

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	May 12, 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-V under annual maintenance 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	110.21	
		Unit- IV	98.32	400kV THP - Malbase Line - III	194.48	
		Unit- V	0.00	400kV Malbase - Siliguri Line	88.73	
		Unit- VI	130.46	-	-	
		Total	307.62	Auxiliary Consumption & Transformation Losses at Generator end	0.95%	
2	720MW MHP	Unit-I	130.11	400kV MHP - Jigmeling Line - I	0.00	Unit- III under Shutdown. Unit- II on Standby. 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	0.00	400kV MHP - Jigmeling Line - II	128.78	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	130.01	400kV MHP - Jigmeling Line - IV	128.67	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	105.89	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	59.65	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	88.99	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	24.94	
		-	-	80MVA, 220/132kV ICT - II (HV)	25.33	
		-	-	220kV Tsirang - Jigmeling Line	-48.21	
-	-	132kV Gelephu - Salakati Line	5.60			
Total	260.12	Auxiliary Consumption & Transformation Losses at Generator end	1.03%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	21.80	Unit-I & III on Standby.
		Unit- II	76.46	220kV CHP - Birpara Line- II	21.47	
		Unit- III	0.00	220kV CHP - Malbase Line- III	38.91	
		Unit- IV	77.43	220kV CHP - Semtokha Line- IV	51.89	
		-	-	220kV Malbase - Birpara Line	4.93	
		-	-	66kV CHP - Chumdo Line	13.43	
		-	-	66kV CHP - Gedu Line	4.64	
		-	-	3x3MVA, 66/11kV TFR	1.35	
Total	153.89	Auxiliary Consumption & Transformation Losses at Generator end	0.26%			
4	24MW BHP (U/S)	Unit- I	5.40	220kV BHP - Semtokha Line	53.70	L/S Unit-II & U/S Unit-II on Standby
		Unit- II	0.00	66kV BHP - Lobeyasa Line	20.70	
		Total	5.40	220kV BHP - Tsirang Line	-58.12	
5	40MW BHP (L/S)	Unit- I	11.50	5MVA, 66/11kV TFR	0.61	L/S Unit-II & U/S Unit-II on Standby
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	16.39	
		Total	11.50	Auxiliary Consumption & Transformation Losses at Generator end	0.06%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	19.72	Unit-I on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	19.95	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	7.66	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	19.95	Auxiliary Consumption & Transformation Losses at Gen. end	0.15%			
7	60MW KHP	Unit- I	13.97	132kV KHP - Nangkhoh Line	20.72	
		Unit-II	14.00	132kV KHP - Kilikhar Line	34.00	
		Unit- III	14.04	5MVA, 132/11kV TFR	0.65	
		Unit- IV	13.78	132kV Motanga - Rangia Line	33.64	
		Total	55.79	Auxiliary Consumption & Transformation Losses at Generator end	0.75%	

Note: Generation-Load Summary (MW) for May 12, 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	498.36	299.43	296.06	247.14	3.37
2	Eastern Grid	315.91	79.82	76.73	187.88	3.09
Total		814.27	379.25	372.79	435.02	6.46

Note: Generation-Load Summary for May 12, 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	597.00	204.89	197.42	361.98	7.47
2	Eastern Grid	445.49	63.26	61.39	412.36	1.87
Total		1,042.49	268.15	258.81	774.34	9.34

NOTE- MHP, KHP, JLG & BHP 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.

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Coincidental Maximum Load

Date:	May 13, 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-V under annual maintenance Unit-I & III on standby. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	78.49	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	103.79	
		Unit- IV	79.59	400kV THP - Malbase Line - III	161.25	
		Unit- V	0.00	400kV Malbase - Siliguri Line	93.83	
		Unit- VI	109.56	-	-	
		Total	267.64	Auxiliary Consumption & Transformation Losses at Generator end	0.97%	
2	720MW MHP	Unit-I	155.22	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	49.83	400kV MHP - Jigmeling Line - II	178.07	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	155.50	400kV MHP - Jigmeling Line - IV	179.28	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	84.13	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	108.81	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	159.62	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	-16.15	
		-	-	80MVA, 220/132kV ICT - II (HV)	-16.38	
		-	-	220kV Tsirang - Jigmeling Line	-43.33	
-	-	132kV Gelephu - Salakati Line	8.60			
Total	360.55	Auxiliary Consumption & Transformation Losses at Generator end	0.89%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	17.09	Unit-I & III on Standby.
		Unit- II	70.95	220kV CHP - Birpara Line- II	17.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	50.17	
		Unit- IV	73.11	220kV CHP - Semtokha Line- IV	42.97	
		-	-	220kV Malbase - Birpara Line	5.28	
		-	-	66kV CHP - Chumdo Line	11.24	
		-	-	66kV CHP - Gedu Line	3.86	
		-	-	3x3MVA, 66/11kV TFR	1.07	
Total	144.06	Auxiliary Consumption & Transformation Losses at Generator end	0.46%			
4	24MW BHP (U/S)	Unit- I	5.50	220kV BHP - Semtokha Line	52.50	L/S Unit-II & U/S Unit-II on Standby
		Unit- II	0.00	66kV BHP - Lobeyasa Line	18.80	
		Total	5.50	220kV BHP - Tsirang Line	-54.70	
5	40MW BHP (L/S)	Unit- I	11.00	5MVA, 66/11kV TFR	0.42	L/S Unit-II & U/S Unit-II on Standby
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	13.90	
		Total	11.00	Auxiliary Consumption & Transformation Losses at Generator end	-3.15%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	20.03	Unit-I under Annual Maintenance. 220kV DHP_Dagapela Line on Standby.
		Unit-II	20.25	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	7.90	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	20.25	Auxiliary Consumption & Transformation Losses at Generator end	0.10%			
7	60MW KHP	Unit- I	15.01	132kV KHP - Nangkhoh Line	57.11	
		Unit-II	15.00	132kV KHP - Kilikhar Line	2.03	
		Unit- III	15.04	5MVA, 132/11kV TFR	0.52	
		Unit- IV	14.96	132kV Motanga - Rangia Line	21.66	
		Total	60.01	Auxiliary Consumption & Transformation Losses at Generator end	0.58%	

Note: Generation-Load Summary (MW) for May 13, 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	448.45	254.79	252.03	236.99	2.76
2	Eastern Grid	420.56	78.54	74.99	298.69	3.55
Total		869.01	333.33	327.02	535.68	6.31

Note: Generation-Load Summary for May 13, 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	909.46	204.40	194.31	679.87	10.09
2	Eastern Grid	446.96	60.19	57.48	411.96	2.71
Total		1,356.42	264.59	251.79	1,091.83	12.80

NOTE-BHP, KHP, JLG & MHP data collected from Site.

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