

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	May 28, 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	119.29	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	68.24	400kV THP - Siliguri Line- IV	128.01	
		Unit- IV	80.57	400kV THP - Malbase Line - III	216.63	
		Unit- V	78.55	400kV Malbase - Siliguri Line	111.16	
		Unit- VI	0.00	-	-	
		Total	346.65	Auxiliary Consumption & Transformation Losses at Generator end	0.58%	
2	720MW MHP	Unit-I	90.22	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	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	90.26	400kV MHP - Jigmeling Line - III	135.60	
		Unit-IV	90.30	400kV MHP - Jigmeling Line - IV	134.74	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	109.19	
		-	-	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	-1.24			
Total	270.78	Auxiliary Consumption & Transformation Losses at Generator end	0.16%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	27.89	Unit-I on standby.
		Unit- II	60.15	220kV CHP - Birpara Line- II	28.10	
		Unit- III	63.09	220kV CHP - Malbase Line- III	44.06	
		Unit- IV	63.70	220kV CHP - Semtokha Line- IV	66.17	
		-	-	220kV Malbase - Birpara Line	10.99	
		-	-	66kV CHP - Chumdo Line	15.66	
		-	-	66kV CHP - Gedu Line	3.24	
		-	-	3x3MVA, 66/11kV TFR	1.29	
Total	186.94	Auxiliary Consumption & Transformation Losses at Generator end	0.28%			
4	24MW BHP (U/S)	Unit- I	7.30	220kV BHP - Semtokha Line	40.90	L/S Unit-I & U/S Unit-II on standby
		Unit- II	0.00	66kV BHP - Lobeyasa Line	21.11	
		Total	7.30	220kV BHP - Tsirang Line	-41.06	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.44	L/S Unit-I & U/S Unit-II on standby
		Unit- II	14.10	30MVA ICT, 220/66kV (HV)	15.90	
		Total	14.10	Auxiliary Consumption & Transformation Losses at Generator end	0.05%	
6	126MW DHP	Unit-I	20.74	220kV DHP - Tsirang Line	20.51	Unit-II on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	22.68	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	20.74	Auxiliary Consumption & Transformation Losses at Gen. end	0.14%			
7	60MW KHP	Unit- I	11.96	132kV KHP - Nangkhoh Line	28.39	
		Unit-II	11.97	132kV KHP - Kilikhar Line	18.47	
		Unit- III	11.98	5MVA, 132/11kV TFR	0.64	
		Unit- IV	12.02	132kV Motanga - Rangia Line	37.21	
		Total	47.93	Auxiliary Consumption & Transformation Losses at Generator end	0.90%	

Note: Generation-Load Summary (MW) for May 28, 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	575.73	288.58	286.00	306.15	2.58
2	Eastern Grid	318.71	109.44	108.57	190.27	0.87
Total		894.44	398.02	394.57	496.42	3.45

Note: Generation-Load Summary for May 28, 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	1,454.80	240.42	225.12	1,137.99	15.30
2	Eastern Grid	659.26	73.09	68.69	662.56	4.40
Total		2,114.06	313.51	293.81	1,800.55	19.70

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 29, 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	98.05	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	68.12	400kV THP - Siliguri Line- IV	121.63	
		Unit- IV	80.83	400kV THP - Malbase Line - III	201.17	
		Unit- V	79.01	400kV Malbase - Siliguri Line	108.02	
		Unit- VI	0.00	-	-	
		Total	326.01	Auxiliary Consumption & Transformation Losses at Generator end	0.98%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	Unit- I 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	71.34	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	71.45	400kV MHP - Jigmeling Line - III	115.45	
		Unit-IV	90.34	400kV MHP - Jigmeling Line - IV	114.75	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	84.19	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	57.46	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	87.41	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	23.62	
		-	-	80MVA, 220/132kV ICT - II (HV)	24.10	
		-	-	220kV Tsirang - Jigmeling Line	-14.88	
-	-	132kV Gelephu - Salakati Line	-1.00			
Total	233.13	Auxiliary Consumption & Transformation Losses at Generator end	1.26%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	18.95	Unit-I on standby
		Unit- II	60.12	220kV CHP - Birpara Line- II	19.00	
		Unit- III	57.39	220kV CHP - Malbase Line- III	49.67	
		Unit- IV	56.15	220kV CHP - Semtokha Line- IV	68.00	
		-	-	220kV Malbase - Birpara Line	-7.65	
		-	-	66kV CHP - Chumdo Line	14.36	
		-	-	66kV CHP - Gedu Line	2.37	
		-	-	3x3MVA, 66/11kV TFR	1.07	
Total	173.66	Auxiliary Consumption & Transformation Losses at Generator end	0.14%			
4	24MW BHP (U/S)	Unit- I	7.12	220kV BHP - Semtokha Line	34.80	L/S Unit-I & U/S Unit-II on standby.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	19.79	
		Total	7.12	220kV BHP - Tsirang Line	-34.46	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.40	L/S Unit-I & U/S Unit-II on standby.
		Unit- II	13.40	30MVA ICT, 220/66kV (HV)	13.19	
		Total	13.40	Auxiliary Consumption & Transformation Losses at Generator end	-0.05%	
6	126MW DHP	Unit-I	21.50	220kV DHP - Tsirang Line	21.30	Unit-II on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	21.87	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	21.50	Auxiliary Consumption & Transformation Losses at Generator end	0.00%			
7	60MW KHP	Unit- I	11.46	132kV KHP - Nangkhoh Line	39.57	
		Unit-II	11.47	132kV KHP - Kilikhar Line	5.49	
		Unit- III	11.47	5MVA, 132/11kV TFR	0.46	
		Unit- IV	11.42	132kV Motanga - Rangia Line	19.18	
		Total	45.82	Auxiliary Consumption & Transformation Losses at Generator end	0.65%	

Note: Generation-Load Summary (MW) for May 29, 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	541.69	296.62	293.18	259.95	3.44
2	Eastern Grid	278.95	101.02	97.79	163.05	3.23
Total		820.64	397.64	390.97	423.00	6.67

Note: Generation-Load Summary for May 29, 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	1,382.57	221.83	208.30	1,105.46	13.53
2	Eastern Grid	658.40	54.77	50.31	658.91	4.46
Total		2,040.97	276.60	258.61	1,764.37	17.99

NOTE-BHP, KHP, MHP and DHP 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.

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