

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	March 19, 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	Unit I, II & III on Standby. 400kV THP- Siliguri - I under Shutdown. 400kV THP- Siliguri - II under Breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	139.65	
		Unit- IV	148.88	400kV THP - Malbase Line - III	224.41	
		Unit- V	79.10	400kV Malbase - Siliguri Line	118.59	
		Unit- VI	139.16	-	-	
		Total	367.14	Auxiliary Consumption & Transformation Losses at Generator end	0.84%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	199.94	Unit-I & II under Annual Maintenance. 400kV MHP-JLG Line II,III & IV on standby. 132kV MHP_Yurmo 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	85.50	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	116.32	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)	76.92	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	45.81	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	75.05	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	19.76	
		-	-	80MVA, 220/132kV ICT - II (HV)	20.08	
		-	-	220kV Tsirang - Jigmeling Line	-54.98	
-	-	132kV Gelephu - Salakati Line	2.12			
Total	201.82	Auxiliary Consumption & Transformation Losses at Generator end	0.93%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	20.06	Unit-I under maintenance. Unit-IV under Breakdown.
		Unit- II	90.22	220kV CHP - Birpara Line- II	20.02	
		Unit- III	88.67	220kV CHP - Malbase Line- III	58.00	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	62.43	
		-	-	220kV Malbase - Birpara Line	-12.51	
		-	-	66kV CHP - Chumdo Line	13.00	
		-	-	66kV CHP - Gedu Line	3.34	
		-	-	3x3MVA, 66/11kV TFR	1.14	
Total	178.89	Auxiliary Consumption & Transformation Losses at Generator end	0.50%			
4	24MW BHP (U/S)	Unit- I	8.10	220kV BHP - Semtokha Line	39.90	U/S Unit-II & L/S Unit-II under AMP. L/S Unit I tripped at 17:07hrs.
		Unit- II	0.00	66kV BHP - Lobeysa Line	20.44	
		Total	8.10	220kV BHP - Tsirang Line	-52.87	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.60	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	13.20	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.37%	
6	126MW DHP	Unit-I	26.76	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	26.52	
		-	-	220kV Jigmeling - Dagapela Line	-19.04	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	26.76	Auxiliary Consumption & Transformation Losses at Gen. end	0.15%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	25.06	Unit-I under AMP.
		Unit-II	15.02	132kV KHP - Kilikhar Line	18.65	
		Unit- III	14.88	5MVA, 132/11kV TFR	0.55	
		Unit- IV	14.93	132kV Motanga - Rangia Line	15.20	
		Total	44.83	Auxiliary Consumption & Transformation Losses at Generator end	1.27%	

Note: Generation-Load Summary (MW) for March 19, 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	580.89	350.06	346.01	285.81	4.05
2	Eastern Grid	246.65	53.49	51.04	138.18	2.45
Total		827.54	403.55	397.05	423.99	6.50

Note: Generation-Load Summary for March 19, 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	339.13	255.76	253.90	55.42	1.86
2	Eastern Grid	139.61	81.08	79.31	86.48	1.77
Total		478.74	336.84	333.21	141.90	3.63

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 20, 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	Unit I, II & III on Standby. 400kV THP- Siliguri - I under Shutdown. 400kV THP- Siliguri - II under Breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	112.81	
		Unit- IV	90.37	400kV THP - Malbase Line - III	192.05	
		Unit- V	79.15	400kV Malbase - Siliguri Line	94.94	
		Unit- VI	139.09	-	-	
		Total	308.61	Auxiliary Consumption & Transformation Losses at Generator end	1.22%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	209.04	Unit-I & II under Annual Maintenance. 400kV MHP-JLG Line II,III & IV on standby. 132kV MHP_Yurmo 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	90.69	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	120.20	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)	63.92	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	55.27	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	85.82	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.88	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.20	
		-	-	220kV Tsirang - Jigmeling Line	-43.13	
-	-	132kV Gelephu - Salakati Line	5.92			
Total	210.89	Auxiliary Consumption & Transformation Losses at Generator end	0.88%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	20.31	Unit-I under Annual Maintenance. Unit-IV under Breakdown.
		Unit- II	81.61	220kV CHP - Birpara Line- II	20.44	
		Unit- III	91.99	220kV CHP - Malbase Line- III	62.66	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	52.13	
		-	-	220kV Malbase - Birpara Line	-15.87	
		-	-	66kV CHP - Chumdo Line	12.52	
		-	-	66kV CHP - Gedu Line	3.12	
		-	-	3x3MVA, 66/11kV TFR	1.18	
Total	173.60	Auxiliary Consumption & Transformation Losses at Generator end	0.71%			
4	24MW BHP (U/S)	Unit- I	9.10	220kV BHP - Semtokha Line	48.50	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeysa Line	20.76	
		Total	9.10	220kV BHP - Tsirang Line	-39.36	
5	40MW BHP (L/S)	Unit- I	21.00	5MVA, 66/11kV TFR	0.45	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	12.11	
		Total	21.00	Auxiliary Consumption & Transformation Losses at Generator end	-0.83%	
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	29.02	
		-	-	220kV Jigmeling - Dagapela Line	-21.40	
		-	-	5MVA, 220/33kV TFR	0.15	
Total	29.25	Auxiliary Consumption & Transformation Losses at Generator end	0.27%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	29.53	Unit-I under AMP.
		Unit-II	16.44	132kV KHP - Kilikhar Line	18.88	
		Unit- III	16.47	5MVA, 132/11kV TFR	0.45	
		Unit- IV	16.50	132kV Motanga - Rangia Line	14.32	
		Total	49.41	Auxiliary Consumption & Transformation Losses at Generator end	1.11%	

Note: Generation-Load Summary (MW) for March 20, 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	541.56	352.06	347.24	232.63	4.82
2	Eastern Grid	260.30	55.84	53.44	161.33	2.40
Total		801.86	407.90	400.68	393.96	7.22

Note: Generation-Load Summary for March 20, 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	293.68	232.40	228.99	46.08	3.41
2	Eastern Grid	200.53	64.33	63.45	151.40	0.88
Total		494.21	296.73	292.44	197.48	4.29

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.

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