

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	April 14, 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	107.42	400kV THP - Siliguri Line - I	0.00	Unit IV under AMP. Unit III & V on Standby. 400kV THP- Siliguri - I under Shutdown. 400kV THP- Siliguri - II under Breakdown.
		Unit- II	113.34	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	129.31	
		Unit- IV	0.00	400kV THP - Malbase Line - III	189.54	
		Unit- V	0.00	400kV Malbase - Siliguri Line	113.39	
		Unit- VI	99.75	-	-	
		Total	320.51	Auxiliary Consumption & Transformation Losses at Generator end	0.52%	
2	720MW MHP	Unit-I	85.18	400kV MHP - Jigmeling Line - I	122.06	Unit II under AMP. 400kV MHP-JLG Line II under AMP. 400kV MHP-JLG Line III 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	85.16	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	74.94	400kV MHP - Jigmeling Line - IV	122.29	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	76.26	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	64.72	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	99.67	
		-	-	80MVA, 220/132kV ICT - I (HV)	14.50	
		-	-	80MVA, 220/132kV ICT - II (HV)	14.68	
		-	-	220kV Tsirang - Jigmeling Line	-59.62	
-	-	132kV Gelephu - Salakati Line	-4.73			
Total	245.28	Auxiliary Consumption & Transformation Losses at Generator end	0.38%			
3	336MW CHP	Unit- I	70.11	220kV CHP - Birpara Line- I	25.07	Unit II under shutdown.
		Unit- II	0.00	220kV CHP - Birpara Line- II	25.13	
		Unit- III	51.27	220kV CHP - Malbase Line- III	71.04	
		Unit- IV	69.22	220kV CHP - Semtokha Line- IV	49.68	
		-	-	220kV Malbase - Birpara Line	-13.48	
		-	-	66kV CHP - Chumdo Line	13.57	
		-	-	66kV CHP - Gedu Line	3.34	
		-	-	3x3MVA, 66/11kV TFR	1.34	
Total	190.60	Auxiliary Consumption & Transformation Losses at Generator end	0.75%			
4	24MW BHP (U/S)	Unit- I	6.50	220kV BHP - Semtokha Line	51.30	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	20.46	
		Total	6.50	220kV BHP - Tsirang Line	-54.67	
5	40MW BHP (L/S)	Unit- I	11.00	5MVA, 66/11kV TFR	0.63	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	14.68	
		Total	11.00	Auxiliary Consumption & Transformation Losses at Generator end	-1.26%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	0.00	Unit-I under AMP. 220kV DHP_Tsirang Line on Standby.
		Unit-II	22.45	220kV DHP - Dagapela Line	22.23	
		-	-	220kV Jigmeling - Dagapela Line	-13.29	
		-	-	5MVA, 220/33kV TFR	0.21	
Total	22.45	Auxiliary Consumption & Transformation Losses at Gen. end	0.04%			
7	60MW KHP	Unit- I	15.71	132kV KHP - Nangkhor Line	28.14	Unit-III under Shutdown.
		Unit-II	16.27	132kV KHP - Kilikhar Line	19.29	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.26	
		Unit- IV	16.20	132kV Motanga - Rangia Line	24.44	
		Total	48.18	Auxiliary Consumption & Transformation Losses at Generator end	1.02%	

Note: Generation-Load Summary (MW) for April 14, 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	551.06	317.97	315.09	279.42	2.88
2	Eastern Grid	293.46	63.03	61.61	184.10	1.42
Total		844.52	381.00	376.70	463.52	4.30

Note: Generation-Load Summary for April 14, 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	263.10	266.97	264.18	-20.52	2.79
2	Eastern Grid	153.45	78.65	76.82	91.45	1.83
Total		416.55	345.62	341.00	70.93	4.62

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:	April 15, 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	106.31	400kV THP - Siliguri Line - I	0.00	Unit IV under AMP. Unit III & V on Standby. 400kV THP- Siliguri - I under Shutdown. 400kV THP- Siliguri - II under Breakdown.
		Unit- II	119.49	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	139.04	
		Unit- IV	0.00	400kV THP - Malbase Line - III	184.10	
		Unit- V	0.00	400kV Malbase - Siliguri Line	126.08	
		Unit- VI	99.69	-	-	
		Total	325.49	Auxiliary Consumption & Transformation Losses at Generator end	0.72%	
2	720MW MHP	Unit-I	140.15	400kV MHP - Jigmeling Line - I	142.00	Unit II under Annual Maintenance. 400kV MHP-JLG Line II under AMP. 400kV MHP-JLG Lin III 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	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	145.57	400kV MHP - Jigmeling Line - IV	142.20	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	62.73	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	88.17	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	131.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	3.42	
		-	-	80MVA, 220/132kV ICT - II (HV)	3.43	
		-	-	220kV Tsirang - Jigmeling Line	-67.84	
-	-	132kV Gelephu - Salakati Line	-7.93			
Total	285.72	Auxiliary Consumption & Transformation Losses at Generator end	0.53%			
3	336MW CHP	Unit- I	60.97	220kV CHP - Birpara Line- I	17.10	Unit II under Shutdown.
		Unit- II	0.00	220kV CHP - Birpara Line- II	17.12	
		Unit- III	50.31	220kV CHP - Malbase Line- III	72.43	
		Unit- IV	51.20	220kV CHP - Semtokha Line- IV	38.52	
		-	-	220kV Malbase - Birpara Line	-28.41	
		-	-	66kV CHP - Chumdo Line	12.57	
		-	-	66kV CHP - Gedu Line	3.23	
		-	-	3x3MVA, 66/11kV TFR	1.00	
Total	162.48	Auxiliary Consumption & Transformation Losses at Generator end	0.31%			
4	24MW BHP (U/S)	Unit- I	6.40	220kV BHP - Semtokha Line	62.30	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	20.67	
		Total	6.40	220kV BHP - Tsirang Line	-63.55	
5	40MW BHP (L/S)	Unit- I	13.20	5MVA, 66/11kV TFR	0.42	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	17.87	
		Total	13.20	Auxiliary Consumption & Transformation Losses at Generator end	-1.22%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	0.00	Unit-I Under AMP. 220kV DHP_Tsirang Line on Standby.
		Unit-II	21.99	220kV DHP - Dagapela Line	21.76	
		-	-	220kV Jigmeling - Dagapela Line	-12.98	
		-	-	5MVA, 220/33kV TFR	-	
Total	21.99	Auxiliary Consumption & Transformation Losses at Generator end	1.05%			
7	60MW KHP	Unit- I	16.56	132kV KHP - Nangkhoh Line	32.35	Unit-III under Shutdown.
		Unit-II	16.53	132kV KHP - Kilikhar Line	16.56	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.35	
		Unit- IV	16.58	132kV Motanga - Rangia Line	8.85	
		Total	49.67	Auxiliary Consumption & Transformation Losses at Generator end	0.83%	

Note: Generation-Load Summary (MW) for April 15, 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	529.56	313.49	310.64	270.93	2.85
2	Eastern Grid	335.39	60.44	58.51	220.09	1.93
Total		864.95	373.93	369.15	491.02	4.78

Note: Generation-Load Summary for April 15, 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	263.30	232.29	227.92	18.88	4.37
2	Eastern Grid	179.47	63.68	62.20	127.92	1.48
Total		442.77	295.97	290.12	146.80	5.85

NOTE-BHP data collected from Site.

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