BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	July 13, 2022
Hours:	19:00 Hours

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	87.51	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	138.47	400kV THP - Siliguri Line - II	0.00	
		Unit- III	184.66	400kV THP - Siliguri Line- IV	435.85	
		Unit- IV	90.98	400kV THP - Malbase Line - III	429.07	
		Unit- V	183.83	400kV Malbase - Siliguri Line	431.23	
		Unit- VI	185.58	-	-	
		Total	**871.03**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.70%**	
2	720MW MHP	Unit-I	165.22	400kV MHP - Jigmeling Line - I	248.08	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 I (Interim) on standby. .
		Unit-II	165.18	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	249.70	
		Unit-IV	170.72	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)	77.49	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	103.26	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	155.00	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	156.62	
		-	-	80MVA, 220/132kV ICT - I (HV)	33.58	
		-	-	80MVA, 220/132kV ICT - II (HV)	34.33	
		-	-	220kV Tsirang - Jigmeling Line	28.32	
		-	-	132kV Gelephu - Salakati Line	6.19	
		Total	**501.12**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.67%**	
3	336MW CHP	Unit- I	91.81	220kV CHP - Birpara Line- I	45.77	Unit IV under Shutdown.
		Unit- II	91.11	220kV CHP - Birpara Line- II	45.67	
		Unit- III	91.76	220kV CHP - Malbase Line- III	109.42	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	52.00	
		-	-	220kV Malbase - Birpara Line	-8.74	
		-	-	66kV CHP - Chumdo Line	13.25	
		-	-	66kV CHP - Gedu Line	5.02	
		-	-	3x3MVA, 66/11kV TFR	1.10	
		Total	**274.68**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.89%**	
4	24MW BHP (U/S)	Unit- I	8.15	220kV BHP - Semtokha Line	44.61	
		Unit- II	8.15	66kV BHP - Lobeysa Line	22.91	
		Total	**16.30**	220kV BHP - Tsirang Line	-19.33	
5	40MW BHP (L/S)	Unit- I	16.10	5MVA, 66/11kV TFR	0.50	
		Unit- II	16.00	30MVA ICT, 220/66kV (HV)	7.10	
		Total	**32.10**	**Auxiliary Consumption & Transformation Losses at Generator end**	**-0.60%**	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	50.73	DHP unit I on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	51.00	220kV DHP - Dagapela Line	0.00	
		-		220kV Jigmeling - Dagapela Line	37.37	
		-	-	5MVA, 220/33kV TFR	0.20	
		Total	**51.00**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.14%**	
7	60MW KHP	Unit- I	16.61	132kV KHP - Nangkhor Line	41.64	
		Unit-II	16.45	132kV KHP - Kilikhar Line	23.42	
		Unit- III	16.46	5MVA, 132/11kV TFR	0.48	
		Unit- IV	16.54	132kV Motanga - Rangia Line	30.72	
		Total	**66.06**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.79%**	

Note: Generation-Load Summary (MW) for July 13, 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	1,245.11	267.01	258.67	949.78	8.34
2	Eastern Grid	567.18	143.71	139.85	451.79	3.86
Total		**1,812.29**	**410.72**	**398.52**	**1,401.57**	**12.20**

Note: Generation-Load Summary for July 13, 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	1,668.74	262.00	254.15	1,285.02	7.85
2	Eastern Grid	658.03	74.00	70.58	705.75	3.42
Total		**2,326.77**	**336.00**	**324.73**	**1,990.77**	**11.27**

NOTES:

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:	July 14, 2022
Hours:	09:00 Hours

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	182.92	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I under breakdown.
		Unit- II	184.24	400kV THP - Siliguri Line - II	381.52	
		Unit- III	187.08	400kV THP - Siliguri Line- IV	364.90	
		Unit- IV	185.13	400kV THP - Malbase Line - III	358.44	
		Unit- V	186.02	400kV Malbase - Siliguri Line	359.90	
		Unit- VI	185.35	-	-	
		Total	**1,110.74**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.53%**	
2	720MW MHP	Unit-I	197.92	400kV MHP - Jigmeling Line - I	291.33	Unit III under shutdown. 400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line I (Interim) on standby
		Unit-II	193.30	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	293.27	
		Unit-IV	197.37	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)	72.36	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	125.08	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	188.93	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	189.50	
		-	-	80MVA, 220/132kV ICT - I (HV)	28.17	
		-	-	80MVA, 220/132kV ICT - II (HV)	28.70	
		-	-	220kV Tsirang - Jigmeling Line	23.54	
		-	-	132kV Gelephu - Salakati Line	3.87	
		Total	**588.59**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.68%**	
3	336MW CHP	Unit- I	91.74	220kV CHP - Birpara Line- I	49.31	Unit IV under Shutdown.
		Unit- II	91.48	220kV CHP - Birpara Line- II	49.40	
		Unit- III	91.92	220kV CHP - Malbase Line- III	115.63	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	43.16	
		-	-	220kV Malbase - Birpara Line	-8.40	
		-	-	66kV CHP - Chumdo Line	10.85	
		-	-	66kV CHP - Gedu Line	5.73	
		-	-	3x3MVA, 66/11kV TFR	0.82	
		Total	**275.14**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.09%**	
4	24MW BHP (U/S)	Unit- I	8.50	220kV BHP - Semtokha Line	49.58	
		Unit- II	8.00	66kV BHP - Lobeysa Line	22.19	
		Total	**16.50**	220kV BHP - Tsirang Line	-24.61	
5	40MW BHP (L/S)	Unit- I	15.67	5MVA, 66/11kV TFR	0.41	
		Unit- II	15.64	30MVA ICT, 220/66kV (HV)	6.60	
		Total	**31.31**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.50%**	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	49.73	Unit-I on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	50.02	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	38.84	
		-	-	5MVA, 220/33kV TFR	0.20	
		Total	**50.02**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.18%**	
7	60MW KHP	Unit- I	16.58	132kV KHP - Nangkhor Line	43.35	
		Unit-II	16.64	132kV KHP - Kilikhar Line	21.93	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.40	
		Unit- IV	16.44	132kV Motanga - Rangia Line	31.76	
		Total	**66.16**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.73%**	

Note: Generation-Load Summary (MW) for July 14, 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	1,483.71	263.54	257.09	1,196.63	6.45
2	Eastern Grid	654.75	139.15	134.68	539.14	4.47
Total		**2,138.46**	**402.69**	**391.77**	**1,735.77**	**10.92**

Note: Generation-Load Summary for July 14, 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	1,678.89	205.64	190.25	1,386.11	15.39
2	Eastern Grid	856.43	50.93	50.30	892.64	0.63
Total		**2,535.32**	**256.57**	**240.55**	**2,278.75**	**16.02**

NOTES: DHP load 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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