

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	July 12, 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	176.62	400kV THP - Siliguri Line - I	0.00	Unit-III on standby. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	87.35	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	360.83	
		Unit- IV	168.24	400kV THP - Malbase Line - III	354.58	
		Unit- V	147.04	400kV Malbase - Siliguri Line	356.68	
		Unit- VI	138.94	-	-	
		Total	718.19	Auxiliary Consumption & Transformation Losses at Generator end	0.39%	
2	720MW MHP	Unit-I	160.18	400kV MHP - Jigmeling Line - I	238.34	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 (Interim) on standby.
		Unit-II	160.20	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	239.84	
		Unit-IV	160.61	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)	72.95	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	98.90	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	150.19	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	150.24	
		-	-	80MVA, 220/132kV ICT - I (HV)	30.36	
		-	-	80MVA, 220/132kV ICT - II (HV)	30.94	
		-	-	220kV Tsirang - Jigmeling Line	26.25	
-	-	132kV Gelephu - Salakati Line	5.43			
Total	480.99	Auxiliary Consumption & Transformation Losses at Generator end	0.58%			
3	336MW CHP	Unit- I	90.93	220kV CHP - Birpara Line- I	43.33	Unit IV under Shutdown.
		Unit- II	91.28	220kV CHP - Birpara Line- II	43.17	
		Unit- III	91.51	220kV CHP - Malbase Line- III	117.99	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	48.20	
		-	-	220kV Malbase - Birpara Line	-20.08	
		-	-	66kV CHP - Chumdo Line	13.03	
		-	-	66kV CHP - Gedu Line	5.35	
		-	-	3x3MVA, 66/11kV TFR	1.20	
Total	273.72	Auxiliary Consumption & Transformation Losses at Generator end	0.53%			
4	24MW BHP (U/S)	Unit- I	9.00	220kV BHP - Semtokha Line	48.20	
		Unit- II	8.50	66kV BHP - Lobeyasa Line	23.10	
		Total	17.50	220kV BHP - Tsirang Line	-22.60	
5	40MW BHP (L/S)	Unit- I	16.20	5MVA, 66/11kV TFR	0.50	
		Unit- II	16.00	30MVA ICT, 220/66kV (HV)	6.70	
		Total	32.20	Auxiliary Consumption & Transformation Losses at Generator end	1.01%	
6	126MW DHP	Unit-I	51.42	220kV DHP - Tsirang Line	51.12	DHP unit II on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	37.68	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	51.42	Auxiliary Consumption & Transformation Losses at Gen. end	0.19%			
7	60MW KHP	Unit- I	16.59	132kV KHP - Nangkhor Line	41.01	
		Unit-II	16.55	132kV KHP - Kilikhar Line	24.01	
		Unit- III	16.54	5MVA, 132/11kV TFR	0.40	
		Unit- IV	16.55	132kV Motanga - Rangia Line	31.11	
		Total	66.23	Auxiliary Consumption & Transformation Losses at Generator end	1.22%	

Note: Generation-Load Summary (MW) for July 12, 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	1,093.03	282.85	278.02	783.93	4.83
2	Eastern Grid	547.22	137.60	133.98	435.87	3.62
Total		1,640.25	420.45	412.00	1,219.80	8.45

Note: Generation-Load Summary for July 12, 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	1,670.26	257.59	251.17	1,289.37	6.42
2	Eastern Grid	658.74	72.36	68.57	709.68	3.79
Total		2,329.00	329.95	319.74	1,999.05	10.21

NOTES:

- 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 13, 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	184.30	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	185.62	400kV THP - Siliguri Line - II	0.00	
		Unit- III	101.08	400kV THP - Siliguri Line- IV	477.41	
		Unit- IV	185.12	400kV THP - Malbase Line - III	469.95	
		Unit- V	147.75	400kV Malbase - Siliguri Line	468.59	
		Unit- VI	148.92	-	-	
		Total	952.79	Auxiliary Consumption & Transformation Losses at Generator end	0.57%	
2	720MW MHP	Unit-I	189.79	400kV MHP - Jigmeling Line - I	280.30	Unit III under shutdown. 400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line I (Interim) on standby
		Unit-II	185.76	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	282.08	
		Unit-IV	190.26	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)	67.24	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	119.99	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	182.83	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	183.24	
		-	-	80MVA, 220/132kV ICT - I (HV)	27.42	
		-	-	80MVA, 220/132kV ICT - II (HV)	27.97	
		-	-	220kV Tsirang - Jigmeling Line	27.18	
-	-	132kV Gelephu - Salakati Line	4.14			
Total	565.81	Auxiliary Consumption & Transformation Losses at Generator end	0.61%			
3	336MW CHP	Unit- I	91.09	220kV CHP - Birpara Line- I	48.82	Unit IV under Shutdown.
		Unit- II	91.42	220kV CHP - Birpara Line- II	48.89	
		Unit- III	91.44	220kV CHP - Malbase Line- III	114.70	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	42.28	
		-	-	220kV Malbase - Birpara Line	-8.48	
		-	-	66kV CHP - Chumdo Line	11.08	
		-	-	66kV CHP - Gedu Line	5.69	
		-	-	3x3MVA, 66/11kV TFR	0.77	
Total	273.95	Auxiliary Consumption & Transformation Losses at Generator end	0.63%			
4	24MW BHP (U/S)	Unit- I	8.30	220kV BHP - Semtokha Line	48.84	
		Unit- II	8.30	66kV BHP - Lobeysa Line	22.05	
		Total	16.60	220kV BHP - Tsirang Line	-22.04	
5	40MW BHP (L/S)	Unit- I	16.14	5MVA, 66/11kV TFR	0.37	
		Unit- II	16.14	30MVA ICT, 220/66kV (HV)	5.70	
		Total	32.28	Auxiliary Consumption & Transformation Losses at Generator end	-0.70%	
6	126MW DHP	Unit-I	51.94	220kV DHP - Tsirang Line	51.67	Unit-II on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	39.38	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	51.94	Auxiliary Consumption & Transformation Losses at Generator end	0.13%			
7	60MW KHP	Unit- I	16.53	132kV KHP - Nangkhoh Line	42.71	
		Unit-II	16.59	132kV KHP - Kilikhar Line	22.43	
		Unit- III	16.54	5MVA, 132/11kV TFR	0.53	
		Unit- IV	16.60	132kV Motanga - Rangia Line	34.97	
		Total	66.26	Auxiliary Consumption & Transformation Losses at Generator end	0.89%	

Note: Generation-Load Summary (MW) for July 13, 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	1,327.56	265.15	258.27	1,035.23	6.88
2	Eastern Grid	632.07	134.08	130.06	525.17	4.02
Total		1,959.63	399.23	388.33	1,560.40	10.90

Note: Generation-Load Summary for July 13, 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	1,673.92	259.37	248.55	1,294.79	10.82
2	Eastern Grid	659.11	54.84	51.16	724.03	3.68
Total		2,333.03	314.21	299.71	2,018.82	14.50

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.