

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	January 26, 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 & IV under Shutdown. Unit III & V on Standby. 400kV THP- Siliguri Line I & IV on Standby.
		Unit- II	100.30	400kV THP - Siliguri Line - II	73.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	151.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	50.18	
		Unit- VI	140.50	-	-	
		Total	240.80	Auxiliary Consumption & Transformation Losses at Generator end	6.98%	
2	720MW MHP	Unit-I	164.92	400kV MHP - Jigmeling Line - I	0.00	Unit-II under AMP. Unit-III under Shutdown. Unit-IV(Mechanical Spin) 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	0.00	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	83.92	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	78.31	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	122.80	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-13.09	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-25.62	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	4.41	
		-	-	80MVA, 220/132kV ICT - II (HV)	4.57	
		-	-	220kV Tsirang - Jigmeling Line	-48.20	
-	-	132kV Gelephu - Salakati Line	-11.80			
Total	164.92	Auxiliary Consumption & Transformation Losses at Generator end	1.63%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	-14.50	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	70.72	220kV CHP - Malbase Line- III	34.10	
		Unit- IV	65.90	220kV CHP - Semtokha Line- IV	79.31	
		-	-	220kV Malbase - Birpara Line	-44.96	
		-	-	66kV CHP - Chumdo Line	21.60	
		-	-	66kV CHP - Gedu Line	7.60	
		-	-	3x3MVA, 66/11kV TFR	1.68	
Total	136.62	Auxiliary Consumption & Transformation Losses at Generator end	5.00%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	57.50	L/S & U/S Unit-I on Standby.
		Unit- II	6.40	66kV BHP - Lobeyasa Line	25.38	
		Total	6.40	220kV BHP - Tsirang Line	-64.16	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.79	L/S & U/S Unit-I on Standby.
		Unit- II	13.00	30MVA ICT, 220/66kV (HV)	19.97	
		Total	13.00	Auxiliary Consumption & Transformation Losses at Generator end	-0.57%	
6	126MW DHP	Unit-I	20.53	220kV DHP - Tsirang Line	20.32	Unit-II under shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	67.00	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	20.53	Auxiliary Consumption & Transformation Losses at Gen. end	0.05%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	7.86	Unit-I & IV on Standby.
		Unit-II	12.66	132kV KHP - Kilikhar Line	16.37	
		Unit- III	12.66	5MVA, 132/11kV TFR	0.50	
		Unit- IV	0.00	132kV Motanga - Rangia Line	0.21	
		Total	25.32	Auxiliary Consumption & Transformation Losses at Generator end	2.33%	

Note: Generation-Load Summary (MW) for January 26, 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	417.35	401.83	378.30	63.72	23.53
2	Eastern Grid	190.24	192.34	189.06	-50.30	3.28
Total		607.59	594.17	567.36	13.42	26.81

Note: Generation-Load Summary for January 26, 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	214.93	353.76	353.07	-81.49	0.69
2	Eastern Grid	260.30	89.37	86.79	113.59	2.58
Total		475.23	443.13	439.86	32.10	3.27

Remarks: All the load collected from Site.

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 27, 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 & IV under Shutdown. Unit-III & V on Standby. 400kV THP- Siliguri Line I & IV on Standby..
		Unit- II	107.97	400kV THP - Siliguri Line - II	76.78	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	157.86	
		Unit- V	0.00	400kV Malbase - Siliguri Line	54.49	
		Unit- VI	129.28	-	-	
		Total	237.25	Auxiliary Consumption & Transformation Losses at Generator end	1.10%	
2	720MW MHP	Unit-I	149.82	400kV MHP - Jigmeling Line - I	0.00	Unit-II on standby. Unit-III & IV 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	0.00	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	76.90	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	71.34	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	115.90	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-14.54	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-23.55	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	1.10	
		-	-	80MVA, 220/132kV ICT - II (HV)	1.20	
		-	-	220kV Tsirang - Jigmeling Line	-46.50	
-	-	132kV Gelephu - Salakati Line	-13.37			
Total	149.82	Auxiliary Consumption & Transformation Losses at Generator end	1.05%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	-9.44	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	65.75	220kV CHP - Malbase Line- III	34.68	
		Unit- IV	63.44	220kV CHP - Semtokha Line- IV	73.88	
		-	-	220kV Malbase - Birpara Line	-41.60	
		-	-	66kV CHP - Chumdo Line	20.73	
		-	-	66kV CHP - Gedu Line	7.73	
		-	-	3x3MVA, 66/11kV TFR	0.80	
Total	129.19	Auxiliary Consumption & Transformation Losses at Generator end	0.63%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	57.52	L/S & U/S unit-I on Standby
		Unit- II	6.26	66kV BHP - Lobeyasa Line	24.39	
		Total	6.26	220kV BHP - Tsirang Line	-62.93	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.54	L/S & U/S unit-I on Standby
		Unit- II	12.90	30MVA ICT, 220/66kV (HV)	18.70	
		Total	12.90	Auxiliary Consumption & Transformation Losses at Generator end	-1.88%	
6	126MW DHP	Unit-I	20.57	220kV DHP - Tsirang Line	20.35	Unit-II under Shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	66.40	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	20.57	Auxiliary Consumption & Transformation Losses at Generator end	0.10%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	10.79	Unit-II on Standby. Unit-IV under maintenance
		Unit-II	12.58	132kV KHP - Kilikhar Line	13.37	
		Unit- III	12.57	5MVA, 132/11kV TFR	0.60	
		Unit- IV	0.00	132kV Motanga - Rangia Line	3.04	
		Total	25.15	Auxiliary Consumption & Transformation Losses at Generator end	1.55%	

Note: Generation-Load Summary (MW) for January 27, 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	406.17	372.44	369.36	80.23	3.08
2	Eastern Grid	174.97	176.89	174.92	-48.42	1.97
Total		581.14	549.33	544.28	31.81	5.05

Note: Generation-Load Summary for January 27, 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	220.06	334.75	335.01	-71.98	-0.26
2	Eastern Grid	222.13	79.24	77.24	100.18	2.00
Total		442.19	413.99	412.25	28.20	1.74

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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