

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	January 6, 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	83.35	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	159.30	
		Unit- V	126.34	400kV Malbase - Siliguri Line	61.33	
		Unit- VI	119.02	-	-	
		Total	245.36	Auxiliary Consumption & Transformation Losses at Generator end	1.10%	
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 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	125.20	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	34.93	400kV MHP - Jigmeling Line - IV	71.17	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	87.67	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	123.69	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-21.09	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-32.16	
		-	-	80MVA, 220/132kV ICT - I (HV)	6.68	
		-	-	80MVA, 220/132kV ICT - II (HV)	6.83	
		-	-	220kV Tsirang - Jigmeling Line	-48.13	
-	-	132kV Gelephu - Salakati Line	-16.27			
Total	160.13	Auxiliary Consumption & Transformation Losses at Generator end	0.81%			
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	-8.96	
		Unit- III	67.93	220kV CHP - Malbase Line- III	22.18	
		Unit- IV	62.31	220kV CHP - Semtokha Line- IV	85.04	
		-	-	220kV Malbase - Birpara Line	-31.85	
		-	-	66kV CHP - Chumdo Line	24.58	
		-	-	66kV CHP - Gedu Line	4.97	
		-	-	3x3MVA, 66/11kV TFR	1.07	
Total	130.24	Auxiliary Consumption & Transformation Losses at Generator end	1.04%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	61.50	L/S & U/S Unit-I on Standby.
		Unit- II	7.30	66kV BHP - Lobeyasa Line	26.95	
		Total	7.30	220kV BHP - Tsirang Line	-66.87	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.85	L/S & U/S Unit-I on Standby.
		Unit- II	14.90	30MVA ICT, 220/66kV (HV)	20.70	
		Total	14.90	Auxiliary Consumption & Transformation Losses at Generator end	-1.04%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	23.82	Unit-I under Shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	24.09	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	63.24	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	24.09	Auxiliary Consumption & Transformation Losses at Gen. end	0.29%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Line	7.09	Unit-III under Shutdown. Unit-I on Standby.
		Unit-II	12.48	132kV KHP - Kilikhar Line	16.74	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.90	
		Unit- IV	12.49	132kV Motanga - Rangia Line	0.00	
		Total	24.97	Auxiliary Consumption & Transformation Losses at Generator end	0.96%	

Note: Generation-Load Summary (MW) for January 06, 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	421.89	366.15	362.24	103.87	3.91
2	Eastern Grid	185.10	206.49	204.96	-69.52	1.53
Total		606.99	572.64	567.20	34.35	5.44

Note: Generation-Load Summary for January 06, 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	204.83	370.07	367.13	-111.70	2.94
2	Eastern Grid	285.48	96.06	93.09	135.88	2.97
Total		490.31	466.13	460.22	24.18	5.91

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 7, 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	79.19	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	155.46	
		Unit- V	117.43	400kV Malbase - Siliguri Line	57.65	
		Unit- VI	120.10	-	-	
		Total	237.53	Auxiliary Consumption & Transformation Losses at Generator end	1.21%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	Unit-I under Breakdown. Unit-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	79.50	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	80.03	400kV MHP - Jigmeling Line - IV	81.35	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	77.17	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	115.61	
		-	-	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)	-20.22	
		-	-	80MVA, 220/132kV ICT - I (HV)	2.52	
		-	-	80MVA, 220/132kV ICT - II (HV)	2.59	
		-	-	220kV Tsirang - Jigmeling Line	-48.04	
-	-	132kV Gelephu - Salakati Line	-16.82			
Total	159.53	Auxiliary Consumption & Transformation Losses at Generator end	0.63%			
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	-15.91	
		Unit- III	50.06	220kV CHP - Malbase Line- III	19.00	
		Unit- IV	49.21	220kV CHP - Semtokha Line- IV	66.90	
		-	-	220kV Malbase - Birpara Line	-40.53	
		-	-	66kV CHP - Chumdo Line	20.58	
		-	-	66kV CHP - Gedu Line	6.75	
		-	-	3x3MVA, 66/11kV TFR	0.81	
Total	99.27	Auxiliary Consumption & Transformation Losses at Generator end	1.15%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	65.35	L/S & U/S unit-I on Standby
		Unit- II	6.92	66kV BHP - Lobeysa Line	24.77	
		Total	6.92	220kV BHP - Tsirang Line	-68.70	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.58	L/S & U/S unit-I on Standby
		Unit- II	14.56	30MVA ICT, 220/66kV (HV)	18.40	
		Total	14.56	Auxiliary Consumption & Transformation Losses at Generator end	-2.42%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	23.57	Unit-I under Shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	23.82	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.22	
		-	-	5MVA, 220/33kV TFR	0.24	
Total	23.82	Auxiliary Consumption & Transformation Losses at Generator end	0.04%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	16.20	Unit-III under Shutdown. Unit-I on Standby.
		Unit-II	16.03	132kV KHP - Kilikhar Line	14.79	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.85	
		Unit- IV	16.06	132kV Motanga - Rangia Line	-1.24	
		Total	32.09	Auxiliary Consumption & Transformation Losses at Generator end	0.78%	

Note: Generation-Load Summary (MW) for January 07, 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	382.10	349.74	346.23	80.40	3.51
2	Eastern Grid	191.62	194.95	193.69	-51.37	1.26
Total		573.72	544.69	539.92	29.03	4.77

Note: Generation-Load Summary for January 07, 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	235.04	361.53	361.35	-91.30	0.18
2	Eastern Grid	250.26	81.60	79.97	133.47	1.63
Total		485.30	443.13	441.32	42.17	1.81

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.

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