

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	May 27, 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	119.33	400kV THP - Siliguri Line - I	0.00	Unit- II on standby. Unit-VI under Maintenance. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	68.44	400kV THP - Siliguri Line- IV	155.70	
		Unit- IV	119.23	400kV THP - Malbase Line - III	247.01	
		Unit- V	98.85	400kV Malbase - Siliguri Line	136.95	
		Unit- VI	0.00	-	-	
		Total	405.85	Auxiliary Consumption & Transformation Losses at Generator end	0.77%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	Unit- I & III under maintenance 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	129.81	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	129.63	
		Unit-IV	130.10	400kV MHP - Jigmeling Line - IV	128.72	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	100.20	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	61.10	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	93.20	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	30.00	
		-	-	80MVA, 220/132kV ICT - II (HV)	30.50	
		-	-	220kV Tsirang - Jigmeling Line	-19.00	
-	-	132kV Gelephu - Salakati Line	3.00			
Total	259.91	Auxiliary Consumption & Transformation Losses at Generator end	0.60%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	34.16	Unit-I on standby.
		Unit- II	71.94	220kV CHP - Birpara Line- II	34.03	
		Unit- III	71.91	220kV CHP - Malbase Line- III	53.54	
		Unit- IV	67.48	220kV CHP - Semtokha Line- IV	66.48	
		-	-	220kV Malbase - Birpara Line	13.88	
		-	-	66kV CHP - Chumdo Line	17.62	
		-	-	66kV CHP - Gedu Line	3.64	
		-	-	3x3MVA, 66/11kV TFR	1.26	
Total	211.33	Auxiliary Consumption & Transformation Losses at Generator end	0.28%			
4	24MW BHP (U/S)	Unit- I	8.20	220kV BHP - Semtokha Line	37.37	L/S Unit-I & U/S Unit-II on standby
		Unit- II	0.00	66kV BHP - Lobeyasa Line	24.71	
		Total	8.20	220kV BHP - Tsirang Line	-38.40	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.28	L/S Unit-I & U/S Unit-II on standby
		Unit- II	15.90	30MVA ICT, 220/66kV (HV)	15.90	
		Total	15.90	Auxiliary Consumption & Transformation Losses at Generator end	0.58%	
6	126MW DHP	Unit-I	22.21	220kV DHP - Tsirang Line	21.99	Unit-II on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	22.60	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	22.21	Auxiliary Consumption & Transformation Losses at Gen. end	0.09%			
7	60MW KHP	Unit- I	12.06	132kV KHP - Nangkhoh Line	29.10	
		Unit-II	12.08	132kV KHP - Kilikhar Line	18.30	
		Unit- III	12.09	5MVA, 132/11kV TFR	0.54	
		Unit- IV	12.09	132kV Motanga - Rangia Line	36.50	
		Total	48.32	Auxiliary Consumption & Transformation Losses at Generator end	0.80%	

Note: Generation-Load Summary (MW) for May 27, 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	663.49	307.77	303.87	374.72	3.90
2	Eastern Grid	308.23	95.43	93.49	193.80	1.94
Total		971.72	403.20	397.36	568.52	5.85

Note: Generation-Load Summary for May 27, 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	1,672.72	217.57	197.98	1,363.75	19.59
2	Eastern Grid	658.14	69.52	64.99	680.02	4.53
Total		2,330.86	287.09	262.97	2,043.77	24.12

NOTE- BHP, MHPA & KHP Generation 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.

2. 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 28, 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	119.48	400kV THP - Siliguri Line - I	0.00	Unit- II on standby. 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	68.35	400kV THP - Siliguri Line- IV	135.91	
		Unit- IV	80.17	400kV THP - Malbase Line - III	207.72	
		Unit- V	79.54	400kV Malbase - Siliguri Line	122.05	
		Unit- VI	0.00	-	-	
		Total	347.54	Auxiliary Consumption & Transformation Losses at Generator end	1.13%	
2	720MW MHP	Unit-I	120.20	400kV MHP - Jigmeling Line - I	0.00	Unit- II & III 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	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	120.37	
		Unit-IV	120.51	400kV MHP - Jigmeling Line - IV	119.11	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	79.84	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	61.51	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	94.42	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	23.35	
		-	-	80MVA, 220/132kV ICT - II (HV)	23.71	
		-	-	220kV Tsirang - Jigmeling Line	-12.09	
-	-	132kV Gelephu - Salakati Line	3.79			
Total	240.71	Auxiliary Consumption & Transformation Losses at Generator end	0.51%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	26.90	Unit-I on standby
		Unit- II	67.99	220kV CHP - Birpara Line- II	26.92	
		Unit- III	63.05	220kV CHP - Malbase Line- III	55.60	
		Unit- IV	63.73	220kV CHP - Semtokha Line- IV	65.08	
		-	-	220kV Malbase - Birpara Line	1.09	
		-	-	66kV CHP - Chumdo Line	15.42	
		-	-	66kV CHP - Gedu Line	2.95	
		-	-	3x3MVA, 66/11kV TFR	0.96	
Total	194.77	Auxiliary Consumption & Transformation Losses at Generator end	0.48%			
4	24MW BHP (U/S)	Unit- I	7.30	220kV BHP - Semtokha Line	31.00	L/S Unit-I & U/S Unit-II on standby.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	22.19	
		Total	7.30	220kV BHP - Tsirang Line	-31.40	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.38	L/S Unit-I & U/S Unit-II on standby.
		Unit- II	15.00	30MVA ICT, 220/66kV (HV)	15.47	
		Total	15.00	Auxiliary Consumption & Transformation Losses at Generator end	0.58%	
6	126MW DHP	Unit-I	21.68	220kV DHP - Tsirang Line	21.45	Unit-II on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	21.79	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	21.68	Auxiliary Consumption & Transformation Losses at Generator end	0.14%			
7	60MW KHP	Unit- I	13.28	132kV KHP - Nangkhoh Line	47.54	
		Unit-II	13.29	132kV KHP - Kilikhar Line	4.64	
		Unit- III	13.27	5MVA, 132/11kV TFR	0.57	
		Unit- IV	13.28	132kV Motanga - Rangia Line	36.87	
		Total	53.12	Auxiliary Consumption & Transformation Losses at Generator end	0.70%	

Note: Generation-Load Summary (MW) for May 28, 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	586.29	285.51	280.50	312.87	5.01
2	Eastern Grid	293.83	85.15	83.55	196.59	1.60
Total		880.12	370.66	364.05	509.46	6.61

Note: Generation-Load Summary for May 28, 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	1,678.86	191.61	173.51	1,408.36	18.10
2	Eastern Grid	658.82	54.96	50.61	682.75	4.35
Total		2,337.68	246.57	224.12	2,091.11	22.45

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.
 - The clocks of all the locations are not synchronized.
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