BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	November 7, 2022
Hours:	18:00 Hours

Date	Time	Load(MW)
7-Nov-22	18:11hrs	609.06

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	279.99	Unit-I under Shutdown. Unit-IV on Standby. 400kV Tala-Malbase line under Shutdown. 400kV THP- Siliguri Line- II on Standby.
		Unit- II	139.21	400kV THP - Siliguri Line - II	0.00	
		Unit- III	137.77	400kV THP - Siliguri Line- IV	271.31	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	138.80	400kV Malbase - Siliguri Line	-71.49	
		Unit- VI	139.39	-	-	
		Total	**555.17**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.70%**	
2	720MW MHP	Unit-I	114.78	400kV MHP - Jigmeling Line - I	0.00	Unit-IV on standby. Unit-III under shutdown. 400kV MHP-JLG Line I under shutdown. 400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmoo line I not in service. 400kV JLG_ALI Direct line II Standby. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	114.72	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	136.64	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	91.27	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	99.46	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	14.54	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	21.95	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	14.59	
		-	-	80MVA, 220/132kV ICT - II (HV)	14.90	
		-	-	220kV Tsirang - Jigmeling Line	-7.18	
		-	-	132kV Gelephu - Salakati Line	7.42	
		Total	**229.50**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.69%**	
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	11.75	Unit-I on Shutdown.
		Unit- II	77.27	220kV CHP - Birpara Line- II	11.73	
		Unit- III	80.33	220kV CHP - Malbase Line- III	67.48	
		Unit- IV	53.45	220kV CHP - Semtokha Line- IV	81.83	
		-	-	220kV Malbase - Birpara Line	-31.61	
		-	-	66kV CHP - Chumdo Line	22.56	
		-	-	66kV CHP - Gedu Line	5.68	
		-	-	3x3MVA, 66/11kV TFR	1.77	
		Total	**211.05**	**Auxiliary Consumption & Transformation Losses at Generator end**	**3.91%**	
4	24MW BHP (U/S)	Unit- I	7.20	220kV BHP - Semtokha Line	61.98	
		Unit- II	6.90	66kV BHP - Lobeysa Line	28.82	
		Total	**14.10**	220kV BHP - Tsirang Line	-49.34	
5	40MW BHP (L/S)	Unit- I	13.60	5MVA, 66/11kV TFR	0.74	
		Unit- II	14.70	30MVA ICT, 220/66kV (HV)	16.00	
		Total	**28.30**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.47%**	
6	126MW DHP	Unit-I	46.83	220kV DHP - Tsirang Line	46.58	Unit-II on Standby 220kV DHP-Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.96	
		-	-	5MVA, 220/33kV TFR	0.20	
		Total	**46.83**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.11%**	
7	60MW KHP	Unit- I	14.49	132kV KHP - Nangkhor Line	19.01	Unit-IV on Standby.
		Unit-II	14.45	132kV KHP - Kilikhar Line	23.37	
		Unit- III	14.45	5MVA, 132/11kV TFR	0.57	
		Unit- IV	0.00	132kV Motanga - Rangia Line	20.89	
		Total	**43.39**	**Auxiliary Consumption & Transformation Losses at Generator end**	**1.01%**	

Note: Generation-Load Summary (MW) for November 07, 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	855.45	390.95	378.58	471.68	12.37
2	Eastern Grid	272.89	200.91	198.88	64.80	2.03
Total		**1,128.34**	**591.86**	**577.46**	**536.48**	**14.40**

Note: Generation-Load Summary for November 07, 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	894.99	350.21	349.19	524.34	1.02
2	Eastern Grid	282.70	79.65	77.53	223.49	2.12
Total		**1,177.69**	**429.86**	**426.72**	**747.83**	**3.14**

NOTE-Both WDC & EDC 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.

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	November 8, 2022
Hours:	09:00 Hours

Date	Time	Load(MW)
7-Nov-22	18:11hrs	609.06

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	203.84	Unit-I & 400kV Tala-Malbase line under Shutdown. Unit-IV on Standby. 400kV THP- Siliguri Line- II on Standby.
		Unit- II	70.12	400kV THP - Siliguri Line - II	0.00	
		Unit- III	98.84	400kV THP - Siliguri Line- IV	198.28	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	97.57	400kV Malbase - Siliguri Line	-51.53	
		Unit- VI	140.19	-	-	
		Total	**406.72**	**Auxiliary Consumption & Transformation Losses at Generator end**	**1.13%**	
2	720MW MHP	Unit-I	120.17	400kV MHP - Jigmeling Line - I	0.00	Unit-IV on standby. Unit-III under shutdown. 400kV MHP-JLG Line I, II & IV on Standby. 132kV MHP_Yurmoo line I not in service. 400kV JLG_ALI Direct line II Standby. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	115.17	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	158.10	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	75.88	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	76.90	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	30.60	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	47.70	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	8.20	
		-	-	80MVA, 220/132kV ICT - II (HV)	8.40	
		-	-	220kV Tsirang - Jigmeling Line	0.02	
		-	-	132kV Gelephu - Salakati Line	4.72	
		Total	**235.34**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.58%**	
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	15.75	Unit-I under shutdown.
		Unit- II	77.27	220kV CHP - Birpara Line- II	15.65	
		Unit- III	80.33	220kV CHP - Malbase Line- III	84.32	
		Unit- IV	53.45	220kV CHP - Semtokha Line- IV	64.17	
		-	-	220kV Malbase - Birpara Line	-38.90	
		-	-	66kV CHP - Chumdo Line	17.00	
		-	-	66kV CHP - Gedu Line	6.80	
		-	-	3x3MVA, 66/11kV TFR	1.90	
		Total	**211.05**	**Auxiliary Consumption & Transformation Losses at Generator end**	**2.59%**	
4	24MW BHP (U/S)	Unit- I	7.10	220kV BHP - Semtokha Line	59.10	
		Unit- II	6.80	66kV BHP - Lobeysa Line	25.14	
		Total	**13.90**	220kV BHP - Tsirang Line	-42.62	
5	40MW BHP (L/S)	Unit- I	13.60	5MVA, 66/11kV TFR	0.40	
		Unit- II	13.90	30MVA ICT, 220/66kV (HV)	11.98	
		Total	**27.50**	**Auxiliary Consumption & Transformation Losses at Generator end**	**-1.50%**	
6	126MW DHP	Unit-I	45.86	220kV DHP - Tsirang Line	45.53	Unit-I on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.70	
		-	-	5MVA, 220/33kV TFR	0.20	
		Total	**45.86**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.28%**	
7	60MW KHP	Unit- I	14.10	132kV KHP - Nangkhor Line	23.41	Unit-IV on Shutdown.
		Unit-II	14.06	132kV KHP - Kilikhar Line	17.91	
		Unit- III	14.08	5MVA, 132/11kV TFR	0.40	
		Unit- IV	0.00	132kV Motanga - Rangia Line	19.28	
		Total	**42.24**	**Auxiliary Consumption & Transformation Losses at Generator end**	**1.23%**	

Note: Generation-Load Summary (MW) for November 08, 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	705.03	361.92	352.35	343.09	9.57
2	Eastern Grid	277.58	175.30	173.42	102.30	1.88
Total		**982.61**	**537.22**	**525.77**	**445.39**	**11.45**

Note: Generation-Load Summary for November 08, 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	946.45	324.44	332.71	590.93	-8.27
2	Eastern Grid	287.72	68.17	67.80	250.63	0.37
Total		**1,234.17**	**392.61**	**400.51**	**841.56**	**-7.90**

NOTE-Motanga 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.