

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	March 1, 2022
Hours:	18:00 Hours

Date	Time	Load(MW)
12-Jan-22	18:00hrs	492.25

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	-43.30	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	229.11	Unit-I & II under Annual Maintenance .400kV MHP-JLG Line III under Annual Maintenance . 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG-ALI I (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	117.37	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	113.12	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)	91.90	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	52.36	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	80.82	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	13.95	
		-	-	80MVA, 220/132kV ICT - II (HV)	14.32	
		-	-	220kV Tsirang - Jigmeling Line	-79.74	
-	-	132kV Gelephu - Salakati Line	-9.56			
Total	230.49	Auxiliary Consumption & Transformation Losses at Generator end	0.60%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	2.14	Unit-I under maintenance. Unit IV on standby
		Unit- II	84.44	220kV CHP - Birpara Line- II	2.12	
		Unit- III	80.94	220kV CHP - Malbase Line- III	73.02	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	63.58	
		-	-	220kV Malbase - Birpara Line	-53.15	
		-	-	66kV CHP - Chumdo Line	18.42	
		-	-	66kV CHP - Gedu Line	2.66	
		-	-	3x3MVA, 66/11kV TFR	1.69	
Total	165.38	Auxiliary Consumption & Transformation Losses at Generator end	1.06%			
4	24MW BHP (U/S)	Unit- I	6.60	220kV BHP - Semtokha Line	70.41	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	23.86	
		Total	6.60	220kV BHP - Tsirang Line	-74.78	
5	40MW BHP (L/S)	Unit- I	13.50	5MVA, 66/11kV TFR	0.64	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	19.10	
		Total	13.50	Auxiliary Consumption & Transformation Losses at Generator end	-0.15%	
6	126MW DHP	Unit-I	25.23	220kV DHP - Tsirang Line	0.00	Unit-II under Annual Maintenance. 220kV DHP_Tsirang Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	25.01	
		-	-	220kV Jigmeling - Dagapela Line	-15.77	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	25.23	Auxiliary Consumption & Transformation Losses at Gen. end	0.08%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	10.07	Unit-I under AMP & Unit-IV on Standby.
		Unit-II	12.55	132kV KHP - Kilikhar Line	14.14	
		Unit- III	12.58	5MVA, 132/11kV TFR	0.60	
		Unit- IV	0.00	132kV Motanga - Rangia Line	-6.00	
		Total	25.13	Auxiliary Consumption & Transformation Losses at Generator end	1.27%	

Note: Generation-Load Summary (MW) for March 01, 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	210.71	382.64	380.90	-92.19	1.74
2	Eastern Grid	255.62	58.26	56.56	117.62	1.70
Total		466.33	440.90	437.46	25.43	3.44

Note: Generation-Load Summary for March 01, 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	252.54	219.53	217.89	16.62	1.64
2	Eastern Grid	32.94	70.17	69.80	-20.84	0.37
Total		285.48	289.70	287.69	-4.22	2.01

NOTE- BHP data collected from site.

- 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.
- 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:	March 2, 2022
Hours:	09:00 Hours

Date	Time	Load(MW)
12-Jan-22	18:00hrs	492.25

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	-46.24	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	188.72	Unit-I & II under Annual Maintenance. 400kV MHP-JLG Line III under Annual Maintenance. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG-ALI I (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	85.20	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	104.39	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)	76.86	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	42.90	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	66.50	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	14.79	
		-	-	80MVA, 220/132kV ICT - II (HV)	15.05	
		-	-	220kV Tsirang - Jigmeling Line	-68.09	
-	-	132kV Gelephu - Salakati Line	-6.72			
Total	189.59	Auxiliary Consumption & Transformation Losses at Generator end	0.46%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	8.79	Unit-IV standby. Unit-I under Annual Maintenance.
		Unit- II	85.25	220kV CHP - Birpara Line- II	8.86	
		Unit- III	81.91	220kV CHP - Malbase Line- III	72.63	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	55.07	
		-	-	220kV Malbase - Birpara Line	-41.67	
		-	-	66kV CHP - Chumdo Line	15.72	
		-	-	66kV CHP - Gedu Line	2.97	
		-	-	3x3MVA, 66/11kV TFR	1.46	
Total	167.16	Auxiliary Consumption & Transformation Losses at Generator end	0.99%			
4	24MW BHP (U/S)	Unit- I	7.50	220kV BHP - Semtokha Line	63.70	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	23.41	
		Total	7.50	220kV BHP - Tsirang Line	-64.78	
5	40MW BHP (L/S)	Unit- I	15.10	5MVA, 66/11kV TFR	0.48	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	16.64	
		Total	15.10	Auxiliary Consumption & Transformation Losses at Generator end	-0.93%	
6	126MW DHP	Unit-I	29.25	220kV DHP - Tsirang Line	0.00	Unit-II under Annual maintenance. 220kV DHP_Tsirang Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	29.01	
		-	-	220kV Jigmeling - Dagapela Line	-20.05	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	29.25	Auxiliary Consumption & Transformation Losses at Generator end	0.14%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	13.94	Unit-I under AMP. Unit-IV on Standby.
		Unit-II	15.11	132kV KHP - Kilikhar Line	15.19	
		Unit- III	15.06	5MVA, 132/11kV TFR	0.54	
		Unit- IV	0.00	132kV Motanga - Rangia Line	0.00	
		Total	30.17	Auxiliary Consumption & Transformation Losses at Generator end	1.65%	

Note: Generation-Load Summary (MW) for March 02, 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	219.01	357.36	355.87	-70.26	1.49
2	Eastern Grid	219.76	48.99	47.62	102.68	1.37
Total		438.77	406.35	403.49	32.42	2.86

Note: Generation-Load Summary for March 02, 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	241.75	260.89	257.17	-39.44	3.72
2	Eastern Grid	100.94	47.44	45.94	73.80	1.50
Total		342.69	308.33	303.11	34.36	5.22

NOTE-BHP data collected from Site.

- 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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