

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	May 17, 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-I & III on standby. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	78.84	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	120.48	
		Unit- IV	79.77	400kV THP - Malbase Line - III	183.36	
		Unit- V	68.34	400kV Malbase - Siliguri Line	109.74	
		Unit- VI	80.24	-	-	
		Total	307.19	Auxiliary Consumption & Transformation Losses at Generator end	1.09%	
2	720MW MHP	Unit-I	197.47	400kV MHP - Jigmeling Line - I	0.00	Unit- III under Shutdown. 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	197.62	400kV MHP - Jigmeling Line - II	293.53	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	197.53	400kV MHP - Jigmeling Line - IV	294.47	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	110.18	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	187.51	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	282.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	28.92	
		-	-	80MVA, 220/132kV ICT - II (HV)	29.36	
		-	-	220kV Tsirang - Jigmeling Line	-46.23	
-	-	132kV Gelephu - Salakati Line	12.80			
Total	592.62	Auxiliary Consumption & Transformation Losses at Generator end	0.78%			
3	336MW CHP	Unit- I	35.21	220kV CHP - Birpara Line- I	29.32	Unit-IV on Standby.
		Unit- II	37.46	220kV CHP - Birpara Line- II	29.25	
		Unit- III	91.16	220kV CHP - Malbase Line- III	65.18	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	21.60	
		-	-	220kV Malbase - Birpara Line	-2.79	
		-	-	66kV CHP - Chumdo Line	12.40	
		-	-	66kV CHP - Gedu Line	4.25	
		-	-	3x3MVA, 66/11kV TFR	1.54	
Total	163.83	Auxiliary Consumption & Transformation Losses at Generator end	0.18%			
4	24MW BHP (U/S)	Unit- I	5.30	220kV BHP - Semtokha Line	83.40	
		Unit- II	5.00	66kV BHP - Lobeyasa Line	23.25	
		Total	10.30	220kV BHP - Tsirang Line	-56.78	
5	40MW BHP (L/S)	Unit- I	20.01	5MVA, 66/11kV TFR	0.61	
		Unit- II	19.90	30MVA ICT, 220/66kV (HV)	13.66	
		Total	39.91	Auxiliary Consumption & Transformation Losses at Generator end	-0.54%	
6	126MW DHP	Unit-I	20.52	220kV DHP - Tsirang Line	20.30	Unit-II on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	7.91	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	20.52	Auxiliary Consumption & Transformation Losses at Gen. end	0.10%			
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	41.82	
		Unit-II	16.50	132kV KHP - Kilikhar Line	22.94	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.49	
		Unit- IV	16.50	132kV Motanga - Rangia Line	39.18	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	1.14%	

Note: Generation-Load Summary (MW) for May 17, 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	541.75	301.98	298.59	286.00	3.39
2	Eastern Grid	658.62	90.90	85.53	521.49	5.37
Total		1,200.37	392.88	384.12	807.49	8.76

Note: Generation-Load Summary for May 17, 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	449.15	219.05	216.71	214.76	2.34
2	Eastern Grid	260.96	60.82	59.29	215.48	1.53
Total		710.11	279.87	276.00	430.24	3.87

NOTE- BHP, KHP and MHP 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 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	0.00	400kV THP - Siliguri Line - I	0.00	Unit-I, III & IV on standby. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	157.83	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	134.18	
		Unit- IV	0.00	400kV THP - Malbase Line - III	186.89	
		Unit- V	88.57	400kV Malbase - Siliguri Line	124.30	
		Unit- VI	80.05	-	-	
		Total	326.45	Auxiliary Consumption & Transformation Losses at Generator end	1.65%	
2	720MW MHP	Unit-I	140.19	400kV MHP - Jigmeling Line - I	0.00	Unit- III under Shutdown. 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	140.19	400kV MHP - Jigmeling Line - II	208.80	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	140.51	400kV MHP - Jigmeling Line - IV	209.29	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	69.75	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	137.24	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	206.53	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	11.06	
		-	-	80MVA, 220/132kV ICT - II (HV)	11.25	
		-	-	220kV Tsirang - Jigmeling Line	-40.36	
-	-	132kV Gelephu - Salakati Line	2.39			
Total	420.89	Auxiliary Consumption & Transformation Losses at Generator end	0.67%			
3	336MW CHP	Unit- I	82.03	220kV CHP - Birpara Line- I	21.13	Unit-III under AMP. Unit-IV on Standby.
		Unit- II	82.46	220kV CHP - Birpara Line- II	21.28	
		Unit- III	0.00	220kV CHP - Malbase Line- III	66.56	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	38.43	
		-	-	220kV Malbase - Birpara Line	-16.57	
		-	-	66kV CHP - Chumdo Line	10.75	
		-	-	66kV CHP - Gedu Line	4.37	
		-	-	3x3MVA, 66/11kV TFR	1.22	
Total	164.49	Auxiliary Consumption & Transformation Losses at Generator end	0.46%			
4	24MW BHP (U/S)	Unit- I	3.60	220kV BHP - Semtokha Line	59.70	LS Unit-I under standby.
		Unit- II	3.40	66kV BHP - Lobeyasa Line	20.01	
		Total	7.00	220kV BHP - Tsirang Line	-54.92	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.34	LS Unit-I under standby.
		Unit- II	18.00	30MVA ICT, 220/66kV (HV)	13.55	
		Total	18.00	Auxiliary Consumption & Transformation Losses at Generator end	-0.52%	
6	126MW DHP	Unit-I	23.22	220kV DHP - Tsirang Line	22.97	Unit-II on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	7.75	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	23.22	Auxiliary Consumption & Transformation Losses at Generator end	0.22%			
7	60MW KHP	Unit- I	16.46	132kV KHP - Nangkhoh Line	62.68	
		Unit-II	16.53	132kV KHP - Kilikhar Line	2.20	
		Unit- III	16.58	5MVA, 132/11kV TFR	0.56	
		Unit- IV	16.51	132kV Motanga - Rangia Line	24.62	
		Total	66.08	Auxiliary Consumption & Transformation Losses at Generator end	0.97%	

Note: Generation-Load Summary (MW) for May 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	539.16	295.20	289.15	284.32	6.05
2	Eastern Grid	486.97	75.83	72.39	370.78	3.44
Total		1,026.13	371.03	361.54	655.10	9.49

Note: Generation-Load Summary for May 18, 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	431.78	187.08	175.00	229.10	12.08
2	Eastern Grid	333.07	45.16	43.60	303.51	1.56
Total		764.85	232.24	218.60	532.61	13.64

NOTE-BHP data collected from Site.

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 - 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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