

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	January 4, 2022
Hours:	18:00 Hours

Date	Time	Load(MW)
30-Dec-21	18:00hrs	487.76

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	THP under total 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	0.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-65.03	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	84.73	400kV MHP - Jigmeling Line - I	223.17	Unit-II on Standby. Unit-IV under Annual Maintenance. 400kV MHP-JLG Line II, III & IV on standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby. 400kV JLG_ALI Line I (Direct) on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	140.39	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	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	118.57	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	40.53	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	62.52	
		-	-	80MVA, 220/132kV ICT - I (HV)	29.09	
		-	-	80MVA, 220/132kV ICT - II (HV)	29.63	
		-	-	220kV Tsirang - Jigmeling Line	-42.71	
-	-	132kV Gelephu - Salakati Line	-5.29			
Total	225.12	Auxiliary Consumption & Transformation Losses at Generator end	0.87%			
3	336MW CHP	Unit- I	87.44	220kV CHP - Birpara Line- I	0.00	Unit-II on Standby. Unit IV under Annual Maintenance. 220kV CHP_Birpara Line I & II under breakdown.
		Unit- II	0.00	220kV CHP - Birpara Line- II	0.00	
		Unit- III	86.62	220kV CHP - Malbase Line- III	62.70	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	84.06	
		-	-	220kV Malbase - Birpara Line	-25.58	
		-	-	66kV CHP - Chumdo Line	22.32	
		-	-	66kV CHP - Gedu Line	2.71	
		-	-	3x3MVA, 66/11kV TFR	1.96	
Total	174.06	Auxiliary Consumption & Transformation Losses at Generator end	0.18%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	61.55	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	8.80	66kV BHP - Lobeyasa Line	29.99	
		Total	8.80	220kV BHP - Tsirang Line	-66.56	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.95	
		Unit- II	17.00	30MVA ICT, 220/66kV (HV)	22.36	
		Total	17.00	Auxiliary Consumption & Transformation Losses at Generator end	-0.50%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	28.18	Unit-I under Annual Maintenance. 220kV DHP-Dagapela Line on standby.
		Unit-II	28.99	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	16.65	
		-	-	5MVA, 220/33kV TFR	0.80	
Total	28.99	Auxiliary Consumption & Transformation Losses at Gen. end	0.03%			
7	60MW KHP	Unit- I	16.05	132kV KHP - Nangkhor Line	10.10	Unit III on standby. Unit-IV under Annual Maintenance.
		Unit-II	16.01	132kV KHP - Kilikhar Line	20.93	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.71	
		Unit- IV	0.00	132kV Motanga - Rangia Line	14.24	
		Total	32.06	Auxiliary Consumption & Transformation Losses at Generator end	1.00%	

Note: Generation-Load Summary (MW) 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

Note: Generation-Load Summary for January 04, 2021 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	402.70	269.90	267.67	115.10	2.23
2	Eastern Grid	135.64	63.02	62.49	90.32	0.53
Total		538.34	332.92	330.16	205.42	2.76

NOTE- BHP data 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 5, 2022
Hours:	09:00 Hours

Date	Time	Load(MW)
30-Dec-21	18:00hrs	487.76

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	THP under total 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	0.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-60.29	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	99.93	400kV MHP - Jigmeling Line - I	201.34	Unit-II on Standby. Unit-IV under Annual Maintenance. 400kV MHP-JLG Line II, III & IV on standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby. 400kV JLG_ALI Line I (Direct) on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	102.71	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	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	97.47	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	39.69	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	60.78	
		-	-	80MVA, 220/132kV ICT - I (HV)	26.92	
		-	-	80MVA, 220/132kV ICT - II (HV)	27.37	
		-	-	220kV Tsirang - Jigmeling Line	-28.43	
-	-	132kV Gelephu - Salakati Line	0.21			
Total	202.64	Auxiliary Consumption & Transformation Losses at Generator end	0.64%			
3	336MW CHP	Unit- I	89.95	220kV CHP - Birpara Line- I	0.00	Unit-II on Standby. Unit-IV under Annual Maintenance. 220kV CHP_Birpara Line-I & II under breakdown..
		Unit- II	0.00	220kV CHP - Birpara Line- II	0.00	
		Unit- III	89.86	220kV CHP - Malbase Line- III	74.61	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	81.16	
		-	-	220kV Malbase - Birpara Line	-21.13	
		-	-	66kV CHP - Chumdo Line	20.12	
		-	-	66kV CHP - Gedu Line	2.48	
		-	-	3x3MVA, 66/11kV TFR	1.63	
Total	179.81	Auxiliary Consumption & Transformation Losses at Generator end	-0.11%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	52.30	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	8.40	66kV BHP - Lobeyasa Line	27.18	
		Total	8.40	220kV BHP - Tsirang Line	-54.22	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.65	
		Unit- II	17.20	30MVA ICT, 220/66kV (HV)	19.32	
		Total	17.20	Auxiliary Consumption & Transformation Losses at Generator end	-1.21%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	28.68	Unit-I under Annual Maintenance. 220kV DHP_Dagapela Line on standby.
		Unit-II	29.49	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	15.70	
		-	-	5MVA, 220/33kV TFR	0.80	
Total	29.49	Auxiliary Consumption & Transformation Losses at Generator end	0.03%			
7	60MW KHP	Unit- I	14.00	132kV KHP - Nangkhoh Line	10.76	Unit III on standby. Unit-IV under Annual Maintenance.
		Unit-II	14.06	132kV KHP - Kilikhar Line	16.36	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.69	
		Unit- IV	0.00	132kV Motanga - Rangia Line	8.98	
		Total	28.06	Auxiliary Consumption & Transformation Losses at Generator end	0.88%	

Note: Generation-Load Summary (MW) 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

Note: Generation-Load Summary for January 05, 2021 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	393.98	242.29	232.92	138.98	9.37
2	Eastern Grid	135.80	46.53	45.53	101.98	1.00
Total		529.78	288.82	278.45	240.96	10.37

NOTE-BHP data 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:

- 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.
- The clocks of all the locations are not synchronized.

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