BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	October 28, 2022
Hours:	18:00 Hours

Date	Time	Load(MW)
24-Oct-22	18:10hrs	578.88

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	153.51	Unit-I under Shutdown. Unit-IV & 400kV Tala-Sili II on standby.
		Unit- II	148.49	400kV THP - Siliguri Line - II	0.00	
		Unit- III	88.42	400kV THP - Siliguri Line- IV	145.83	
		Unit- IV	0.00	400kV THP - Malbase Line - III	230.93	
		Unit- V	146.10	400kV Malbase - Siliguri Line	129.58	
		Unit- VI	149.84	-	-	
		Total	**532.85**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.48%**	
2	720MW MHP	Unit-I	120.26	400kV MHP - Jigmeling Line - I	131.68	Unit-III 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	109.74	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	132.67	
		Unit-IV	120.44	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	84.49	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	69.13	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	76.49	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	115.56	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	13.87	
		-	-	80MVA, 220/132kV ICT - II (HV)	14.18	
		-	-	220kV Tsirang - Jigmeling Line	20.78	
		-	-	132kV Gelephu - Salakati Line	8.35	
		Total	**350.44**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.46%**	
3	336MW CHP	Unit- I	91.91	220kV CHP - Birpara Line- I	41.56	Unit-II under shutdown. 66kV CHP-Chumdo Line under Shutdown.
		Unit- II	0.00	220kV CHP - Birpara Line- II	41.41	
		Unit- III	91.08	220kV CHP - Malbase Line- III	65.07	
		Unit- IV	74.78	220kV CHP - Semtokha Line- IV	95.65	
		-	-	220kV Malbase - Birpara Line	18.69	
		-	-	66kV CHP - Chumdo Line	0.00	
		-	-	66kV CHP - Gedu Line	12.05	
		-	-	3x3MVA, 66/11kV TFR	1.71	
		Total	**257.77**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.12%**	
4	24MW BHP (U/S)	Unit- I	8.13	220kV BHP - Semtokha Line	51.80	
		Unit- II	8.13	66kV BHP - Lobeysa Line	28.34	
		Total	**16.26**	220kV BHP - Tsirang Line	-32.88	
5	40MW BHP (L/S)	Unit- I	15.90	5MVA, 66/11kV TFR	0.68	
		Unit- II	15.25	30MVA ICT, 220/66kV (HV)	12.90	
		Total	**31.15**	**Auxiliary Consumption & Transformation Losses at Generator end**	**-1.12%**	
6	126MW DHP	Unit-I	57.38	220kV DHP - Tsirang Line	57.08	Unit-II on standby 220kV DHP-Dagapela Line on standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.81	
		-	-	5MVA, 220/33kV TFR	0.20	
		Total	**57.38**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.17%**	
7	60MW KHP	Unit- I	15.07	132kV KHP - Nangkhor Line	32.72	
		Unit-II	15.13	132kV KHP - Kilikhar Line	26.50	
		Unit- III	15.14	5MVA, 132/11kV TFR	0.70	
		Unit- IV	15.07	132kV Motanga - Rangia Line	27.86	
		Total	**60.41**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.81%**	

Note: Generation-Load Summary (MW) for October 28, 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	895.41	344.05	341.58	530.58	2.47
2	Eastern Grid	410.85	203.37	201.28	228.26	2.09
Total		**1,306.26**	**547.42**	**542.86**	**758.84**	**4.56**

Note: Generation-Load Summary for October 28, 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	1,380.85	327.17	320.53	987.04	6.64
2	Eastern Grid	371.95	74.31	71.61	364.28	2.70
Total		**1,752.80**	**401.48**	**392.14**	**1,351.32**	**9.34**

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.

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	October 29, 2022
Hours:	09:00 Hours

Date	Time	Load(MW)
24-Oct-22	18:10hrs	578.88

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	153.67	Unit-I under Shutdown. Unit-IV & 400kV Tala-Sil II under standby.
		Unit- II	148.15	400kV THP - Siliguri Line - II	0.00	
		Unit- III	89.27	400kV THP - Siliguri Line- IV	147.63	
		Unit- IV	0.00	400kV THP - Malbase Line - III	209.10	
		Unit- V	128.35	400kV Malbase - Siliguri Line	133.84	
		Unit- VI	149.50	-	-	
		Total	**515.27**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.95%**	
2	720MW MHP	Unit-I	110.15	400kV MHP - Jigmeling Line - I	127.30	Unit-III 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	109.82	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	128.40	
		Unit-IV	110.10	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	72.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	53.50	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	79.09	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	120.19	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	7.60	
		-	-	80MVA, 220/132kV ICT - II (HV)	7.70	
		-	-	220kV Tsirang - Jigmeling Line	22.80	
		-	-	132kV Gelephu - Salakati Line	1.23	
		Total	**330.07**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.72%**	
3	336MW CHP	Unit- I	92.47	220kV CHP - Birpara Line- I	39.01	Unit-III under shutdown. 66kV CHP-Chumdo Line under Shutdown
		Unit- II	91.37	220kV CHP - Birpara Line- II	38.74	
		Unit- III	0.00	220kV CHP - Malbase Line- III	88.60	
		Unit- IV	73.94	220kV CHP - Semtokha Line- IV	79.18	
		-	-	220kV Malbase - Birpara Line	-4.39	
		-	-	66kV CHP - Chumdo Line	0.00	
		-	-	66kV CHP - Gedu Line	10.78	
		-	-	3x3MVA, 66/11kV TFR	1.10	
		Total	**257.78**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.14%**	
4	24MW BHP (U/S)	Unit- I	8.02	220kV BHP - Semtokha Line	51.60	
		Unit- II	8.02	66kV BHP - Lobeysa Line	25.30	
		Total	**16.04**	220kV BHP - Tsirang Line	-30.90	
5	40MW BHP (L/S)	Unit- I	15.13	5MVA, 66/11kV TFR	0.40	
		Unit- II	14.91	30MVA ICT, 220/66kV (HV)	9.60	
		Total	**30.04**	**Auxiliary Consumption & Transformation Losses at Generator end**	**-0.69%**	
6	126MW DHP	Unit-I	56.61	220kV DHP - Tsirang Line	56.37	Unit-II under standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.00	
		-	-	5MVA, 220/33kV TFR	0.23	
		Total	**56.61**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.02%**	
7	60MW KHP	Unit- I	14.48	132kV KHP - Nangkhor Line	35.59	
		Unit-II	14.55	132kV KHP - Kilikhar Line	21.57	
		Unit- III	14.47	5MVA, 132/11kV TFR	0.50	
		Unit- IV	14.57	132kV Motanga - Rangia Line	25.52	
		Total	**58.07**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.71%**	

Note: Generation-Load Summary (MW) for October 29, 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	875.74	344.44	339.51	508.50	4.93
2	Eastern Grid	388.14	184.91	182.13	226.03	2.78
Total		**1,263.88**	**529.35**	**521.64**	**734.53**	**7.71**

Note: Generation-Load Summary for October 29, 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	1,210.65	319.25	313.20	815.90	6.05
2	Eastern Grid	360.17	67.11	64.57	368.56	2.54
Total		**1,570.82**	**386.36**	**377.77**	**1,184.46**	**8.59**

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.
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