

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	January 4, 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	73.93	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	149.82	
		Unit- V	107.30	400kV Malbase - Siliguri Line	49.93	
		Unit- VI	119.71	-	-	
		Total	227.01	Auxiliary Consumption & Transformation Losses at Generator end	1.44%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	81.69	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	174.88	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	91.07	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	128.17	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-18.18	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-27.18	
		-	-	80MVA, 220/132kV ICT - I (HV)	8.74	
		-	-	80MVA, 220/132kV ICT - II (HV)	8.94	
		-	-	220kV Tsirang - Jigmeling Line	-45.68	
-	-	132kV Gelephu - Salakati Line	-10.50			
Total	174.88	Auxiliary Consumption & Transformation Losses at Generator end	1.21%			
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 on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-6.05	
		Unit- III	75.30	220kV CHP - Malbase Line- III	28.00	
		Unit- IV	69.93	220kV CHP - Semtokha Line- IV	90.67	
		-	-	220kV Malbase - Birpara Line	-30.78	
		-	-	66kV CHP - Chumdo Line	25.76	
		-	-	66kV CHP - Gedu Line	4.65	
		-	-	3x3MVA, 66/11kV TFR	1.94	
Total	145.23	Auxiliary Consumption & Transformation Losses at Generator end	0.18%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	59.68	L/S & U/S Unit-I on Standby.
		Unit- II	7.60	66kV BHP - Lobeyasa Line	27.48	
		Total	7.60	220kV BHP - Tsirang Line	-65.26	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.90	L/S & U/S Unit-I on Standby.
		Unit- II	15.60	30MVA ICT, 220/66kV (HV)	20.50	
		Total	15.60	Auxiliary Consumption & Transformation Losses at Generator end	1.72%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	24.34	Unit-I under Shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	24.61	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	63.00	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	24.61	Auxiliary Consumption & Transformation Losses at Gen. end	0.28%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	6.36	Unit-III under Shutdown. Unit-I on Standby.
		Unit-II	12.48	132kV KHP - Kilikhar Line	17.70	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.76	
		Unit- IV	12.52	132kV Motanga - Rangia Line	4.43	
		Total	25.00	Auxiliary Consumption & Transformation Losses at Generator end	0.72%	

Note: Generation-Load Summary (MW) for January 04, 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	420.05	378.70	374.71	87.03	3.99
2	Eastern Grid	199.88	205.63	203.33	-51.43	2.30
Total		619.93	584.33	578.04	35.60	6.29

Note: Generation-Load Summary for January 04, 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	228.85	362.17	361.98	-90.61	0.19
2	Eastern Grid	257.18	102.47	100.20	112.00	2.27
Total		486.03	464.64	462.18	21.39	2.46

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 5, 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	73.45	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	146.13	
		Unit- V	122.21	400kV Malbase - Siliguri Line	52.18	
		Unit- VI	99.74	-	-	
		Total	221.95	Auxiliary Consumption & Transformation Losses at Generator end	1.07%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	81.46	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	160.15	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	78.14	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	112.87	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-12.36	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-18.77	
		-	-	80MVA, 220/132kV ICT - I (HV)	4.34	
		-	-	80MVA, 220/132kV ICT - II (HV)	4.45	
		-	-	220kV Tsirang - Jigmeling Line	-43.42	
-	-	132kV Gelephu - Salakati Line	-13.32			
Total	160.15	Auxiliary Consumption & Transformation Losses at Generator end	0.34%			
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 on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-10.85	
		Unit- III	60.88	220kV CHP - Malbase Line- III	25.34	
		Unit- IV	58.60	220kV CHP - Semtokha Line- IV	75.61	
		-	-	220kV Malbase - Birpara Line	-35.93	
		-	-	66kV CHP - Chumdo Line	21.90	
		-	-	66kV CHP - Gedu Line	5.95	
		-	-	3x3MVA, 66/11kV TFR	1.51	
Total	119.48	Auxiliary Consumption & Transformation Losses at Generator end	0.02%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	61.25	L/S & U/S unit-I on Standby
		Unit- II	7.11	66kV BHP - Lobeyasa Line	24.90	
		Total	7.11	220kV BHP - Tsirang Line	-63.80	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.63	L/S & U/S unit-I on Standby
		Unit- II	15.30	30MVA ICT, 220/66kV (HV)	18.40	
		Total	15.30	Auxiliary Consumption & Transformation Losses at Generator end	-2.54%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	24.37	Unit-I under Shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	24.63	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.42	
		-	-	5MVA, 220/33kV TFR	0.25	
Total	24.63	Auxiliary Consumption & Transformation Losses at Generator end	0.04%			
7	60MW KHP	Unit- I	15.03	132kV KHP - Nangkhoh Line	12.34	Unit-III under Shutdown. Unit-IV on Standby.
		Unit-II	15.01	132kV KHP - Kilikhar Line	16.65	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.67	
		Unit- IV	0.00	132kV Motanga - Rangia Line	5.20	
		Total	30.04	Auxiliary Consumption & Transformation Losses at Generator end	1.26%	

Note: Generation-Load Summary (MW) for January 05, 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	388.47	353.04	351.21	78.85	1.83
2	Eastern Grid	190.19	186.02	185.09	-39.25	0.93
Total		578.66	539.06	536.30	39.60	2.76

Note: Generation-Load Summary for January 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	234.90	344.75	345.24	-81.42	-0.49
2	Eastern Grid	230.70	92.61	91.06	109.66	1.55
Total		465.60	437.36	436.30	28.24	1.06

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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