BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	August 25, 2022
Hours:	19:00 Hours

Date	Time	Load(MW)
15-Aug-22	19:30 hrs	521.02

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	185.24	400kV THP - Siliguri Line - I	0.00	400kV THP_ Siliguri Line I under breakdown
		Unit- II	147.87	400kV THP - Siliguri Line - II	274.62	
		Unit- III	99.97	400kV THP - Siliguri Line- IV	262.51	
		Unit- IV	98.78	400kV THP - Malbase Line - III	333.05	
		Unit- V	155.92	400kV Malbase - Siliguri Line	245.57	
		Unit- VI	185.16	-	-	
		Total	**872.94**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.32%**	
2	720MW MHP	Unit-I	150.04	400kV MHP - Jigmeling Line - I	290.76	400kV MHP-JLG Line II & III on Standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	150.09	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	135.59	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	150.50	400kV MHP - Jigmeling Line - IV	291.77	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	80.29	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	123.86	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	184.97	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	186.26	
		-	-	80MVA, 220/132kV ICT - I (HV)	40.33	
		-	-	80MVA, 220/132kV ICT - II (HV)	41.18	
		-	-	220kV Tsirang - Jigmeling Line	-7.85	
		-	-	132kV Gelephu - Salakati Line	12.56	
		Total	**586.22**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.63%**	
3	336MW CHP	Unit- I	91.51	220kV CHP - Birpara Line- I	88.76	220kV MAL_Birpara Line under breakdown.
		Unit- II	90.88	220kV CHP - Birpara Line- II	89.08	
		Unit- III	91.49	220kV CHP - Malbase Line- III	74.82	
		Unit- IV	75.31	220kV CHP - Semtokha Line- IV	71.06	
		-	-	220kV Malbase - Birpara Line	0.00	
		-	-	66kV CHP - Chumdo Line	15.06	
		-	-	66kV CHP - Gedu Line	7.05	
		-	-	3x3MVA, 66/11kV TFR	1.34	
		Total	**349.19**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.58%**	
4	24MW BHP (U/S)	Unit- I	9.45	220kV BHP - Semtokha Line	35.11	
		Unit- II	9.45	66kV BHP - Lobeysa Line	25.09	
		Total	**18.90**	220kV BHP - Tsirang Line	-5.50	
5	40MW BHP (L/S)	Unit- I	18.04	5MVA, 66/11kV TFR	0.80	
		Unit- II	18.27	30MVA ICT, 220/66kV (HV)	6.89	
		Total	**36.31**	**Auxiliary Consumption & Transformation Losses at Generator end**	**-0.53%**	
6	126MW DHP	Unit-I	33.12	220kV DHP - Tsirang Line	0.00	220kV DHP_Tsirang Line on Standby.
		Unit-II	32.03	220kV DHP - Dagapela Line	64.69	
		-		220kV Jigmeling - Dagapela Line	-9.06	
		-	-	5MVA, 220/33kV TFR	0.30	
		Total	**65.15**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.25%**	
7	60MW KHP	Unit- I	16.49	132kV KHP - Nangkhor Line	38.20	
		Unit-II	16.50	132kV KHP - Kilikhar Line	26.63	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.54	
		Unit- IV	16.46	132kV Motanga - Rangia Line	27.28	
		Total	**65.95**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.88%**	

Note: Generation-Load Summary (MW) for August 25, 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	1,342.49	380.74	376.09	960.54	4.65
2	Eastern Grid	652.17	118.45	114.18	534.93	4.27
Total		**1,994.66**	**499.19**	**490.27**	**1,495.47**	**8.92**

Note: Generation-Load Summary for August 25, 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	1,672.96	307.90	299.81	1,269.37	8.09
2	Eastern Grid	853.02	82.41	77.20	866.30	5.21
Total		**2,525.98**	**390.31**	**377.01**	**2,135.67**	**13.30**

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:	August 26, 2022
Hours:	09:00 Hours

Coincidental Maximum Load

Date	Time	Load(MW)
15-Aug-22	19:30 hrs	521.02

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	186.51	400kV THP - Siliguri Line - I	0.00	400kV THP_Siliguri Line I under breakdown.
		Unit- II	146.42	400kV THP - Siliguri Line - II	315.84	
		Unit- III	137.77	400kV THP - Siliguri Line- IV	300.18	
		Unit- IV	168.99	400kV THP - Malbase Line - III	360.89	
		Unit- V	156.61	400kV Malbase - Siliguri Line	285.18	
		Unit- VI	185.17	-	-	
		Total	**981.47**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.46%**	
2	720MW MHP	Unit-I	140.22	400kV MHP - Jigmeling Line - I	280.94	400kV MHP-JLG Line II & III under standby 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	145.16	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	135.47	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	145.61	400kV MHP - Jigmeling Line - IV	282.10	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	56.64	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	124.85	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	187.33	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	188.48	
		-	-	80MVA, 220/132kV ICT - I (HV)	34.35	
		-	-	80MVA, 220/132kV ICT - II (HV)	34.99	
		-	-	220kV Tsirang - Jigmeling Line	1.36	
		-	-	132kV Gelephu - Salakati Line	8.91	
		Total	**566.46**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.60%**	
3	336MW CHP	Unit- I	91.51	220kV CHP - Birpara Line- I	84.33	220kV MAL_BIR line under breakdown.
		Unit- II	90.88	220kV CHP - Birpara Line- II	84.23	
		Unit- III	91.49	220kV CHP - Malbase Line- III	96.95	
		Unit- IV	75.31	220kV CHP - Semtokha Line- IV	63.93	
		-	-	220kV Malbase - Birpara Line	0.00	
		-	-	66kV CHP - Chumdo Line	11.33	
		-	-	66kV CHP - Gedu Line	7.61	
		-	-	3x3MVA, 66/11kV TFR	0.81	
		Total	**349.19**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.00%**	
4	24MW BHP (U/S)	Unit- I	9.51	220kV BHP - Semtokha Line	28.40	
		Unit- II	9.51	66kV BHP - Lobeysa Line	22.55	
		Total	**19.02**	220kV BHP - Tsirang Line	3.55	
5	40MW BHP (L/S)	Unit- I	17.81	5MVA, 66/11kV TFR	0.41	
		Unit- II	17.90	30MVA ICT, 220/66kV (HV)	3.70	
		Total	**35.71**	**Auxiliary Consumption & Transformation Losses at Generator end**	**-0.33%**	
6	126MW DHP	Unit-I	32.34	220kV DHP - Tsirang Line	0.00	220kV DHP_TSI Line on Standby.
		Unit-II	32.00	220kV DHP - Dagapela Line	63.87	
		-	-	220kV Jigmeling - Dagapela Line	-12.08	
		-	-	5MVA, 220/33kV TFR	0.40	
		Total	**64.34**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.11%**	
7	60MW KHP	Unit- I	16.43	132kV KHP - Nangkhor Line	39.56	
		Unit-II	16.60	132kV KHP - Kilikhar Line	25.31	
		Unit- III	16.53	5MVA, 132/11kV TFR	0.36	
		Unit- IV	16.61	132kV Motanga - Rangia Line	40.45	
		Total	**66.17**	**Auxiliary Consumption & Transformation Losses at Generator end**	**1.42%**	

Note: Generation-Load Summary (MW) for August 26, 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	1,449.73	366.53	362.08	1,069.76	4.45
2	Eastern Grid	632.63	96.05	91.69	550.02	4.36
Total		**2,082.36**	**462.58**	**453.77**	**1,619.78**	**8.81**

Note: Generation-Load Summary for August 26, 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	1,671.52	289.87	282.89	1,280.85	6.98
2	Eastern Grid	854.33	74.83	70.13	880.30	4.70
Total		**2,525.85**	**364.70**	**353.02**	**2,161.15**	**11.68**

Notes: MAT 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.
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