

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	May 4, 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-II & V under annual maintenance & Unit-I on standby. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	148.56	400kV THP - Siliguri Line- IV	111.18	
		Unit- IV	80.96	400kV THP - Malbase Line - III	222.34	
		Unit- V	0.00	400kV Malbase - Siliguri Line	91.70	
		Unit- VI	108.13	-	-	
		Total	337.65	Auxiliary Consumption & Transformation Losses at Generator end	1.22%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	Unit- III under Shutdown & Unit- I 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	75.18	400kV MHP - Jigmeling Line - II	104.22	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	135.50	400kV MHP - Jigmeling Line - IV	104.50	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	70.35	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	54.54	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	81.69	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	37.93	
		-	-	80MVA, 220/132kV ICT - II (HV)	38.53	
		-	-	220kV Tsirang - Jigmeling Line	14.84	
-	-	132kV Gelephu - Salakati Line	5.53			
Total	210.68	Auxiliary Consumption & Transformation Losses at Generator end	0.93%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.68	Unit-I on Standby.
		Unit- II	51.95	220kV CHP - Birpara Line- II	0.86	
		Unit- III	53.79	220kV CHP - Malbase Line- III	13.14	
		Unit- IV	58.95	220kV CHP - Semtokha Line- IV	122.53	
		-	-	220kV Malbase - Birpara Line	-8.72	
		-	-	66kV CHP - Chumdo Line	20.22	
		-	-	66kV CHP - Gedu Line	2.70	
		-	-	3x3MVA, 66/11kV TFR	1.47	
Total	164.69	Auxiliary Consumption & Transformation Losses at Generator end	1.88%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	0.00	U/S Unit-I on Standby & L/S under common Shutdown.
		Unit- II	6.10	66kV BHP - Lobeyasa Line	5.65	
		Total	6.10	220kV BHP - Tsirang Line	0.00	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.40	U/S Unit-I on Standby & L/S under common Shutdown.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	0.00	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.82%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	23.75	Unit-I on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	23.97	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	8.35	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	23.97	Auxiliary Consumption & Transformation Losses at Gen. end	0.08%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	17.98	Unit-I on Standby.
		Unit-II	11.66	132kV KHP - Kilikhar Line	16.16	
		Unit- III	11.65	5MVA, 132/11kV TFR	1.46	
		Unit- IV	11.70	132kV Motanga - Rangia Line	19.52	
		Total	35.01	Auxiliary Consumption & Transformation Losses at Generator end	-1.69%	

Note: Generation-Load Summary (MW) for May 04, 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	532.41	321.87	314.58	195.70	7.29
2	Eastern Grid	245.69	99.25	97.88	161.28	1.37
Total		778.10	421.12	412.46	356.98	8.66

Note: Generation-Load Summary for May 04, 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	409.09	234.76	236.76	151.74	-2.00
2	Eastern Grid	242.91	78.05	77.03	187.45	1.02
Total		652.00	312.81	313.79	339.19	-0.98

NOTE- All 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 5, 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-III under annual maintenance & Unit-I&V on standby. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	129.11	400kV THP - Siliguri Line- IV	122.78	
		Unit- IV	80.24	400kV THP - Malbase Line - III	191.39	
		Unit- V	0.00	400kV Malbase - Siliguri Line	109.68	
		Unit- VI	108.16	-	-	
		Total	317.51	Auxiliary Consumption & Transformation Losses at Generator end	1.05%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	Unit- I & III 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	80.19	400kV MHP - Jigmeling Line - II	104.44	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	130.53	400kV MHP - Jigmeling Line - IV	104.68	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	73.17	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	53.62	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	80.78	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	23.61	
		-	-	80MVA, 220/132kV ICT - II (HV)	23.98	
		-	-	220kV Tsirang - Jigmeling Line	-17.95	
-	-	132kV Gelephu - Salakati Line	-0.46			
Total	210.72	Auxiliary Consumption & Transformation Losses at Generator end	0.76%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	19.43	Unit-III on AMP.
		Unit- II	56.39	220kV CHP - Birpara Line- II	19.51	
		Unit- III	55.54	220kV CHP - Malbase Line- III	61.47	
		Unit- IV	59.80	220kV CHP - Semtokha Line- IV	50.87	
		-	-	220kV Malbase - Birpara Line	-14.90	
		-	-	66kV CHP - Chumdo Line	14.00	
		-	-	66kV CHP - Gedu Line	3.94	
		-	-	3x3MVA, 66/11kV TFR	0.79	
Total	171.73	Auxiliary Consumption & Transformation Losses at Generator end	1.00%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	58.40	Upper Stage under common shutdown.L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyssa Line	0.00	
		Total	0.00	220kV BHP - Tsirang Line	-39.72	
5	40MW BHP (L/S)	Unit- I	18.70	5MVA, 66/11kV TFR	0.00	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	0.00	
		Total	18.70	Auxiliary Consumption & Transformation Losses at Generator end	0.11%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	30.77	Unit-I under Annual Maintenance. 220kV DHP_Dagapela Line on Standby.
		Unit-II	30.99	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	7.76	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	30.99	Auxiliary Consumption & Transformation Losses at Generator end	0.06%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	31.25	Unit-I on Standby.
		Unit-II	11.69	132kV KHP - Kilikhar Line	3.00	
		Unit- III	11.71	5MVA, 132/11kV TFR	0.40	
		Unit- IV	11.66	132kV Motanga - Rangia Line	10.90	
		Total	35.06	Auxiliary Consumption & Transformation Losses at Generator end	1.17%	

Note: Generation-Load Summary (MW) for May 05, 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	538.93	300.38	295.28	256.50	5.10
2	Eastern Grid	245.78	82.99	80.98	144.84	2.01
Total		784.71	383.37	376.26	401.34	7.11

Note: Generation-Load Summary for May 05, 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	474.46	228.38	223.51	226.55	4.87
2	Eastern Grid	240.81	57.27	56.43	203.07	0.84
Total		715.27	285.65	279.94	429.62	5.71

NOTE-All 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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