

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	May 25, 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	167.31	400kV THP - Siliguri Line - I	0.00	Unit- II & IV on standby. Unit-III under shutdown. Unit-VI under AMP 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	111.44	
		Unit- IV	0.00	400kV THP - Malbase Line - III	201.41	
		Unit- V	147.95	400kV Malbase - Siliguri Line	94.26	
		Unit- VI	0.00	-	-	
		Total	315.26	Auxiliary Consumption & Transformation Losses at Generator end	0.76%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	Unit- I & IV on Standby. 400kV MHP-JLG Line I & II under shutdown. 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	119.75	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	130.72	400kV MHP - Jigmeling Line - III	124.76	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	123.89	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	102.44	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	56.98	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	85.88	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	24.80	
		-	-	80MVA, 220/132kV ICT - II (HV)	25.24	
		-	-	220kV Tsirang - Jigmeling Line	-32.53	
-	-	132kV Gelephu - Salakati Line	2.00			
Total	250.47	Auxiliary Consumption & Transformation Losses at Generator end	0.73%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	21.36	Unit-I on standby.
		Unit- II	50.83	220kV CHP - Birpara Line- II	21.18	
		Unit- III	50.89	220kV CHP - Malbase Line- III	31.23	
		Unit- IV	56.00	220kV CHP - Semtokha Line- IV	62.58	
		-	-	220kV Malbase - Birpara Line	9.92	
		-	-	66kV CHP - Chumdo Line	15.91	
		-	-	66kV CHP - Gedu Line	3.55	
		-	-	3x3MVA, 66/11kV TFR	1.28	
Total	157.72	Auxiliary Consumption & Transformation Losses at Generator end	0.40%			
4	24MW BHP (U/S)	Unit- I	6.80	220kV BHP - Semtokha Line	48.70	L/S Unit-I & U/S Unit-II on standby
		Unit- II	0.00	66kV BHP - Lobeyasa Line	21.75	
		Total	6.80	220kV BHP - Tsirang Line	-50.05	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.69	L/S Unit-I & U/S Unit-II on standby
		Unit- II	14.30	30MVA ICT, 220/66kV (HV)	15.79	
		Total	14.30	Auxiliary Consumption & Transformation Losses at Generator end	0.05%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	20.75	Unit-I on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	20.96	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	19.54	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	20.96	Auxiliary Consumption & Transformation Losses at Gen. end	0.05%			
7	60MW KHP	Unit- I	15.05	132kV KHP - Nangkhoh Line	26.85	Unit-III on standby.
		Unit-II	15.09	132kV KHP - Kilikhar Line	17.51	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.40	
		Unit- IV	15.10	132kV Motanga - Rangia Line	22.47	
		Total	45.24	Auxiliary Consumption & Transformation Losses at Generator end	1.06%	

Note: Generation-Load Summary (MW) for May 25, 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	515.04	289.41	286.35	258.16	3.06
2	Eastern Grid	295.71	95.85	93.55	167.33	2.30
Total		810.75	385.26	379.90	425.49	5.36

Note: Generation-Load Summary for May 25, 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	424.24	378.48	375.16	88.49	3.32
2	Eastern Grid	157.90	102.66	100.43	12.51	2.23
Total		582.14	481.14	475.59	101.00	5.55

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 26, 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	117.34	400kV THP - Siliguri Line - I	0.00	Unit-II & III 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	0.00	400kV THP - Siliguri Line- IV	164.44	
		Unit- IV	129.63	400kV THP - Malbase Line - III	227.25	
		Unit- V	147.99	400kV Malbase - Siliguri Line	151.65	
		Unit- VI	0.00	-	-	
		Total	394.96	Auxiliary Consumption & Transformation Losses at Generator end	0.83%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	Unit-I on standby & Unit-II under Shutdown. 400kV MHP-JLG Line I & II under Shutdown. 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	0.00	
		Unit-III	160.60	400kV MHP - Jigmeling Line - III	160.36	
		Unit-IV	160.15	400kV MHP - Jigmeling Line - IV	159.07	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	72.94	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	96.66	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	146.25	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.80	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.13	
		-	-	220kV Tsirang - Jigmeling Line	-10.81	
-	-	132kV Gelephu - Salakati Line	4.63			
Total	320.75	Auxiliary Consumption & Transformation Losses at Generator end	0.41%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	34.20	Unit-I on standby
		Unit- II	67.72	220kV CHP - Birpara Line- II	34.21	
		Unit- III	66.41	220kV CHP - Malbase Line- III	65.30	
		Unit- IV	68.34	220kV CHP - Semtokha Line- IV	51.14	
		-	-	220kV Malbase - Birpara Line	6.00	
		-	-	66kV CHP - Chumdo Line	12.79	
		-	-	66kV CHP - Gedu Line	3.55	
		-	-	3x3MVA, 66/11kV TFR	0.73	
Total	202.47	Auxiliary Consumption & Transformation Losses at Generator end	0.27%			
4	24MW BHP (U/S)	Unit- I	5.50	220kV BHP - Semtokha Line	47.00	
		Unit- II	5.20	66kV BHP - Lobeyssa Line	20.60	
		Total	10.70	220kV BHP - Tsirang Line	-35.71	
5	40MW BHP (L/S)	Unit- I	10.80	5MVA, 66/11kV TFR	0.32	
		Unit- II	10.80	30MVA ICT, 220/66kV (HV)	10.49	
		Total	21.60	Auxiliary Consumption & Transformation Losses at Generator end	0.28%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	27.74	Unit-I on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	27.98	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	20.01	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	27.98	Auxiliary Consumption & Transformation Losses at Generator end	0.14%			
7	60MW KHP	Unit- I	15.98	132kV KHP - Nangkhoh Line	31.42	Unit-III on standby.
		Unit-II	15.92	132kV KHP - Kilikhar Line	15.70	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.52	
		Unit- IV	16.02	132kV Motanga - Rangia Line	23.42	
		Total	47.92	Auxiliary Consumption & Transformation Losses at Generator end	0.58%	

Note: Generation-Load Summary (MW) for May 26, 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	657.71	278.02	274.07	390.50	3.95
2	Eastern Grid	368.67	86.90	85.30	270.96	1.60
Total		1,026.38	364.92	359.37	661.46	5.55

Note: Generation-Load Summary for May 26, 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	434.33	341.26	337.21	114.33	4.05
2	Eastern Grid	225.23	88.99	86.95	114.98	2.04
Total		659.56	430.25	424.16	229.31	6.09

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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