

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	January 24, 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 VI under breakdown. Unit V on Standby. 400kV THP- Siliguri Line I & IV on Standby.
		Unit- II	168.70	400kV THP - Siliguri Line - II	88.65	
		Unit- III	98.13	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	176.25	
		Unit- V	0.00	400kV Malbase - Siliguri Line	64.33	
		Unit- VI	0.00	-	-	
		Total	266.83	Auxiliary Consumption & Transformation Losses at Generator end	0.72%	
2	720MW MHP	Unit-I	74.85	400kV MHP - Jigmeling Line - I	0.00	Unit-II on standby. 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	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	75.06	400kV MHP - Jigmeling Line - IV	70.08	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	79.29	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	129.25	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-23.27	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-34.95	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	4.45	
		-	-	80MVA, 220/132kV ICT - II (HV)	4.57	
		-	-	220kV Tsirang - Jigmeling Line	-52.55	
-	-	132kV Gelephu - Salakati Line	-12.43			
Total	149.91	Auxiliary Consumption & Transformation Losses at Generator end	0.36%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	-10.36	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	66.73	220kV CHP - Malbase Line- III	27.80	
		Unit- IV	64.67	220kV CHP - Semtokha Line- IV	81.69	
		-	-	220kV Malbase - Birpara Line	-37.91	
		-	-	66kV CHP - Chumdo Line	23.37	
		-	-	66kV CHP - Gedu Line	6.81	
		-	-	3x3MVA, 66/11kV TFR	0.95	
Total	131.40	Auxiliary Consumption & Transformation Losses at Generator end	0.87%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	61.80	L/S & U/S Unit-I on Standby.
		Unit- II	6.20	66kV BHP - Lobeyasa Line	26.12	
		Total	6.20	220kV BHP - Tsirang Line	-69.48	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.65	L/S & U/S Unit-I on Standby.
		Unit- II	13.30	30MVA ICT, 220/66kV (HV)	20.50	
		Total	13.30	Auxiliary Consumption & Transformation Losses at Generator end	2.10%	
6	126MW DHP	Unit-I	21.16	220kV DHP - Tsirang Line	20.94	Unit-II under shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	66.99	
		-	-	5MVA, 220/33kV TFR	0.21	
Total	21.16	Auxiliary Consumption & Transformation Losses at Gen. end	0.05%			
7	60MW KHP	Unit- I	12.52	132kV KHP - Nangkhoh Line	7.95	Unit-III under Shutdown. Unit-IV on Standby.
		Unit-II	12.54	132kV KHP - Kilikhar Line	15.99	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.82	
		Unit- IV	0.00	132kV Motanga - Rangia Line	-0.89	
		Total	25.06	Auxiliary Consumption & Transformation Losses at Generator end	1.20%	

Note: Generation-Load Summary (MW) for January 24, 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	438.89	386.73	383.24	104.71	3.49
2	Eastern Grid	174.97	193.96	193.12	-71.54	0.84
Total		613.86	580.69	576.36	33.17	4.33

Note: Generation-Load Summary for January 24, 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	215.90	370.21	370.19	-93.44	0.02
2	Eastern Grid	279.60	98.01	95.61	120.72	2.40
Total		495.50	468.22	465.80	27.28	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 25, 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 VI under breakdown. Unit V on Standby. 400kV THP- Siliguri Line I & IV on Standby.
		Unit- II	123.07	400kV THP - Siliguri Line - II	79.29	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	160.79	
		Unit- V	0.00	400kV Malbase - Siliguri Line	54.72	
		Unit- VI	118.91	-	-	
		Total	241.98	Auxiliary Consumption & Transformation Losses at Generator end	0.79%	
2	720MW MHP	Unit-I	70.19	400kV MHP - Jigmeling Line - I	0.00	Unit-II on standby. 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	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	80.35	400kV MHP - Jigmeling Line - IV	76.94	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	72.30	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	117.63	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-15.27	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-24.71	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	1.53	
		-	-	80MVA, 220/132kV ICT - II (HV)	1.63	
		-	-	220kV Tsirang - Jigmeling Line	-48.05	
-	-	132kV Gelephu - Salakati Line	-14.35			
Total	150.54	Auxiliary Consumption & Transformation Losses at Generator end	0.86%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	-11.78	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	61.12	220kV CHP - Malbase Line- III	27.50	
		Unit- IV	58.17	220kV CHP - Semtokha Line- IV	73.68	
		-	-	220kV Malbase - Birpara Line	-40.41	
		-	-	66kV CHP - Chumdo Line	20.66	
		-	-	66kV CHP - Gedu Line	7.66	
		-	-	3x3MVA, 66/11kV TFR	0.75	
Total	119.29	Auxiliary Consumption & Transformation Losses at Generator end	0.69%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	60.90	L/S & U/S unit-I on Standby
		Unit- II	6.50	66kV BHP - Lobeyasa Line	24.62	
		Total	6.50	220kV BHP - Tsirang Line	-65.86	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.52	L/S & U/S unit-I on Standby
		Unit- II	13.50	30MVA ICT, 220/66kV (HV)	18.81	
		Total	13.50	Auxiliary Consumption & Transformation Losses at Generator end	-0.90%	
6	126MW DHP	Unit-I	20.99	220kV DHP - Tsirang Line	20.70	Unit-II under Shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	66.46	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	20.99	Auxiliary Consumption & Transformation Losses at Generator end	0.43%			
7	60MW KHP	Unit- I	12.78	132kV KHP - Nangkhoh Line	10.88	Unit-III under Shutdown. Unit-IV on Standby.
		Unit-II	12.76	132kV KHP - Kilikhar Line	13.80	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.74	
		Unit- IV	0.00	132kV Motanga - Rangia Line	-0.82	
		Total	25.54	Auxiliary Consumption & Transformation Losses at Generator end	0.47%	

Note: Generation-Load Summary (MW) for January 25, 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	402.26	368.49	365.86	81.82	2.63
2	Eastern Grid	176.08	183.18	181.76	-55.15	1.42
Total		578.34	551.67	547.62	26.67	4.05

Note: Generation-Load Summary for January 25, 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	215.35	340.11	340.32	-81.11	-0.21
2	Eastern Grid	249.77	85.99	83.49	120.13	2.50
Total		465.12	426.10	423.81	39.02	2.29

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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