

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	December 8, 2022
Hours:	18:00 Hours

Date	Time	Load(MW)
17-Nov-22	18:39:09hrs	616.55

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-I, II & III under Shutdown. 400kV THP- Siliguri Line I & 400kV Tala-Siliguri line IV on Standby
		Unit- II	0.00	400kV THP - Siliguri Line - II	100.86	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	79.76	400kV THP - Malbase Line - III	170.43	
		Unit- V	122.55	400kV Malbase - Siliguri Line	78.80	
		Unit- VI	72.89	-	-	
		Total	275.20	Auxiliary Consumption & Transformation Losses at Generator end	1.42%	
2	720MW MHP	Unit-I	99.79	400kV MHP - Jigmeling Line - I	0.00	Unit-III & IV under shutdown. 400kV MHP-JLG Line I & II under Shutdown. 400kV MHP-JLG Line III on Standby. 132kV MHP_Yurmo Line-I not in service. 400kV JLG_ALI line- II (Direct) on Standby. 400kV JLG_ALI Line- I (Interim) on Standby.
		Unit-II	95.81	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	94.54	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	98.46	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	213.24	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-47.27	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-71.99	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	6.12	
		-	-	80MVA, 220/132kV ICT - II (HV)	6.30	
		-	-	220kV Tsirang - Jigmeling Line	-139.30	
-	-	132kV Gelephu - Salakati Line	-9.95			
Total	195.60	Auxiliary Consumption & Transformation Losses at Generator end	1.33%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I under Shutdown. Unit-II on Standby. 220kV CHP_Birpara Line I & 66kV CHP_GED Line on Standby. 220kV CHP_SEM Line under Shutdown.
		Unit- II	0.00	220kV CHP - Birpara Line- II	40.05	
		Unit- III	69.58	220kV CHP - Malbase Line- III	83.32	
		Unit- IV	68.48	220kV CHP - Semtokha Line- IV	0.00	
		-	-	220kV Malbase - Birpara Line	-1.75	
		-	-	66kV CHP - Chumdo Line	11.88	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	2.24	
Total	138.06	Auxiliary Consumption & Transformation Losses at Generator end	0.41%			
4	24MW BHP (U/S)	Unit- I	4.54	220kV BHP - Semtokha Line	159.17	
		Unit- II	4.51	66kV BHP - Lobeysa Line	30.44	
		Total	9.05	220kV BHP - Tsirang Line	-161.96	
5	40MW BHP (L/S)	Unit- I	9.42	5MVA, 66/11kV TFR	0.76	
		Unit- II	9.75	30MVA ICT, 220/66kV (HV)	21.00	
		Total	19.17	Auxiliary Consumption & Transformation Losses at Generator end	-0.67%	
6	126MW DHP	Unit-I	31.30	220kV DHP - Tsirang Line	31.03	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.99	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	31.30	Auxiliary Consumption & Transformation Losses at Gen. end	0.22%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	6.89	Unit- I under Shutdown. Unit- II on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	17.33	
		Unit- III	12.53	5MVA, 132/11kV TFR	0.59	
		Unit- IV	12.53	132kV Motanga - Rangia Line	0.13	
		Total	25.06	Auxiliary Consumption & Transformation Losses at Generator end	1.00%	

Note: Generation-Load Summary (MW) for December 08, 2022 at 18:00hrs.

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	472.78	394.12	389.76	217.96	4.36
2	Eastern Grid	220.66	210.44	207.59	-129.08	2.85
Total		693.44	604.56	597.35	88.88	7.21

Note: Generation-Load Summary for December 08, 2021 at 18:00hrs.

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	528.14	362.18	357.51	182.85	4.67
2	Eastern Grid	192.91	87.73	85.33	88.29	2.40
Total		721.05	449.91	442.84	271.14	7.07

Note:-

- 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:	December 9, 2022
Hours:	09:00 Hours

Date	Time	Load(MW)
17-Nov-22	18:39:09hrs	616.55

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-I, II & III under Shutdown. 400kV THP- Siliguri Line I & 400kV Tala-Siliguri line IV on Standby
		Unit- II	0.00	400kV THP - Siliguri Line - II	109.52	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	74.23	400kV THP - Malbase Line - III	171.12	
		Unit- V	137.70	400kV Malbase - Siliguri Line	88.20	
		Unit- VI	70.60	-	-	
		Total	282.53	Auxiliary Consumption & Transformation Losses at Generator end	0.67%	
2	720MW MHP	Unit-I	93.87	400kV MHP - Jigmeling Line - I	0.00	Unit-III & IV under shutdown. 400kV MHP-JLG Line I & II under Shutdown. 400kV MHP-JLG Line III on Standby. 132kV MHP_Yurmo Line-I not in service. 400kV JLG_ALI line- II (Direct) on Standby. 400kV JLG_ALI Line- I (Interim) on Standby.
		Unit-II	93.85	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	100.87	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	85.07	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	176.80	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-31.27	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-46.29	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	3.50	
		-	-	80MVA, 220/132kV ICT - II (HV)	3.61	
		-	-	220kV Tsirang - Jigmeling Line	-110.80	
-	-	132kV Gelephu - Salakati Line	-9.59			
Total	187.72	Auxiliary Consumption & Transformation Losses at Generator end	0.95%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I under Shutdown. Unit-II on Standby. 220kV CHP_Birpara Line I & 66kV CHP_GED Line on Standby. 220kV CHP_SEM line under Shutdown.
		Unit- II	0.00	220kV CHP - Birpara Line- II	41.45	
		Unit- III	71.79	220kV CHP - Malbase Line- III	85.36	
		Unit- IV	67.47	220kV CHP - Semtokha Line- IV	0.00	
		-	-	220kV Malbase - Birpara Line	-0.96	
		-	-	66kV CHP - Chumdo Line	10.26	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	1.62	
Total	139.26	Auxiliary Consumption & Transformation Losses at Generator end	0.41%			
4	24MW BHP (U/S)	Unit- I	4.70	220kV BHP - Semtokha Line	136.30	
		Unit- II	4.50	66kV BHP - Lobeyasa Line	26.88	
		Total	9.20	220kV BHP - Tsirang Line	-135.42	
5	40MW BHP (L/S)	Unit- I	9.30	5MVA, 66/11kV TFR	0.49	
		Unit- II	9.20	30MVA ICT, 220/66kV (HV)	18.38	
		Total	18.50	Auxiliary Consumption & Transformation Losses at Generator end	-1.99%	
6	126MW DHP	Unit-I	31.31	220kV DHP - Tsirang Line	31.14	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.82	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	31.31	Auxiliary Consumption & Transformation Losses at Generator end	-0.10%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	13.13	Unit-I under Shutdown. Unit-II on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	14.00	
		Unit- III	13.96	5MVA, 132/11kV TFR	0.60	
		Unit- IV	14.05	132kV Motanga - Rangia Line	1.31	
		Total	28.01	Auxiliary Consumption & Transformation Losses at Generator end	1.00%	

Note: Generation-Load Summary (MW) for December 09, 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	480.80	353.39	351.51	238.21	1.88
2	Eastern Grid	215.73	190.77	188.71	-85.84	2.06
Total		696.53	544.16	540.22	152.37	3.94

Note: Generation-Load Summary for December 09, 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	527.41	351.51	348.12	183.31	3.39
2	Eastern Grid	193.43	88.06	86.07	97.96	1.99
Total		720.84	439.57	434.19	281.27	5.38

Note:-

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.
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