

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	May 18, 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	106.45	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	126.10	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	124.97	
		Unit- IV	0.00	400kV THP - Malbase Line - III	194.58	
		Unit- V	89.21	400kV Malbase - Siliguri Line	109.82	
		Unit- VI	0.00	-	-	
		Total	321.76	Auxiliary Consumption & Transformation Losses at Generator end	0.69%	
2	720MW MHP	Unit-I	130.19	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	90.18	400kV MHP - Jigmeling Line - II	153.85	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	90.44	400kV MHP - Jigmeling Line - IV	154.23	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	93.51	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	84.41	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	126.91	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	24.03	
		-	-	80MVA, 220/132kV ICT - II (HV)	24.47	
		-	-	220kV Tsirang - Jigmeling Line	-35.99	
-	-	132kV Gelephu - Salakati Line	-0.30			
Total	310.81	Auxiliary Consumption & Transformation Losses at Generator end	0.88%			
3	336MW CHP	Unit- I	77.35	220kV CHP - Birpara Line- I	20.45	Unit-III & IV on Standby.
		Unit- II	79.53	220kV CHP - Birpara Line- II	20.59	
		Unit- III	0.00	220kV CHP - Malbase Line- III	35.96	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	61.79	
		-	-	220kV Malbase - Birpara Line	5.61	
		-	-	66kV CHP - Chumdo Line	13.32	
		-	-	66kV CHP - Gedu Line	3.18	
		-	-	3x3MVA, 66/11kV TFR	1.30	
Total	156.88	Auxiliary Consumption & Transformation Losses at Generator end	0.18%			
4	24MW BHP (U/S)	Unit- I	5.90	220kV BHP - Semtokha Line	43.80	L/S unit-I & U/S Unit-II on standby
		Unit- II	0.00	66kV BHP - Lobeyasa Line	20.30	
		Total	5.90	220kV BHP - Tsirang Line	-45.60	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.76	L/S unit-I & U/S Unit-II on standby
		Unit- II	13.30	30MVA ICT, 220/66kV (HV)	15.28	
		Total	13.30	Auxiliary Consumption & Transformation Losses at Generator end	-0.31%	
6	126MW DHP	Unit-I	19.18	220kV DHP - Tsirang Line	19.00	Unit-II on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	8.18	
		-	-	5MVA, 220/33kV TFR	0.10	
Total	19.18	Auxiliary Consumption & Transformation Losses at Gen. end	0.42%			
7	60MW KHP	Unit- I	16.53	132kV KHP - Nangkhoh Line	41.34	
		Unit-II	16.62	132kV KHP - Kilikhar Line	23.56	
		Unit- III	16.51	5MVA, 132/11kV TFR	0.54	
		Unit- IV	16.59	132kV Motanga - Rangia Line	50.15	
		Total	66.25	Auxiliary Consumption & Transformation Losses at Generator end	1.22%	

Note: Generation-Load Summary (MW) for May 18, 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	517.02	271.57	269.05	281.44	2.52
2	Eastern Grid	377.06	79.90	76.36	261.17	3.54
Total		894.08	351.47	345.41	542.61	6.06

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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	514.05	230.39	218.65	265.07	11.74
2	Eastern Grid	367.67	72.92	67.85	313.34	5.07
Total		881.72	303.31	286.50	578.41	16.81

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 19, 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	107.49	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	100.90	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	121.43	
		Unit- IV	0.00	400kV THP - Malbase Line - III	171.68	
		Unit- V	89.11	400kV Malbase - Siliguri Line	113.48	
		Unit- VI	0.00	-	-	
		Total	297.50	Auxiliary Consumption & Transformation Losses at Generator end	1.48%	
2	720MW MHP	Unit-I	130.22	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	85.20	400kV MHP - Jigmeling Line - II	149.23	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	85.35	400kV MHP - Jigmeling Line - IV	149.44	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	65.98	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	90.96	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	137.76	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	7.67	
		-	-	80MVA, 220/132kV ICT - II (HV)	7.88	
		-	-	220kV Tsirang - Jigmeling Line	-43.01	
-	-	132kV Gelephu - Salakati Line	-4.40			
Total	300.77	Auxiliary Consumption & Transformation Losses at Generator end	0.70%			
3	336MW CHP	Unit- I	82.70	220kV CHP - Birpara Line- I	20.41	Unit-III & IV on Standby.
		Unit- II	81.34	220kV CHP - Birpara Line- II	20.47	
		Unit- III	0.00	220kV CHP - Malbase Line- III	58.42	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	48.22	
		-	-	220kV Malbase - Birpara Line	-12.28	
		-	-	66kV CHP - Chumdo Line	11.12	
		-	-	66kV CHP - Gedu Line	4.02	
		-	-	3x3MVA, 66/11kV TFR	0.88	
Total	164.04	Auxiliary Consumption & Transformation Losses at Generator end	0.30%			
4	24MW BHP (U/S)	Unit- I	5.80	220kV BHP - Semtokha Line	49.36	L/S Unit-I & U/S Unit-II on standby.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	19.12	
		Total	5.80	220kV BHP - Tsirang Line	-50.43	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	13.84	L/S Unit-I & U/S Unit-II on standby.
		Unit- II	12.50	30MVA ICT, 220/66kV (HV)	0.39	
		Total	12.50	Auxiliary Consumption & Transformation Losses at Generator end	-74.26%	
6	126MW DHP	Unit-I	18.68	220kV DHP - Tsirang Line	18.49	Unit-II on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	8.11	
		-	-	5MVA, 220/33kV TFR	0.00	
Total	18.68	Auxiliary Consumption & Transformation Losses at Generator end	1.02%			
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	44.61	
		Unit-II	16.50	132kV KHP - Kilikhar Line	20.48	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.52	
		Unit- IV	16.50	132kV Motanga - Rangia Line	30.28	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	0.59%	

Note: Generation-Load Summary (MW) for May 19, 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	498.52	278.02	286.53	263.51	-8.51
2	Eastern Grid	366.77	69.16	66.67	254.60	2.49
Total		865.29	347.18	353.20	518.11	-6.02

Note: Generation-Load Summary for May 19, 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	513.22	220.07	212.52	284.68	7.55
2	Eastern Grid	435.81	52.84	47.76	391.44	5.08
Total		949.03	272.91	260.28	676.12	12.63

NOTE-BHP & all eastern 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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