

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	December 5, 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 Tala-Malbase line under Shutdown. 400kV THP - Siliguri Line - I on Standby.
		Unit- II	0.00	400kV THP - Siliguri Line - II	112.28	
		Unit- III	0.00	400kV THP - Siliguri Line - IV	0.00	
		Unit- IV	128.08	400kV THP - Malbase Line - III	198.72	
		Unit- V	117.06	400kV Malbase - Siliguri Line	84.65	
		Unit- VI	70.48	-	-	
		Total	315.62	Auxiliary Consumption & Transformation Losses at Generator end	1.46%	
2	720MW MHP	Unit-I	84.87	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	119.87	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	109.42	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	93.18	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	103.57	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	1.45	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	3.64	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	13.51	
		-	-	80MVA, 220/132kV ICT - II (HV)	13.90	
		-	-	220kV Tsirang - Jigmeling Line	-27.70	
-	-	132kV Gelephu - Salakati Line	1.89			
Total	204.74	Auxiliary Consumption & Transformation Losses at Generator end	1.05%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	1.41	Unit-I & IV under Shutdown. 220kV CHP_Birpara Line I & 66kV CHP_GED Line on Standby
		Unit- II	70.68	220kV CHP - Birpara Line- II	1.87	
		Unit- III	82.86	220kV CHP - Malbase Line- III	28.68	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	92.84	
		-	-	220kV Malbase - Birpara Line	-19.43	
		-	-	66kV CHP - Chumdo Line	26.51	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	2.08	
Total	153.54	Auxiliary Consumption & Transformation Losses at Generator end	0.10%			
4	24MW BHP (U/S)	Unit- I	4.66	220kV BHP - Semtokha Line	56.32	
		Unit- II	4.66	66kV BHP - Lobeyasa Line	28.09	
		Total	9.32	220kV BHP - Tsirang Line	-56.38	
5	40MW BHP (L/S)	Unit- I	8.60	5MVA, 66/11kV TFR	0.80	
		Unit- II	10.40	30MVA ICT, 220/66kV (HV)	19.55	
		Total	19.00	Auxiliary Consumption & Transformation Losses at Generator end	-1.80%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	32.53	Unit-I on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	32.80	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	47.67	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	32.80	Auxiliary Consumption & Transformation Losses at Gen. end	0.21%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Line	10.55	Unit- I under Shutdown. Unit- II on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	18.48	
		Unit- III	15.07	5MVA, 132/11kV TFR	0.85	
		Unit- IV	15.05	132kV Motanga - Rangia Line	0.00	
		Total	30.12	Auxiliary Consumption & Transformation Losses at Generator end	0.80%	

Note: Generation-Load Summary (MW) for December 05, 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	530.28	377.20	372.87	180.78	4.33
2	Eastern Grid	234.86	200.18	197.80	6.98	2.38
Total		765.14	577.38	570.67	187.76	6.71

Note: Generation-Load Summary for December 05, 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	562.98	362.53	356.32	213.43	6.21
2	Eastern Grid	202.24	93.28	91.39	95.98	1.89
Total		765.22	455.81	447.71	309.41	8.10

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.

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	December 6, 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	114.40	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	122.79	400kV THP - Malbase Line - III	192.37	
		Unit- V	117.29	400kV Malbase - Siliguri Line	87.48	
		Unit- VI	70.45	-	-	
		Total	310.53	Auxiliary Consumption & Transformation Losses at Generator end	1.21%	
2	720MW MHP	Unit-I	104.81	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	84.75	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	105.77	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	82.51	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	97.71	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	2.91	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	4.99	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	8.74	
		-	-	80MVA, 220/132kV ICT - II (HV)	8.96	
		-	-	220kV Tsirang - Jigmeling Line	-17.28	
-	-	132kV Gelephu - Salakati Line	-0.76			
Total	189.56	Auxiliary Consumption & Transformation Losses at Generator end	0.68%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I under Shutdown. 220kV CHP_Birpara Line I & 66kV CHP_GED Line on Standby.
		Unit- II	75.04	220kV CHP - Birpara Line- II	3.57	
		Unit- III	74.51	220kV CHP - Malbase Line- III	41.76	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	80.88	
		-	-	220kV Malbase - Birpara Line	-26.58	
		-	-	66kV CHP - Chumdo Line	22.15	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	1.29	
Total	149.55	Auxiliary Consumption & Transformation Losses at Generator end	-0.07%			
4	24MW BHP (U/S)	Unit- I	4.62	220kV BHP - Semtokha Line	51.74	
		Unit- II	4.62	66kV BHP - Lobeyasa Line	24.65	
		Total	9.24	220kV BHP - Tsirang Line	-47.40	
5	40MW BHP (L/S)	Unit- I	9.55	5MVA, 66/11kV TFR	0.50	
		Unit- II	10.24	30MVA ICT, 220/66kV (HV)		
		Total	19.79	Auxiliary Consumption & Transformation Losses at Generator end	-1.58%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	32.16	Unit-I on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	32.42	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.64	
		-	-	5MVA, 220/33kV TFR		
Total	32.42	Auxiliary Consumption & Transformation Losses at Generator end	0.80%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	11.00	Unit-I under Shutdown. Unit-III on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	13.28	
		Unit- III	12.56	5MVA, 132/11kV TFR	0.58	
		Unit- IV	12.51	132kV Motanga - Rangia Line	-4.00	
		Total	25.07	Auxiliary Consumption & Transformation Losses at Generator end	0.84%	

Note: Generation-Load Summary (MW) for December 06, 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	521.53	359.94	356.48	178.87	3.46
2	Eastern Grid	214.63	194.21	192.72	3.14	1.49
Total		736.16	554.15	549.20	182.01	4.95

Note: Generation-Load Summary for December 06, 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	550.08	349.10	343.97	203.25	5.13
2	Eastern Grid	204.19	74.98	73.18	126.94	1.80
Total		754.27	424.08	417.15	330.19	6.94

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.