

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	July 29, 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	186.33	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I under breakdown.
		Unit- II	186.54	400kV THP - Siliguri Line - II	347.16	
		Unit- III	185.10	400kV THP - Siliguri Line - IV	332.56	
		Unit- IV	186.89	400kV THP - Malbase Line - III	426.50	
		Unit- V	185.24	400kV Malbase - Siliguri Line	308.60	
		Unit- VI	185.19	-	-	
		Total	1,115.29	Auxiliary Consumption & Transformation Losses at Generator end	0.81%	
2	720MW MHP	Unit-I	197.78	400kV MHP - Jigmeling Line - I	294.21	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	197.88	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	296.02	
		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)	22.06	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	140.51	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	209.72	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	210.64	
		-	-	80MVA, 220/132kV ICT - I (HV)	34.44	
		-	-	80MVA, 220/132kV ICT - II (HV)	35.05	
		-	-	220kV Tsirang - Jigmeling Line	-13.22	
-	-	132kV Gelephu - Salakati Line	11.51			
Total	593.57	Auxiliary Consumption & Transformation Losses at Generator end	0.56%			
3	336MW CHP	Unit- I	91.74	220kV CHP - Birpara Line- I	61.32	Unit IV under Shutdown.
		Unit- II	91.22	220kV CHP - Birpara Line- II	61.07	
		Unit- III	91.45	220kV CHP - Malbase Line- III	83.62	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	47.26	
		-	-	220kV Malbase - Birpara Line	35.55	
		-	-	66kV CHP - Chumdo Line	14.10	
		-	-	66kV CHP - Gedu Line	4.37	
		-	-	3x3MVA, 66/11kV TFR	1.25	
Total	274.41	Auxiliary Consumption & Transformation Losses at Generator end	0.52%			
4	24MW BHP (U/S)	Unit- I	12.20	220kV BHP - Semtokha Line	51.19	
		Unit- II	12.40	66kV BHP - Lobeyasa Line	25.42	
		Total	24.60	220kV BHP - Tsirang Line	-11.77	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.60	
		Unit- II	21.20	30MVA ICT, 220/66kV (HV)	2.13	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Generator end	1.30%	
6	126MW DHP	Unit-I	53.38	220kV DHP - Tsirang Line	0.00	220kV DHP_Tsirang Line on Standby.
		Unit-II	53.00	220kV DHP - Dagapela Line	105.84	
		-	-	220kV Jigmeling - Dagapela Line	-62.14	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	106.38	Auxiliary Consumption & Transformation Losses at Gen. end	0.32%			
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	39.12	
		Unit-II	16.53	132kV KHP - Kilikhar Line	26.02	
		Unit- III	16.54	5MVA, 132/11kV TFR	0.34	
		Unit- IV	16.57	132kV Motanga - Rangia Line	34.70	
		Total	66.14	Auxiliary Consumption & Transformation Losses at Generator end	1.00%	

Note: Generation-Load Summary (MW) for July 29, 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	1,562.38	367.20	355.51	1,146.26	11.69
2	Eastern Grid	659.71	101.55	97.55	607.08	4.00
Total		2,222.09	468.75	453.06	1,753.34	15.69

Note: Generation-Load Summary for July 29, 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	886.70	242.38	239.55	554.66	2.83
2	Eastern Grid	659.13	77.62	74.35	671.17	3.27
Total		1,545.83	320.00	313.90	1,225.83	6.10

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:	July 30, 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	187.37	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I under breakdown.
		Unit- II	185.76	400kV THP - Siliguri Line - II	352.83	
		Unit- III	184.45	400kV THP - Siliguri Line- IV	337.75	
		Unit- IV	183.45	400kV THP - Malbase Line - III	412.92	
		Unit- V	185.81	400kV Malbase - Siliguri Line	318.04	
		Unit- VI	185.89	-	-	
		Total	1,112.73	Auxiliary Consumption & Transformation Losses at Generator end	0.83%	
2	720MW MHP	Unit-I	197.89	400kV MHP - Jigmeling Line - I	294.37	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 I & II(Interim) on standby. .
		Unit-II	197.86	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	296.18	
		Unit-IV	197.98	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)	21.26	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	151.07	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	227.06	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	225.91	
		-	-	80MVA, 220/132kV ICT - I (HV)	26.35	
		-	-	80MVA, 220/132kV ICT - II (HV)	26.75	
		-	-	220kV Tsirang - Jigmeling Line	-19.31	
-	-	132kV Gelephu - Salakati Line	8.80			
Total	593.73	Auxiliary Consumption & Transformation Losses at Generator end	0.54%			
3	336MW CHP	Unit- I	91.74	220kV CHP - Birpara Line- I	62.55	Unit IV under Shutdown.
		Unit- II	91.22	220kV CHP - Birpara Line- II	62.65	
		Unit- III	91.45	220kV CHP - Malbase Line- III	95.71	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	33.37	
		-	-	220kV Malbase - Birpara Line	28.67	
		-	-	66kV CHP - Chumdo Line	11.85	
		-	-	66kV CHP - Gedu Line	4.98	
		-	-	3x3MVA, 66/11kV TFR	0.96	
Total	274.41	Auxiliary Consumption & Transformation Losses at Generator end	0.85%			
4	24MW BHP (U/S)	Unit- I	12.40	220kV BHP - Semtokha Line	58.10	
		Unit- II	12.10	66kV BHP - Lobeysa Line	25.04	
		Total	24.50	220kV BHP - Tsirang Line	-17.88	
5	40MW BHP (L/S)	Unit- I	20.49	5MVA, 66/11kV TFR	0.38	
		Unit- II	21.08	30MVA ICT, 220/66kV (HV)	1.51	
		Total	41.57	Auxiliary Consumption & Transformation Losses at Generator end	0.65%	
6	126MW DHP	Unit-I	61.41	220kV DHP - Tsirang Line	0.00	220kV DHP_TSI Line on Standby.
		Unit-II	62.41	220kV DHP - Dagapela Line	123.25	
		-	-	220kV Jigmeling - Dagapela Line	-94.80	
		-	-	5MVA, 220/33kV TFR	0.30	
Total	123.82	Auxiliary Consumption & Transformation Losses at Generator end	0.22%			
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	42.59	
		Unit-II	16.50	132kV KHP - Kilikhar Line	22.44	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.27	
		Unit- IV	16.50	132kV Motanga - Rangia Line	24.53	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	1.06%	

Note: Generation-Load Summary (MW) for July 30, 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	1,577.03	339.05	326.78	1,162.49	12.27
2	Eastern Grid	659.73	97.85	93.97	637.37	3.88
Total		2,236.76	436.90	420.75	1,799.86	16.15

Note: Generation-Load Summary for July 30, 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	1,349.02	271.61	265.64	965.91	5.97
2	Eastern Grid	642.59	72.43	67.82	681.66	4.61
Total		1,991.61	344.04	333.46	1,647.57	10.58

NOTE: Eastern Datas 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.
- 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.