

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	April 17, 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	106.14	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	78.42	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	127.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	196.41	
		Unit- V	0.00	400kV Malbase - Siliguri Line	108.83	
		Unit- VI	139.34	-	-	
		Total	323.90	Auxiliary Consumption & Transformation Losses at Generator end	0.15%	
2	720MW MHP	Unit-I	85.13	400kV MHP - Jigmeling Line - I	109.32	Unit III on Standby. 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 II (Interim) on Standby. 400kV JLG_ALI Line II (Direct) on Standby. 132kV Gelephu_Salakati line under Shutdown.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	134.51	400kV MHP - Jigmeling Line - IV	109.30	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	58.45	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	63.70	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	95.22	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	8.15	
		-	-	80MVA, 220/132kV ICT - II (HV)	8.30	
		-	-	220kV Tsirang - Jigmeling Line	-63.24	
-	-	132kV Gelephu - Salakati Line	0.00			
Total	219.64	Auxiliary Consumption & Transformation Losses at Generator end	0.46%			
3	336MW CHP	Unit- I	78.14	220kV CHP - Birpara Line- I	14.24	Unit III on Standby. Unit II under shutdown.
		Unit- II	0.00	220kV CHP - Birpara Line- II	14.33	
		Unit- III	0.00	220kV CHP - Malbase Line- III	56.87	
		Unit- IV	75.38	220kV CHP - Semtokha Line- IV	48.17	
		-	-	220kV Malbase - Birpara Line	-20.83	
		-	-	66kV CHP - Chumdo Line	14.48	
		-	-	66kV CHP - Gedu Line	2.75	
		-	-	3x3MVA, 66/11kV TFR	1.41	
Total	153.52	Auxiliary Consumption & Transformation Losses at Generator end	0.83%			
4	24MW BHP (U/S)	Unit- I	5.90	220kV BHP - Semtokha Line	56.00	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	20.50	
		Total	5.90	220kV BHP - Tsirang Line	-59.28	
5	40MW BHP (L/S)	Unit- I	11.80	5MVA, 66/11kV TFR	0.46	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	15.43	
		Total	11.80	Auxiliary Consumption & Transformation Losses at Generator end	0.11%	
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	19.44	220kV DHP - Dagapela Line	19.21	
		-	-	220kV Jigmeling - Dagapela Line	-13.88	
		-	-	5MVA, 220/33kV TFR		
Total	19.44	Auxiliary Consumption & Transformation Losses at Gen. end	1.18%			
7	60MW KHP	Unit- I	13.07	132kV KHP - Nangkhoh Line	24.67	Unit-IV on standby
		Unit-II	13.12	132kV KHP - Kilikhar Line	13.92	
		Unit- III	13.10	5MVA, 132/11kV TFR	0.40	
		Unit- IV	0.00	132kV Motanga - Rangia Line	2.28	
		Total	39.29	Auxiliary Consumption & Transformation Losses at Generator end	0.76%	

Note: Generation-Load Summary (MW) for April 17, 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	514.56	320.35	318.34	243.57	2.01
2	Eastern Grid	258.93	48.37	47.05	161.20	1.32
Total		773.49	368.72	365.39	404.77	3.33

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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	284.07	257.72	254.53	0.15	3.19
2	Eastern Grid	122.81	71.03	70.68	77.98	0.35
Total		406.88	328.75	325.21	78.13	3.54

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 18, 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	106.16	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	99.11	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	132.64	
		Unit- IV	0.00	400kV THP - Malbase Line - III	171.46	
		Unit- V	0.00	400kV Malbase - Siliguri Line	119.77	
		Unit- VI	100.24	-	-	
		Total	305.51	Auxiliary Consumption & Transformation Losses at Generator end	0.46%	
2	720MW MHP	Unit-I	100.15	400kV MHP - Jigmeling Line - I	114.60	Unit II under Annual Maintenance. Unit III on Standby. 400kV MHP-JLG Line II under AMP. 400kV MHP-JLG Lin III on Standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG-ALI II (Interim) on Standby. 400kV JLG_ALI Line II (Direct) on Standby 132kV Gelephu_Salakati line under Shutdown.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	130.44	400kV MHP - Jigmeling Line - IV	114.84	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	60.88	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	66.69	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	100.07	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	8.94	
		-	-	80MVA, 220/132kV ICT - II (HV)	9.07	
		-	-	220kV Tsirang - Jigmeling Line	-56.37	
-	-	132kV Gelephu - Salakati Line	0.00			
Total	230.59	Auxiliary Consumption & Transformation Losses at Generator end	0.50%			
3	336MW CHP	Unit- I	87.18	220kV CHP - Birpara Line- I	18.42	Unit II under shutdown. Unit III on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	18.35	
		Unit- III	0.00	220kV CHP - Malbase Line- III	64.20	
		Unit- IV	85.30	220kV CHP - Semtokha Line- IV	49.32	
		-	-	220kV Malbase - Birpara Line	-19.79	
		-	-	66kV CHP - Chumdo Line	13.14	
		-	-	66kV CHP - Gedu Line	2.67	
		-	-	3x3MVA, 66/11kV TFR	0.79	
Total	172.48	Auxiliary Consumption & Transformation Losses at Generator end	3.24%			
4	24MW BHP (U/S)	Unit- I	5.90	220kV BHP - Semtokha Line	50.00	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	19.57	
		Total	5.90	220kV BHP - Tsirang Line	-51.94	
5	40MW BHP (L/S)	Unit- I	11.80	5MVA, 66/11kV TFR	0.59	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	14.14	
		Total	11.80	Auxiliary Consumption & Transformation Losses at Generator end	-2.94%	
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	20.43	220kV DHP - Dagapela Line	20.23	
		-	-	220kV Jigmeling - Dagapela Line	-12.82	
		-	-	5MVA, 220/33kV TFR	0.15	
Total	20.43	Auxiliary Consumption & Transformation Losses at Generator end	0.24%			
7	60MW KHP	Unit- I	11.75	132kV KHP - Nangkhoh Line	22.76	Unit-IV standby.
		Unit-II	11.76	132kV KHP - Kilikhar Line	11.81	
		Unit- III	11.77	5MVA, 132/11kV TFR	0.35	
		Unit- IV	0.00	132kV Motanga - Rangia Line	-9.64	
		Total	35.28	Auxiliary Consumption & Transformation Losses at Generator end	1.02%	

Note: Generation-Load Summary (MW) for April 18, 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	516.12	290.28	283.75	269.39	6.53
2	Eastern Grid	265.87	65.20	63.69	157.12	1.51
Total		781.99	355.48	347.44	426.51	8.04

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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	273.62	238.94	233.00	23.85	5.94
2	Eastern Grid	233.78	59.12	58.26	185.49	0.86
Total		507.40	298.06	291.26	209.34	6.80

NOTE-All load 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.
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