

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	May 23, 2022
Hours:	19:00 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- II on standby. Unit I & VI under shutdown. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	127.52	400kV THP - Siliguri Line- IV	192.14	
		Unit- IV	168.28	400kV THP - Malbase Line - III	266.28	
		Unit- V	167.71	400kV Malbase - Siliguri Line	176.36	
		Unit- VI	0.00	-	-	
		Total	463.51	Auxiliary Consumption & Transformation Losses at Generator end	1.10%	
2	720MW MHP	Unit-I	150.22	400kV MHP - Jigmeling Line - I	0.00	Unit- II & III on Standby. 400kV MHP-JLG Line I & 400kV MHP-JLG Line III on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	149.39	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	150.62	400kV MHP - Jigmeling Line - IV	149.62	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	85.10	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	84.55	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	126.88	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	30.04	
		-	-	80MVA, 220/132kV ICT - II (HV)	29.49	
		-	-	220kV Tsirang - Jigmeling Line	-14.90	
-	-	132kV Gelephu - Salakati Line	5.93			
Total	300.84	Auxiliary Consumption & Transformation Losses at Generator end	0.61%			
3	336MW CHP	Unit- I	54.06	220kV CHP - Birpara Line- I	40.71	
		Unit- II	59.17	220kV CHP - Birpara Line- II	40.64	
		Unit- III	65.96	220kV CHP - Malbase Line- III	61.05	
		Unit- IV	58.06	220kV CHP - Semtokha Line- IV	74.12	
		-	-	220kV Malbase - Birpara Line	19.84	
		-	-	66kV CHP - Chumdo Line	16.19	
		-	-	66kV CHP - Gedu Line	3.83	
		-	-	3x3MVA, 66/11kV TFR	1.11	
Total	237.25	Auxiliary Consumption & Transformation Losses at Generator end	-0.17%			
4	24MW BHP (U/S)	Unit- I	9.50	220kV BHP - Semtokha Line	36.20	L/S unit I on standby. U/S unit II under shutdown.
		Unit- II	0.00	66kV BHP - Lobeyssa Line	21.85	
		Total	9.50	220kV BHP - Tsirang Line	-30.98	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.60	
		Unit- II	18.20	30MVA ICT, 220/66kV (HV)	13.05	
		Total	18.20	Auxiliary Consumption & Transformation Losses at Generator end	0.11%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	24.72	Unit-I on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	24.95	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	10.56	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	24.95	Auxiliary Consumption & Transformation Losses at Gen. end	0.12%			
7	60MW KHP	Unit- I	16.37	132kV KHP - Nangkhoh Line	41.92	
		Unit-II	16.41	132kV KHP - Kilikhar Line	22.94	
		Unit- III	16.53	5MVA, 132/11kV TFR	0.48	
		Unit- IV	16.57	132kV Motanga - Rangia Line	43.12	
		Total	65.88	Auxiliary Consumption & Transformation Losses at Generator end	0.82%	

Note: Generation-Load Summary (MW) for May 23, 2022 at 19:00hrs.

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	753.41	298.62	293.87	469.69	4.75
2	Eastern Grid	366.72	91.34	88.97	260.48	2.37
Total		1,120.13	389.96	382.84	730.17	7.12

Note: Generation-Load Summary for May 23, 2021 at 19:00hrs.

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	512.33	215.52	210.22	277.39	5.30
2	Eastern Grid	406.65	63.33	60.84	362.74	2.49
Total		918.98	278.85	271.06	640.13	7.79

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:	May 24, 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	68.96	400kV THP - Siliguri Line - I	0.00	Unit-II on standby. Unit-VI under Shutdown. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	98.51	400kV THP - Siliguri Line- IV	164.75	
		Unit- IV	140.23	400kV THP - Malbase Line - III	235.88	
		Unit- V	98.43	400kV Malbase - Siliguri Line	152.28	
		Unit- VI	0.00	-	-	
		Total	406.13	Auxiliary Consumption & Transformation Losses at Generator end	1.35%	
2	720MW MHP	Unit-I	140.15	400kV MHP - Jigmeling Line - I	0.00	Unit-II & III on standby. 400kV MHP-JLG Line I & 400kV MHP-JLG Line III on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	139.39	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	140.55	400kV MHP - Jigmeling Line - IV	139.71	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	76.75	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	79.49	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	120.66	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	25.85	
		-	-	80MVA, 220/132kV ICT - II (HV)	26.26	
		-	-	220kV Tsirang - Jigmeling Line	-14.27	
-	-	132kV Gelephu - Salakati Line	1.78			
Total	280.70	Auxiliary Consumption & Transformation Losses at Generator end	0.57%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	29.56	Unit-I on standby
		Unit- II	74.06	220kV CHP - Birpara Line- II	29.55	
		Unit- III	61.11	220kV CHP - Malbase Line- III	56.40	
		Unit- IV	57.33	220kV CHP - Semtokha Line- IV	58.90	
		-	-	220kV Malbase - Birpara Line	4.80	
		-	-	66kV CHP - Chumdo Line	12.58	
		-	-	66kV CHP - Gedu Line	4.10	
		-	-	3x3MVA, 66/11kV TFR	0.71	
Total	192.50	Auxiliary Consumption & Transformation Losses at Generator end	0.36%			
4	24MW BHP (U/S)	Unit- I	8.80	220kV BHP - Semtokha Line	39.46	L/S Unit-I & U/S Unit-II on standby
		Unit- II	0.00	66kV BHP - Lobeyasa Line	19.94	
		Total	8.80	220kV BHP - Tsirang Line	-33.02	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.35	L/S Unit-I & U/S Unit-II on standby
		Unit- II	17.90	30MVA ICT, 220/66kV (HV)	11.77	
		Total	17.90	Auxiliary Consumption & Transformation Losses at Generator end	-0.11%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	26.68	Unit-I on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	26.96	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	10.14	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	26.96	Auxiliary Consumption & Transformation Losses at Generator end	0.30%			
7	60MW KHP	Unit- I	14.08	132kV KHP - Nangkhoh Line	50.00	
		Unit-II	14.09	132kV KHP - Kilikhar Line	5.25	
		Unit- III	14.15	5MVA, 132/11kV TFR	0.30	
		Unit- IV	14.08	132kV Motanga - Rangia Line	40.81	
		Total	56.40	Auxiliary Consumption & Transformation Losses at Generator end	1.51%	

Note: Generation-Load Summary (MW) for May 24, 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	652.29	285.62	279.37	380.94	6.25
2	Eastern Grid	337.10	80.09	77.64	242.74	2.45
Total		989.39	365.71	357.01	623.68	8.70

Note: Generation-Load Summary for May 24, 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	504.61	208.88	201.29	280.43	7.59
2	Eastern Grid	486.90	58.02	55.80	444.18	2.22
Total		991.51	266.90	257.09	724.61	9.81

NOTE-BHP 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.
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