

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	January 1, 2023
Hours:	18:00 Hours

Date	Time	Load(MW)
28-Dec-22	18:03:26hrs	629.23

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	93.21	Unit-I, II & III under Shutdown. Unit-IV on Standby. 400kV THP- Siliguri Line II on Standby 400kV Tala-Siliguri line IV under Shutdown
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	169.29	
		Unit- V	137.12	400kV Malbase - Siliguri Line	70.35	
		Unit- VI	129.47	-	-	
		Total	266.59	Auxiliary Consumption & Transformation Losses at Generator end	1.53%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	78.80	Unit-I under Breakdown. Unit-III & IV under Shutdown. 400kV MHP-JLG Line II, III & IV on Standby. 132kV MHP_Yurmo Line-I not in service. 400kV JLG_ALI line- I (Direct) on Standby. 400kV JLG_ALI Line- I (Interim) on Standby.
		Unit-II	164.91	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	84.44	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	124.84	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-17.45	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-28.41	
		-	-	80MVA, 220/132kV ICT - I (HV)	4.13	
		-	-	80MVA, 220/132kV ICT - II (HV)	4.29	
		-	-	220kV Tsirang - Jigmeling Line	-53.33	
-	-	132kV Gelephu - Salakati Line	-17.44			
Total	164.91	Auxiliary Consumption & Transformation Losses at Generator end	1.01%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I on Standby. Unit-II under Shutdown. 220kV CHP_Birpara Line I & 66kV CHP_GED Line on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-20.41	
		Unit- III	60.07	220kV CHP - Malbase Line- III	27.91	
		Unit- IV	49.59	220kV CHP - Semtokha Line- IV	73.59	
		-	-	220kV Malbase - Birpara Line	-54.47	
		-	-	66kV CHP - Chumdo Line	26.28	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	1.08	
Total	109.66	Auxiliary Consumption & Transformation Losses at Generator end	1.10%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	70.40	U/S & L/S Unit-I on Standby.
		Unit- II	7.55	66kV BHP - Lobeyasa Line	26.37	
		Total	7.55	220kV BHP - Tsirang Line	-73.87	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.86	U/S & L/S Unit-I on Standby.
		Unit- II	16.00	30MVA ICT, 220/66kV (HV)	19.97	
		Total	16.00	Auxiliary Consumption & Transformation Losses at Generator end	-0.89%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	25.22	Unit-I under Shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	25.48	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.96	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	25.48	Auxiliary Consumption & Transformation Losses at Gen. end	0.24%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	12.26	Unit-III under Shutdown. Unit-I on Standby.
		Unit-II	16.04	132kV KHP - Kilikhar Line	18.93	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.66	
		Unit- IV	16.06	132kV Motanga - Rangia Line	7.32	
		Total	32.10	Auxiliary Consumption & Transformation Losses at Generator end	0.78%	

Note: Generation-Load Summary (MW) for January 01, 2023 at 18:00hrs.

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	425.28	389.93	384.78	88.68	5.15
2	Eastern Grid	197.01	199.66	197.74	-55.98	1.92
Total		622.29	589.59	582.52	32.70	7.07

Note: Generation-Load Summary for January 01, 2022 at 18:00hrs.

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	221.39	359.94	359.45	-94.34	0.49
2	Eastern Grid	250.66	96.55	94.62	109.90	1.93
Total		472.05	456.49	454.07	15.56	2.42

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:	January 2, 2023
Hours:	09:00 Hours

Date	Time	Load(MW)
28-Dec-22	18:03:26hrs	629.23

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	80.57	Unit-I, II & III under Shutdown. Unit-IV on Standby. 400kV THP- Siliguri Line II on Standby 400kV Tala-Siliguri line IV under Shutdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	152.52	
		Unit- V	126.65	400kV Malbase - Siliguri Line	59.57	
		Unit- VI	108.88	-	-	
		Total	235.53	Auxiliary Consumption & Transformation Losses at Generator end	1.04%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	78.58	Unit-I under Breakdown. Unit-III & IV under Shutdown. 400kV MHP-JLG Line II, III & IV on Standby. 132kV MHP_Yurmo Line-I not in service. 400kV JLG_ALI line- I (Direct) on Standby. 400kV JLG_ALI Line- I (Interim) on Standby.
		Unit-II	162.11	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	81.59	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	112.84	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-13.09	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-19.98	
		-	-	80MVA, 220/132kV ICT - I (HV)	5.21	
		-	-	80MVA, 220/132kV ICT - II (HV)	5.35	
		-	-	220kV Tsirang - Jigmeling Line	-40.29	
-	-	132kV Gelephu - Salakati Line	-14.33			
Total	162.11	Auxiliary Consumption & Transformation Losses at Generator end	1.20%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I on Standby. Unit-II under Shutdown. 220kV CHP_Birpara Line I & 66kV CHP_GED Line on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-7.71	
		Unit- III	65.53	220kV CHP - Malbase Line- III	43.98	
		Unit- IV	64.24	220kV CHP - Semtokha Line- IV	68.70	
		-	-	220kV Malbase - Birpara Line	-46.20	
		-	-	66kV CHP - Chumdo Line	23.23	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	1.47	
Total	129.77	Auxiliary Consumption & Transformation Losses at Generator end	0.08%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	61.62	L/S & U/S unit-I on Standby
		Unit- II	7.70	66kV BHP - Lobeyasa Line	24.06	
		Total	7.70	220kV BHP - Tsirang Line	-62.40	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.59	L/S & U/S unit-I on Standby
		Unit- II	16.00	30MVA ICT, 220/66kV (HV)	17.20	
		Total	16.00	Auxiliary Consumption & Transformation Losses at Generator end	-0.72%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	25.23	Unit-I under Shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	25.50	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.33	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	25.50	Auxiliary Consumption & Transformation Losses at Generator end	0.27%			
7	60MW KHP	Unit- I	10.49	132kV KHP - Nangkhoh Line	6.24	Unit-III under Shutdown. Unit-IV on Standby.
		Unit-II	10.50	132kV KHP - Kilikhar Line	13.70	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.75	
		Unit- IV	0.00	132kV Motanga - Rangia Line	-3.98	
		Total	20.99	Auxiliary Consumption & Transformation Losses at Generator end	1.43%	

Note: Generation-Load Summary (MW) for January 02, 2023 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	414.50	368.56	366.12	86.23	2.44
2	Eastern Grid	183.10	194.19	191.95	-51.38	2.24
Total		597.60	562.75	558.07	34.85	4.68

Note: Generation-Load Summary for January 02, 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	222.93	331.22	331.25	-81.04	-0.03
2	Eastern Grid	200.85	80.43	79.25	93.17	1.18
Total		423.78	411.65	410.50	12.13	1.15

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.
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