

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	July 31, 2022
Hours:	19:00 Hours

Date	Time	Load(MW)
12-Jan-22	18:00hrs	492.25

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	185.65	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I under breakdown.
		Unit- II	186.43	400kV THP - Siliguri Line - II	347.07	
		Unit- III	184.90	400kV THP - Siliguri Line - IV	332.75	
		Unit- IV	185.56	400kV THP - Malbase Line - III	425.29	
		Unit- V	185.67	400kV Malbase - Siliguri Line	310.90	
		Unit- VI	185.43	-	-	
		Total	1,113.64	Auxiliary Consumption & Transformation Losses at Generator end	0.77%	
2	720MW MHP	Unit-I	197.99	400kV MHP - Jigmeling Line - I	294.17	Unit III under shutdown. 400kV MHP-JLG line II & 400kV MHP-JLG Line IV on Standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line II(Interim) on Standby.
		Unit-II	197.97	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	296.15	
		Unit-IV	197.97	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)	13.32	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	142.88	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	213.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	214.18	
		-	-	80MVA, 220/132kV ICT - I (HV)	35.62	
		-	-	80MVA, 220/132kV ICT - II (HV)	36.25	
		-	-	220kV Tsirang - Jigmeling Line	-17.19	
-	-	132kV Gelephu - Salakati Line	9.95			
Total	593.93	Auxiliary Consumption & Transformation Losses at Generator end	0.61%			
3	336MW CHP	Unit- I	91.74	220kV CHP - Birpara Line- I	61.61	Unit IV under Shutdown.
		Unit- II	91.22	220kV CHP - Birpara Line- II	61.86	
		Unit- III	91.45	220kV CHP - Malbase Line- III	84.04	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	43.95	
		-	-	220kV Malbase - Birpara Line	35.23	
		-	-	66kV CHP - Chumdo Line	14.53	
		-	-	66kV CHP - Gedu Line	4.58	
		-	-	3x3MVA, 66/11kV TFR	1.98	
Total	274.41	Auxiliary Consumption & Transformation Losses at Generator end	0.68%			
4	24MW BHP (U/S)	Unit- I	20.56	220kV BHP - Semtokha Line	54.02	
		Unit- II	21.09	66kV BHP - Lobeyasa Line	25.51	
		Total	41.65	220kV BHP - Tsirang Line	-14.72	
5	40MW BHP (L/S)	Unit- I	11.92	5MVA, 66/11kV TFR	0.60	
		Unit- II	11.92	30MVA ICT, 220/66kV (HV)	2.60	
		Total	23.84	Auxiliary Consumption & Transformation Losses at Generator end	0.12%	
6	126MW DHP	Unit-I	63.69	220kV DHP - Tsirang Line	0.00	220kV DHP_Tsirang Line on Standby.
		Unit-II	63.21	220kV DHP - Dagapela Line	126.26	
		-	-	220kV Jigmeling - Dagapela Line	-77.20	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	126.90	Auxiliary Consumption & Transformation Losses at Gen. end	0.35%			
7	60MW KHP	Unit- I	16.41	132kV KHP - Nangkhoh Line	39.44	
		Unit-II	16.48	132kV KHP - Kilikhar Line	25.29	
		Unit- III	16.51	5MVA, 132/11kV TFR	0.90	
		Unit- IV	16.44	132kV Motanga - Rangia Line	25.25	
		Total	65.84	Auxiliary Consumption & Transformation Losses at Generator end	0.32%	

Note: Generation-Load Summary (MW) for July 31, 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	1,580.44	371.01	360.10	1,149.42	10.91
2	Eastern Grid	659.77	114.52	110.70	605.26	3.82
Total		2,240.21	485.53	470.80	1,754.68	14.73

Note: Generation-Load Summary for July 31, 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	1,565.69	279.27	272.20	1,188.03	7.07
2	Eastern Grid	643.41	71.33	66.93	670.47	4.40
Total		2,209.10	350.60	339.13	1,858.50	11.47

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 1, 2022
Hours:	09:00 Hours

Date	Time	Load(MW)
12-Jan-22	18:00hrs	492.25

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	185.31	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I under breakdown.
		Unit- II	186.50	400kV THP - Siliguri Line - II	353.88	
		Unit- III	185.55	400kV THP - Siliguri Line - IV	337.76	
		Unit- IV	185.78	400kV THP - Malbase Line - III	412.89	
		Unit- V	185.36	400kV Malbase - Siliguri Line	317.93	
		Unit- VI	185.12	-	-	
		Total	1,113.62	Auxiliary Consumption & Transformation Losses at Generator end	0.82%	
2	720MW MHP	Unit-I	197.79	400kV MHP - Jigmeling Line - I	293.69	Unit III under shutdown. 400kV MHP-JLG line II & 400kV MHP-JLG Line IV on Standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line II(Interim) on Standby.
		Unit-II	197.80	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.50	
		Unit-IV	198.00	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)	-10.40	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	148.28	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	221.84	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	220.77	
		-	-	80MVA, 220/132kV ICT - I (HV)	23.29	
		-	-	80MVA, 220/132kV ICT - II (HV)	23.61	
		-	-	220kV Tsirang - Jigmeling Line	-19.48	
-	-	132kV Gelephu - Salakati Line	5.80			
Total	593.59	Auxiliary Consumption & Transformation Losses at Generator end	0.74%			
3	336MW CHP	Unit- I	91.74	220kV CHP - Birpara Line- I	63.19	Unit IV under Shutdown.
		Unit- II	91.22	220kV CHP - Birpara Line- II	63.12	
		Unit- III	91.45	220kV CHP - Malbase Line- III	94.22	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	35.06	
		-	-	220kV Malbase - Birpara Line	31.44	
		-	-	66kV CHP - Chumdo Line	12.70	
		-	-	66kV CHP - Gedu Line	3.76	
		-	-	3x3MVA, 66/11kV TFR	0.96	
Total	274.41	Auxiliary Consumption & Transformation Losses at Generator end	0.51%			
4	24MW BHP (U/S)	Unit- I	12.40	220kV BHP - Semtokha Line	57.72	
		Unit- II	12.20	66kV BHP - Lobeysa Line	24.74	
		Total	24.60	220kV BHP - Tsirang Line	-17.25	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.40	
		Unit- II	21.20	30MVA ICT, 220/66kV (HV)	1.26	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Generator end	1.04%	
6	126MW DHP	Unit-I	63.67	220kV DHP - Tsirang Line	0.00	220kV DHP_TSI Line on Standby.
		Unit-II	63.20	220kV DHP - Dagapela Line	126.18	
		-	-	220kV Jigmeling - Dagapela Line	-77.15	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	126.87	Auxiliary Consumption & Transformation Losses at Generator end	0.39%			
7	60MW KHP	Unit- I	16.52	132kV KHP - Nangkhoh Line	57.93	
		Unit-II	16.59	132kV KHP - Kilikhar Line	7.26	
		Unit- III	16.55	5MVA, 132/11kV TFR	0.40	
		Unit- IV	16.52	132kV Motanga - Rangia Line	22.70	
		Total	66.18	Auxiliary Consumption & Transformation Losses at Generator end	0.89%	

Note: Generation-Load Summary (MW) for August 01, 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	1,581.20	356.21	344.54	1,167.32	11.67
2	Eastern Grid	659.77	98.05	93.06	619.39	4.99
Total		2,240.97	454.26	437.60	1,786.71	16.66

Note: Generation-Load Summary for August 01, 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	1,610.04	273.37	267.70	1,241.47	5.67
2	Eastern Grid	642.65	56.13	52.46	681.72	3.67
Total		2,252.69	329.50	320.16	1,923.19	9.34

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.
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