

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	January 17, 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	0.00	Unit-I, II & III under Shutdown. Unit-V on Standby. 400kV THP- Siliguri Line I on Standby 400kV Tala-Siliguri line IV under Shutdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	84.68	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	148.36	400kV THP - Malbase Line - III	180.38	
		Unit- V	0.00	400kV Malbase - Siliguri Line	56.92	
		Unit- VI	119.11	-	-	
		Total	267.47	Auxiliary Consumption & Transformation Losses at Generator end	0.90%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	Unit-I under Breakdown. Unit-III under Shutdown. 400kV MHP-JLG Line I,II & III on Standby. 132kV MHP_Yurmo Line- I not in service. 400kV JLG_ALI line- II (Direct) on Standby. 400kV JLG_ALI Line- I (Interim) on Standby.
		Unit-II	99.78	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	79.75	400kV MHP - Jigmeling Line - IV	90.80	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	86.73	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	135.05	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-16.73	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-26.96	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	4.57	
		-	-	80MVA, 220/132kV ICT - II (HV)	4.68	
		-	-	220kV Tsirang - Jigmeling Line	-62.62	
-	-	132kV Gelephu - Salakati Line	-17.63			
Total	179.53	Auxiliary Consumption & Transformation Losses at Generator end	1.11%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	-17.27	Unit-I on Standby. Unit-II under Shutdown. 220kV CHP_Birpara Line II on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	0.00	
		Unit- III	61.02	220kV CHP - Malbase Line- III	24.55	
		Unit- IV	57.13	220kV CHP - Semtokha Line- IV	77.75	
		-	-	220kV Malbase - Birpara Line	-47.35	
		-	-	66kV CHP - Chumdo Line	23.74	
		-	-	66kV CHP - Gedu Line	7.47	
		-	-	3x3MVA, 66/11kV TFR	1.02	
Total	118.15	Auxiliary Consumption & Transformation Losses at Generator end	0.75%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	71.28	L/S & U/S Unit-I on Standby.
		Unit- II	6.80	66kV BHP - Lobeyasa Line	27.27	
		Total	6.80	220kV BHP - Tsirang Line	-79.18	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.89	L/S & U/S Unit-I on Standby.
		Unit- II	13.50	30MVA ICT, 220/66kV (HV)	22.30	
		Total	13.50	Auxiliary Consumption & Transformation Losses at Generator end	0.20%	
6	126MW DHP	Unit-I	22.30	220kV DHP - Tsirang Line	22.06	Unit-II under shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.55	
		-	-	5MVA, 220/33kV TFR	0.23	
Total	22.30	Auxiliary Consumption & Transformation Losses at Gen. end	0.04%			
7	60MW KHP	Unit- I	14.05	132kV KHP - Nangkhor Line	9.91	Unit-III under Shutdown. Unit-IV on Standby.
		Unit-II	14.03	132kV KHP - Kilikhar Line	16.82	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.89	
		Unit- IV	0.00	132kV Motanga - Rangia Line	1.88	
		Total	28.08	Auxiliary Consumption & Transformation Losses at Generator end	1.64%	

Note: Generation-Load Summary (MW) for January 17, 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	428.22	413.86	410.51	76.98	3.35
2	Eastern Grid	207.61	204.43	201.97	-59.44	2.46
Total		635.83	618.29	612.48	17.54	5.81

Note: Generation-Load Summary for January 17, 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	215.99	356.86	356.53	-84.93	0.33
2	Eastern Grid	260.16	94.27	91.90	109.95	2.37
Total		476.15	451.13	448.43	25.02	2.70

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 18, 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	0.00	Unit-I, II under Shutdown. Unit- III & V on Standby. 400kV THP- Siliguri Line I on Standby 400kV Tala-Siliguri line IV under Shutdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	84.95	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	148.80	400kV THP - Malbase Line - III	178.96	
		Unit- V	0.00	400kV Malbase - Siliguri Line	58.25	
		Unit- VI	119.03	-	-	
		Total	267.83	Auxiliary Consumption & Transformation Losses at Generator end	1.46%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	Unit-I under Breakdown. Unit-III under Shutdown. 400kV MHP-JLG Line I,II & III on Standby. 132kV MHP_Yurmo Line- I not in service. 400kV JLG_ALI line- II (Direct) on Standby. 400kV JLG_ALI Line- I (Interim) on Standby.
		Unit-II	77.20	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	85.11	400kV MHP - Jigmeling Line - IV	81.81	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	79.43	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	124.40	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-16.73	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-26.23	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	5.48	
		-	-	80MVA, 220/132kV ICT - II (HV)	5.61	
		-	-	220kV Tsirang - Jigmeling Line	-51.19	
-	-	132kV Gelephu - Salakati Line	-10.22			
Total	162.31	Auxiliary Consumption & Transformation Losses at Generator end	0.66%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	-22.10	Unit-I on Standby. Unit-II under Shutdown. 220kV CHP_Birpara Line II on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	0.00	
		Unit- III	45.98	220kV CHP - Malbase Line- III	9.04	
		Unit- IV	43.71	220kV CHP - Semtokha Line- IV	73.10	
		-	-	220kV Malbase - Birpara Line	-42.41	
		-	-	66kV CHP - Chumdo Line	20.87	
		-	-	66kV CHP - Gedu Line	7.18	
		-	-	3x3MVA, 66/11kV TFR	0.81	
Total	89.69	Auxiliary Consumption & Transformation Losses at Generator end	0.88%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	64.19	L/S & U/S unit-I on Standby
		Unit- II	6.50	66kV BHP - Lobeyasa Line	25.08	
		Total	6.50	220kV BHP - Tsirang Line	-69.66	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.64	L/S & U/S unit-I on Standby
		Unit- II	13.50	30MVA ICT, 220/66kV (HV)	19.30	
		Total	13.50	Auxiliary Consumption & Transformation Losses at Generator end	-1.25%	
6	126MW DHP	Unit-I	22.06	220kV DHP - Tsirang Line	21.82	Unit-II under Shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.30	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	22.06	Auxiliary Consumption & Transformation Losses at Generator end	0.18%			
7	60MW KHP	Unit- I	15.12	132kV KHP - Nangkhoh Line	13.23	Unit-III under Shutdown. Unit-IV on Standby.
		Unit-II	15.10	132kV KHP - Kilikhar Line	16.02	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.66	
		Unit- IV	0.00	132kV Motanga - Rangia Line	5.70	
		Total	30.22	Auxiliary Consumption & Transformation Losses at Generator end	1.03%	

Note: Generation-Load Summary (MW) for January 18, 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	399.58	372.08	367.58	78.69	4.50
2	Eastern Grid	192.53	188.82	187.44	-47.48	1.38
Total		592.11	560.90	555.02	31.21	5.88

Note: Generation-Load Summary for January 18, 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	215.50	341.84	341.74	-86.96	0.10
2	Eastern Grid	239.33	86.53	85.12	113.42	1.41
Total		454.83	428.37	426.86	26.46	1.51

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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