BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Date:	July 30, 2022
Hours:	19:00 Hours

Coincidental Maximum Load

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	184.44	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I under breakdown.
		Unit- II	185.48	400kV THP - Siliguri Line - II	348.00	
		Unit- III	185.33	400kV THP - Siliguri Line- IV	333.07	
		Unit- IV	185.57	400kV THP - Malbase Line - III	422.60	
		Unit- V	185.55	400kV Malbase - Siliguri Line	309.36	
		Unit- VI	185.85	-	-	
		Total	**1,112.22**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.77%**	
2	720MW MHP	Unit-I	197.97	400kV MHP - Jigmeling Line - I	294.00	Unit III under shutdown. 400kV MHP-JLG line II & 400kV MHP-JLG Line IV on Standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II(Interim) on standby. 132kV Gel-Salakati line under shutdown
		Unit-II	197.95	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.93	
		Unit-IV	197.91	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	5.99	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	144.48	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	215.45	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	216.57	
		-	-	80MVA, 220/132kV ICT - I (HV)	30.32	
		-	-	80MVA, 220/132kV ICT - II (HV)	30.80	
		-	-	220kV Tsirang - Jigmeling Line	-17.05	
		-	-	132kV Gelephu - Salakati Line	0.00	
		Total	**593.83**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.66%**	
3	336MW CHP	Unit- I	91.74	220kV CHP - Birpara Line- I	64.06	Unit IV under Shutdown.
		Unit- II	91.22	220kV CHP - Birpara Line- II	63.82	
		Unit- III	91.45	220kV CHP - Malbase Line- III	80.29	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	43.72	
		-	-	220kV Malbase - Birpara Line	43.67	
		-	-	66kV CHP - Chumdo Line	14.49	
		-	-	66kV CHP - Gedu Line	4.42	
		-	-	3x3MVA, 66/11kV TFR	1.65	
		Total	**274.41**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.71%**	
4	24MW BHP (U/S)	Unit- I	20.42	220kV BHP - Semtokha Line	54.56	
		Unit- II	20.98	66kV BHP - Lobeysa Line	25.30	
		Total	**41.40**	220kV BHP - Tsirang Line	-14.88	
5	40MW BHP (L/S)	Unit- I	11.91	5MVA, 66/11kV TFR	0.57	
		Unit- II	11.91	30MVA ICT, 220/66kV (HV)	2.30	
		Total	**23.82**	**Auxiliary Consumption & Transformation Losses at Generator end**	**-0.51%**	
6	126MW DHP	Unit-I	59.40	220kV DHP - Tsirang Line	0.00	220kV DHP_Tsirang Line on Standby.
		Unit-II	59.04	220kV DHP - Dagapela Line	117.89	
		-		220kV Jigmeling - Dagapela Line	-73.05	
		-	-	5MVA, 220/33kV TFR	0.70	
		Total	**118.44**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**-0.13%**	
7	60MW KHP	Unit- I	16.52	132kV KHP - Nangkhor Line	39.68	
		Unit-II	16.57	132kV KHP - Kilikhar Line	25.24	
		Unit- III	16.52	5MVA, 132/11kV TFR	0.80	
		Unit- IV	16.56	132kV Motanga - Rangia Line	26.65	
		Total	**66.17**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.68%**	

Note: Generation-Load Summary (MW) for July 30, 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	1,570.29	352.31	342.28	1,161.98	10.03
2	Eastern Grid	660.00	112.85	108.50	603.15	4.35
Total		**2,230.29**	**465.16**	**450.78**	**1,765.13**	**14.38**

Note: Generation-Load Summary for July 30, 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	1,563.37	294.54	284.72	1,163.36	9.82
2	Eastern Grid	659.48	72.94	69.17	692.01	3.77
Total		**2,222.85**	**367.48**	**353.89**	**1,855.37**	**13.59**

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.
   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

Date:	July 31, 2022
Hours:	09:00 Hours

Coincidental Maximum Load

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	185.18	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I under breakdown.
		Unit- II	185.21	400kV THP - Siliguri Line - II	354.15	
		Unit- III	185.79	400kV THP - Siliguri Line- IV	338.97	
		Unit- IV	184.62	400kV THP - Malbase Line - III	409.76	
		Unit- V	184.50	400kV Malbase - Siliguri Line	319.59	
		Unit- VI	186.00	-	-	
		Total	**1,111.30**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.76%**	
2	720MW MHP	Unit-I	197.85	400kV MHP - Jigmeling Line - I	294.23	Unit III under shutdown. 400kV MHP-JLG line II & 400kV MHP-JLG Line IV on Standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II(Interim) on standby. .
		Unit-II	197.88	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.96	
		Unit-IV	197.97	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	-5.54	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	147.89	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	219.38	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	220.34	
		-	-	80MVA, 220/132kV ICT - I (HV)	26.38	
		-	-	80MVA, 220/132kV ICT - II (HV)	26.84	
		-	-	220kV Tsirang - Jigmeling Line	-12.23	
		-	-	132kV Gelephu - Salakati Line	8.54	
		Total	**593.70**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.59%**	
3	336MW CHP	Unit- I	91.74	220kV CHP - Birpara Line- I	62.12	Unit IV under Shutdown.
		Unit- II	91.22	220kV CHP - Birpara Line- II	62.17	
		Unit- III	91.45	220kV CHP - Malbase Line- III	88.21	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	42.52	
		-	-	220kV Malbase - Birpara Line	33.89	
		-	-	66kV CHP - Chumdo Line	12.84	
		-	-	66kV CHP - Gedu Line	4.23	
		-	-	3x3MVA, 66/11kV TFR	1.13	
		Total	**274.41**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.43%**	
4	24MW BHP (U/S)	Unit- I	12.40	220kV BHP - Semtokha Line	50.90	
		Unit- II	12.20	66kV BHP - Lobeysa Line	24.40	
		Total	**24.60**	220kV BHP - Tsirang Line	-10.12	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.50	
		Unit- II	21.20	30MVA ICT, 220/66kV (HV)	0.98	
		Total	**41.70**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.94%**	
6	126MW DHP	Unit-I	60.40	220kV DHP - Tsirang Line	0.00	220kV DHP_TSI Line on Standby.
		Unit-II	59.89	220kV DHP - Dagapela Line	119.73	
		-	-	220kV Jigmeling - Dagapela Line	-71.28	
		-	-	5MVA, 220/33kV TFR	0.20	
		Total	**120.29**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.30%**	
7	60MW KHP	Unit- I	16.56	132kV KHP - Nangkhor Line	42.43	
		Unit-II	16.52	132kV KHP - Kilikhar Line	22.53	
		Unit- III	16.52	5MVA, 132/11kV TFR	0.40	
		Unit- IV	16.55	132kV Motanga - Rangia Line	20.78	
		Total	**66.15**	**Auxiliary Consumption & Transformation Losses at Generator end**	**1.19%**	

Note: Generation-Load Summary (MW) for July 31, 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	1,572.30	342.36	331.77	1,170.89	10.59
2	Eastern Grid	659.85	101.97	97.67	616.93	4.30
Total		**2,232.15**	**444.33**	**429.44**	**1,787.82**	**14.89**

Note: Generation-Load Summary for July 31, 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	1,558.82	277.27	271.19	1,181.52	6.08
2	Eastern Grid	659.14	67.87	64.14	691.30	3.73
Total		**2,217.96**	**345.14**	**335.33**	**1,872.82**	**9.81**

NOTE: Eastern Datas 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.
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