5MVA, 66/11kV TFR	0.70	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	4.30	
		Total	41.40	Auxiliary Consumption & Transformation Losses at Generator end	0.76%	
6	126MW DHP	Unit-I	38.34	220kV DHP - Tsirang Line	0.00	220kV DHP_Tsirang Line on Standby.
		Unit-II	38.01	220kV DHP - Dagapela Line	75.87	
		-	-	220kV Jigmeling - Dagapela Line	-20.58	
		-	-	5MVA, 220/33kV TFR	0.47	
Total	76.35	Auxiliary Consumption & Transformation Losses at Gen. end	0.01%			
7	60MW KHP	Unit- I	16.61	132kV KHP - Nangkhoh Line	38.16	
		Unit-II	16.50	132kV KHP - Kilikhar Line	26.34	
		Unit- III	16.18	5MVA, 132/11kV TFR	0.50	
		Unit- IV	16.43	132kV Motanga - Rangia Line	29.69	
		Total	65.72	Auxiliary Consumption & Transformation Losses at Generator end	1.10%	

Note: Generation-Load Summary (MW) for August 30, 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	1,599.81	414.68	405.91	1,179.47	8.77
2	Eastern Grid	794.16	120.83	114.39	678.99	6.44
Total		2,393.97	535.51	520.30	1,858.46	15.21

Note: Generation-Load Summary for August 30, 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	1,671.38	306.34	298.73	1,272.38	7.61
2	Eastern Grid	855.19	81.53	76.19	866.32	5.34
Total		2,526.57	387.87	374.92	2,138.70	12.95

NOTE- MAT data collected from site.

- 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 31, 2022
Hours: 09:00 Hours

Date	Time	Load(MW)
30-Aug-22	19:23 hrs	536.69

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	184.96	400kV THP - Siliguri Line - I	335.43	400kV Malbase_Siliguri Line under shutdown.
		Unit- II	183.30	400kV THP - Siliguri Line - II	333.02	
		Unit- III	184.89	400kV THP - Siliguri Line- IV	325.12	
		Unit- IV	184.38	400kV THP - Malbase Line - III	108.07	
		Unit- V	185.97	400kV Malbase - Siliguri Line	0.00	
		Unit- VI	185.59	-	-	
		Total	1,109.09	Auxiliary Consumption & Transformation Losses at Generator end	0.67%	
2	720MW MHP	Unit-I	197.69	400kV MHP - Jigmeling Line - I	360.60	400kV MHP-JLG Line II & III under standby 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	197.78	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	135.50	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	197.71	400kV MHP - Jigmeling Line - IV	362.31	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	42.49	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	167.91	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	250.52	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	251.97	
		-	-	80MVA, 220/132kV ICT - I (HV)	23.28	
		-	-	80MVA, 220/132kV ICT - II (HV)	23.76	
		-	-	220kV Tsirang - Jigmeling Line	-22.44	
-	-	132kV Gelephu - Salakati Line	17.40			
Total	728.68	Auxiliary Consumption & Transformation Losses at Generator end	0.79%			
3	336MW CHP	Unit- I	91.51	220kV CHP - Birpara Line- I	58.06	Unit II under Shutdown.
		Unit- II	0.00	220kV CHP - Birpara Line- II	58.01	
		Unit- III	91.49	220kV CHP - Malbase Line- III	88.76	
		Unit- IV	75.31	220kV CHP - Semtokha Line- IV	33.00	
		-	-	220kV Malbase - Birpara Line	27.25	
		-	-	66kV CHP - Chumdo Line	11.17	
		-	-	66kV CHP - Gedu Line	5.01	
		-	-	3x3MVA, 66/11kV TFR	1.16	
Total	258.31	Auxiliary Consumption & Transformation Losses at Generator end	1.22%			
4	24MW BHP (U/S)	Unit- I	11.36	220kV BHP - Semtokha Line	59.98	
		Unit- II	11.36	66kV BHP - Lobeyasa Line	24.73	
		Total	22.72	220kV BHP - Tsirang Line	-20.80	
5	40MW BHP (L/S)	Unit- I	20.37	5MVA, 66/11kV TFR	0.37	
		Unit- II	21.01	30MVA ICT, 220/66kV (HV)	2.33	
		Total	41.38	Auxiliary Consumption & Transformation Losses at Generator end	-0.28%	
6	126MW DHP	Unit-I	53.45	220kV DHP - Tsirang Line	0.00	220kV DHP_TSI Line on Standby.
		Unit-II	29.03	220kV DHP - Dagapela Line	82.00	
		-	-	220kV Jigmeling - Dagapela Line	-27.54	
		-	-	5MVA, 220/33kV TFR	0.30	
Total	82.48	Auxiliary Consumption & Transformation Losses at Generator end	0.22%			
7	60MW KHP	Unit- I	16.56	132kV KHP - Nangkhoh Line	43.56	
		Unit-II	16.58	132kV KHP - Kilikhar Line	21.13	
		Unit- III	16.00	5MVA, 132/11kV TFR	0.29	
		Unit- IV	16.56	132kV Motanga - Rangia Line	18.36	
		Total	65.70	Auxiliary Consumption & Transformation Losses at Generator end	1.10%	

Note: Generation-Load Summary (MW) for August 31, 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	1,513.98	371.99	361.40	1,136.89	10.59
2	Eastern Grid	794.38	93.32	86.83	706.16	6.49
Total		2,308.36	465.31	448.23	1,843.05	17.08

Note: Generation-Load Summary for August 31, 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)
1	Western Grid	1,670.92	240.20	224.55	1,313.91	15.65
2	Eastern Grid	852.99	73.66	68.31	896.14	5.35
Total		2,523.91	313.86	292.86	2,210.05	21.00

Notes: SAL & MAT data collected from site.

- 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.
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