

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	July 4, 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	183.75	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	175.24	400kV THP - Siliguri Line - II	0.00	
		Unit- III	79.37	400kV THP - Siliguri Line- IV	446.75	
		Unit- IV	79.10	400kV THP - Malbase Line - III	439.09	
		Unit- V	185.21	400kV Malbase - Siliguri Line	441.28	
		Unit- VI	186.16	-	-	
		Total	888.83	Auxiliary Consumption & Transformation Losses at Generator end	0.34%	
2	720MW MHP	Unit-I	197.70	400kV MHP - Jigmeling Line - I	294.03	Unit III under shutdown. 400kV MHP-JLG line II & 400kV MHP-JLG Line IV on Standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby
		Unit-II	197.66	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.89	
		Unit-IV	197.65	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)	49.10	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	134.09	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	200.84	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	201.83	
		-	-	80MVA, 220/132kV ICT - I (HV)	38.00	
		-	-	80MVA, 220/132kV ICT - II (HV)	38.70	
		-	-	220kV Tsirang - Jigmeling Line	66.08	
-	-	132kV Gelephu - Salakati Line	18.07			
Total	593.01	Auxiliary Consumption & Transformation Losses at Generator end	0.52%			
3	336MW CHP	Unit- I	91.01	220kV CHP - Birpara Line- I	79.98	
		Unit- II	91.05	220kV CHP - Birpara Line- II	79.55	
		Unit- III	91.05	220kV CHP - Malbase Line- III	141.38	
		Unit- IV	91.35	220kV CHP - Semtokha Line- IV	39.59	
		-	-	220kV Malbase - Birpara Line	17.98	
		-	-	66kV CHP - Chumdo Line	12.50	
		-	-	66kV CHP - Gedu Line	5.99	
		-	-	3x3MVA, 66/11kV TFR	1.80	
Total	364.46	Auxiliary Consumption & Transformation Losses at Generator end	1.01%			
4	24MW BHP (U/S)	Unit- I	11.84	220kV BHP - Semtokha Line	45.21	
		Unit- II	11.00	66kV BHP - Lobeysa Line	24.33	
		Total	22.84	220kV BHP - Tsirang Line	-4.86	
5	40MW BHP (L/S)	Unit- I	20.38	5MVA, 66/11kV TFR	0.20	
		Unit- II	21.04	30MVA ICT, 220/66kV (HV)	1.20	
		Total	41.42	Auxiliary Consumption & Transformation Losses at Generator end	-0.96%	
6	126MW DHP	Unit-I	37.32	220kV DHP - Tsirang Line	73.81	220kV DHP_Dagapela Line on Standby.
		Unit-II	37.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	35.60	
		-	-	5MVA, 220/33kV TFR	0.18	
Total	74.32	Auxiliary Consumption & Transformation Losses at Gen. end	0.44%			
7	60MW KHP	Unit- I	16.53	132kV KHP - Nangkhor Line	39.54	
		Unit-II	16.51	132kV KHP - Kilikhar Line	25.49	
		Unit- III	16.57	5MVA, 132/11kV TFR	0.80	
		Unit- IV	16.46	132kV Motanga - Rangia Line	34.19	
		Total	66.07	Auxiliary Consumption & Transformation Losses at Generator end	0.36%	

Note: Generation-Load Summary (MW) for July 04, 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	1,391.87	260.25	253.88	1,065.54	6.37
2	Eastern Grid	659.08	136.14	132.81	589.02	3.33
Total		2,050.95	396.39	386.69	1,654.56	9.70

Note: Generation-Load Summary for July 04, 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	1,647.34	260.58	256.60	1,280.46	3.98
2	Eastern Grid	659.13	64.41	60.46	701.02	3.95
Total		2,306.47	324.99	317.06	1,981.48	7.93

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.

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	July 5, 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	184.88	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	70.84	400kV THP - Siliguri Line - II	0.00	
		Unit- III	168.04	400kV THP - Siliguri Line- IV	456.94	
		Unit- IV	119.99	400kV THP - Malbase Line - III	449.61	
		Unit- V	183.48	400kV Malbase - Siliguri Line	452.53	
		Unit- VI	186.09	-	-	
		Total	913.32	Auxiliary Consumption & Transformation Losses at Generator end	0.74%	
2	720MW MHP	Unit-I	197.81	400kV MHP - Jigmeling Line - I	294.47	Unit III under shutdown. 400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby
		Unit-II	197.79	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	296.17	
		Unit-IV	197.85	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)	37.47	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	136.01	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	204.09	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	205.21	
		-	-	80MVA, 220/132kV ICT - I (HV)	30.78	
		-	-	80MVA, 220/132kV ICT - II (HV)	32.37	
		-	-	220kV Tsirang - Jigmeling Line	61.06	
-	-	132kV Gelephu - Salakati Line	15.90			
Total	593.45	Auxiliary Consumption & Transformation Losses at Generator end	0.47%			
3	336MW CHP	Unit- I	91.59	220kV CHP - Birpara Line- I	76.40	
		Unit- II	91.19	220kV CHP - Birpara Line- II	76.61	
		Unit- III	90.85	220kV CHP - Malbase Line- III	151.81	
		Unit- IV	91.51	220kV CHP - Semtokha Line- IV	39.11	
		-	-	220kV Malbase - Birpara Line	7.02	
		-	-	66kV CHP - Chumdo Line	10.65	
		-	-	66kV CHP - Gedu Line	6.08	
		-	-	3x3MVA, 66/11kV TFR	1.00	
Total	365.14	Auxiliary Consumption & Transformation Losses at Generator end	0.95%			
4	24MW BHP (U/S)	Unit- I	12.10	220kV BHP - Semtokha Line	48.41	
		Unit- II	11.90	66kV BHP - Lobeyasa Line	23.79	
		Total	24.00	220kV BHP - Tsirang Line	-7.72	
5	40MW BHP (L/S)	Unit- I	20.40	5MVA, 66/11kV TFR	0.40	
		Unit- II	21.40	30MVA ICT, 220/66kV (HV)		
		Total	41.80	Auxiliary Consumption & Transformation Losses at Generator end	1.40%	
6	126MW DHP	Unit-I	36.13	220kV DHP - Tsirang Line	71.44	220kV DHP_Dagapela Line on Standby.
		Unit-II	35.78	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	35.16	
		-	-	5MVA, 220/33kV TFR	0.46	
Total	71.91	Auxiliary Consumption & Transformation Losses at Generator end	0.02%			
7	60MW KHP	Unit- I	16.55	132kV KHP - Nangkhoh Line	41.52	
		Unit-II	16.49	132kV KHP - Kilikhar Line	23.58	
		Unit- III	16.51	5MVA, 132/11kV TFR	0.50	
		Unit- IV	16.57	132kV Motanga - Rangia Line	33.95	
		Total	66.12	Auxiliary Consumption & Transformation Losses at Generator end	0.79%	

Note: Generation-Load Summary (MW) for July 05, 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	1,416.17	285.61	274.43	1,069.50	11.18
2	Eastern Grid	659.57	125.47	122.14	595.16	3.33
Total		2,075.74	411.08	396.57	1,664.66	14.51

Note: Generation-Load Summary for July 05, 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	1,636.95	241.75	237.55	1,293.58	4.20
2	Eastern Grid	659.29	57.49	54.10	703.42	3.39
Total		2,296.24	299.24	291.65	1,997.00	7.59

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.