

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	68.54	400kV THP - Siliguri Line - I	0.00	Unit- III & IV on standby. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	99.47	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	127.50	
		Unit- IV	0.00	400kV THP - Malbase Line - III	204.96	
		Unit- V	89.05	400kV Malbase - Siliguri Line	113.47	
		Unit- VI	80.20	-	-	
		Total	337.26	Auxiliary Consumption & Transformation Losses at Generator end	1.42%	
2	720MW MHP	Unit-I	128.23	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	120.24	400kV MHP - Jigmeling Line - II	172.90	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	100.42	400kV MHP - Jigmeling Line - IV	173.14	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	71.04	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	108.84	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	163.47	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	13.23	
		-	-	80MVA, 220/132kV ICT - II (HV)	13.45	
		-	-	220kV Tsirang - Jigmeling Line	-35.84	
-	-	132kV Gelephu - Salakati Line	-0.42			
Total	348.89	Auxiliary Consumption & Transformation Losses at Generator end	0.82%			
3	336MW CHP	Unit- I	61.59	220kV CHP - Birpara Line- I	21.54	Unit-IV on Standby.
		Unit- II	57.01	220kV CHP - Birpara Line- II	21.49	
		Unit- III	59.33	220kV CHP - Malbase Line- III	59.42	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	55.42	
		-	-	220kV Malbase - Birpara Line	-10.42	
		-	-	66kV CHP - Chumdo Line	13.78	
		-	-	66kV CHP - Gedu Line	4.86	
		-	-	3x3MVA, 66/11kV TFR	1.25	
Total	177.93	Auxiliary Consumption & Transformation Losses at Generator end	0.10%			
4	24MW BHP (U/S)	Unit- I	6.70	220kV BHP - Semtokha Line	51.80	L/S unit-I & U/S Unit-II on standby
		Unit- II	0.00	66kV BHP - Lobeyasa Line	21.22	
		Total	6.70	220kV BHP - Tsirang Line	-51.47	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.56	L/S unit-I & U/S Unit-II on standby
		Unit- II	15.30	30MVA ICT, 220/66kV (HV)	15.26	
		Total	15.30	Auxiliary Consumption & Transformation Losses at Generator end	-0.50%	
6	126MW DHP	Unit-I	22.19	220kV DHP - Tsirang Line	21.96	Unit-II on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	7.89	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	22.19	Auxiliary Consumption & Transformation Losses at Gen. end	0.14%			
7	60MW KHP	Unit- I	16.59	132kV KHP - Nangkhoh Line	44.81	
		Unit-II	16.50	132kV KHP - Kilikhar Line	20.39	
		Unit- III	16.62	5MVA, 132/11kV TFR	0.50	
		Unit- IV	16.43	132kV Motanga - Rangia Line	31.59	
		Total	66.14	Auxiliary Consumption & Transformation Losses at Generator end	0.67%	

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	559.38	321.64	316.75	273.58	4.89
2	Eastern Grid	415.03	75.71	72.42	303.48	3.29
Total		974.41	397.35	389.17	577.06	8.18

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	511.49	215.61	210.85	273.01	4.76
2	Eastern Grid	368.61	68.08	65.62	323.04	2.46
Total		880.10	283.69	276.47	596.05	7.22

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	106.49	400kV THP - Siliguri Line - I	0.00	Unit-III & IV on standby. Unit-VI under Shutdown. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	109.09	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	125.36	
		Unit- IV	0.00	400kV THP - Malbase Line - III	176.26	
		Unit- V	88.84	400kV Malbase - Siliguri Line	116.91	
		Unit- VI	0.00	-	-	
		Total	304.42	Auxiliary Consumption & Transformation Losses at Generator end	0.92%	
2	720MW MHP	Unit-I	129.82	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	109.78	400kV MHP - Jigmeling Line - II	168.61	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	100.47	400kV MHP - Jigmeling Line - IV	168.82	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	61.55	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	108.36	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	164.03	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	6.97	
		-	-	80MVA, 220/132kV ICT - II (HV)	7.04	
		-	-	220kV Tsirang - Jigmeling Line	-40.99	
-	-	132kV Gelephu - Salakati Line	-2.66			
Total	340.07	Auxiliary Consumption & Transformation Losses at Generator end	0.78%			
3	336MW CHP	Unit- I	53.11	220kV CHP - Birpara Line- I	21.78	Unit-IV on Standby.
		Unit- II	53.80	220kV CHP - Birpara Line- II	21.81	
		Unit- III	58.81	220kV CHP - Malbase Line- III	62.59	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	43.45	
		-	-	220kV Malbase - Birpara Line	-12.42	
		-	-	66kV CHP - Chumdo Line	10.65	
		-	-	66kV CHP - Gedu Line	4.45	
		-	-	3x3MVA, 66/11kV TFR	0.95	
Total	165.72	Auxiliary Consumption & Transformation Losses at Generator end	0.02%			
4	24MW BHP (U/S)	Unit- I	6.30	220kV BHP - Semtokha Line	52.98	L/S Unit-I & U/S Unit-II on standby.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	19.54	
		Total	6.30	220kV BHP - Tsirang Line	-52.42	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.36	L/S Unit-I & U/S Unit-II on standby.
		Unit- II	14.10	30MVA ICT, 220/66kV (HV)	13.74	
		Total	14.10	Auxiliary Consumption & Transformation Losses at Generator end	-0.29%	
6	126MW DHP	Unit-I	20.21	220kV DHP - Tsirang Line	20.00	Unit-II on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	7.78	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	20.21	Auxiliary Consumption & Transformation Losses at Generator end	0.05%			
7	60MW KHP	Unit- I	16.48	132kV KHP - Nangkhoh Line	62.94	
		Unit-II	16.51	132kV KHP - Kilikhar Line	2.36	
		Unit- III	16.56	5MVA, 132/11kV TFR	0.53	
		Unit- IV	16.50	132kV Motanga - Rangia Line	25.97	
		Total	66.05	Auxiliary Consumption & Transformation Losses at Generator end	0.33%	

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	510.75	278.30	275.51	273.44	2.79
2	Eastern Grid	406.12	69.43	66.57	295.70	2.86
Total		916.87	347.73	342.08	569.14	5.65

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	451.68	212.42	205.65	224.26	6.77
2	Eastern Grid	376.47	58.25	55.24	333.22	3.01
Total		828.15	270.67	260.89	557.48	9.78

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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