BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	August 19, 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	184.30	400kV THP - Siliguri Line - I	0.00	400kV THP_ Siliguri Line I under breakdown
		Unit- II	185.85	400kV THP - Siliguri Line - II	338.12	
		Unit- III	130.50	400kV THP - Siliguri Line- IV	324.69	
		Unit- IV	185.86	400kV THP - Malbase Line - III	390.55	
		Unit- V	185.58	400kV Malbase - Siliguri Line	307.16	
		Unit- VI	186.17	-	-	
		Total	**1,058.26**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.46%**	
2	720MW MHP	Unit-I	197.78	400kV MHP - Jigmeling Line - I	262.83	400kV MHP-JLG Line II on Standby. 400kV MHP-JLG Line IV under breakdown. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	197.73	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	135.43	400kV MHP - Jigmeling Line - III	264.45	
		Unit-IV	0.00	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)	61.20	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	116.02	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	172.85	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	172.53	
		-	-	80MVA, 220/132kV ICT - I (HV)	38.81	
		-	-	80MVA, 220/132kV ICT - II (HV)	39.53	
		-	-	220kV Tsirang - Jigmeling Line	-2.57	
		-	-	132kV Gelephu - Salakati Line	8.59	
		Total	**530.94**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.69%**	
3	336MW CHP	Unit- I	90.65	220kV CHP - Birpara Line- I	98.46	220kV MAL_Birpara Line under breakdown.
		Unit- II	90.91	220kV CHP - Birpara Line- II	98.27	
		Unit- III	91.48	220kV CHP - Malbase Line- III	54.33	
		Unit- IV	71.59	220kV CHP - Semtokha Line- IV	68.21	
		-	-	220kV Malbase - Birpara Line	0.00	
		-	-	66kV CHP - Chumdo Line	14.26	
		-	-	66kV CHP - Gedu Line	8.76	
		-	-	3x3MVA, 66/11kV TFR	1.36	
		Total	**344.63**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.28%**	
4	24MW BHP (U/S)	Unit- I	11.15	220kV BHP - Semtokha Line	36.90	
		Unit- II	11.15	66kV BHP - Lobeysa Line	26.03	
		Total	**22.30**	220kV BHP - Tsirang Line	-0.13	
5	40MW BHP (L/S)	Unit- I	21.02	5MVA, 66/11kV TFR	0.84	
		Unit- II	20.30	30MVA ICT, 220/66kV (HV)	4.60	
		Total	**41.32**	**Auxiliary Consumption & Transformation Losses at Generator end**	**-0.03%**	
6	126MW DHP	Unit-I	38.33	220kV DHP - Tsirang Line	0.00	220kV DHP_Tsirang Line on Standby.
		Unit-II	37.98	220kV DHP - Dagapela Line	75.80	
		-		220kV Jigmeling - Dagapela Line	-20.93	
		-	-	5MVA, 220/33kV TFR	0.20	
		Total	**76.31**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.41%**	
7	60MW KHP	Unit- I	16.51	132kV KHP - Nangkhor Line	37.84	
		Unit-II	16.48	132kV KHP - Kilikhar Line	27.08	
		Unit- III	16.47	5MVA, 132/11kV TFR	0.40	
		Unit- IV	16.56	132kV Motanga - Rangia Line	31.06	
		Total	**66.02**	**Auxiliary Consumption & Transformation Losses at Generator end**	**1.06%**	

Note: Generation-Load Summary (MW) for August 19, 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	1,542.82	357.76	351.59	1,166.70	6.17
2	Eastern Grid	596.96	114.27	109.91	501.05	4.36
Total		**2,139.78**	**472.03**	**461.50**	**1,667.75**	**10.53**

Note: Generation-Load Summary for August 19, 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	1,671.60	281.34	272.80	1,290.90	8.54
2	Eastern Grid	830.57	86.14	81.43	843.79	4.71
Total		**2,502.17**	**367.48**	**354.23**	**2,134.69**	**13.25**

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 20, 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	186.35	400kV THP - Siliguri Line - I	0.00	400kV THP_Siliguri Line I under breakdown.
		Unit- II	184.73	400kV THP - Siliguri Line - II	363.43	
		Unit- III	185.28	400kV THP - Siliguri Line- IV	347.42	
		Unit- IV	188.12	400kV THP - Malbase Line - III	396.76	
		Unit- V	185.68	400kV Malbase - Siliguri Line	331.07	
		Unit- VI	184.99	-	-	
		Total	**1,115.15**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.68%**	
2	720MW MHP	Unit-I	197.52	400kV MHP - Jigmeling Line - I	360.23	400kV MHP-JLG Line II under standby and IV under breakdown. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	197.74	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	135.41	400kV MHP - Jigmeling Line - III	362.64	
		Unit-IV	196.18	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)	50.36	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	165.72	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	247.55	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	248.84	
		-	-	80MVA, 220/132kV ICT - I (HV)	32.65	
		-	-	80MVA, 220/132kV ICT - II (HV)	33.06	
		-	-	220kV Tsirang - Jigmeling Line	-8.42	
		-	-	132kV Gelephu - Salakati Line	13.90	
		Total	**726.85**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.55%**	
3	336MW CHP	Unit- I	91.77	220kV CHP - Birpara Line- I	96.79	220kV MAL_BIR line under breakdown.
		Unit- II	90.88	220kV CHP - Birpara Line- II	95.27	
		Unit- III	91.64	220kV CHP - Malbase Line- III	75.64	
		Unit- IV	71.88	220kV CHP - Semtokha Line- IV	56.78	
		-	-	220kV Malbase - Birpara Line	0.00	
		-	-	66kV CHP - Chumdo Line	10.94	
		-	-	66kV CHP - Gedu Line	10.75	
		-	-	3x3MVA, 66/11kV TFR	0.86	
		Total	**346.17**	**Auxiliary Consumption & Transformation Losses at Generator end**	**-0.25%**	
4	24MW BHP (U/S)	Unit- I	10.95	220kV BHP - Semtokha Line	39.21	
		Unit- II	10.95	66kV BHP - Lobeysa Line	24.13	
		Total	**21.90**	220kV BHP - Tsirang Line	-6.45	
5	40MW BHP (L/S)	Unit- I	19.28	5MVA, 66/11kV TFR	0.44	
		Unit- II	18.61	30MVA ICT, 220/66kV (HV)	2.60	
		Total	**37.89**	**Auxiliary Consumption & Transformation Losses at Generator end**	**4.11%**	
6	126MW DHP	Unit-I	38.36	220kV DHP - Tsirang Line	0.00	220kV DHP_TSI Line on Standby.
		Unit-II	38.01	220kV DHP - Dagapela Line	75.86	
		-	-	220kV Jigmeling - Dagapela Line	-22.26	
		-	-	5MVA, 220/33kV TFR	0.20	
		Total	**76.37**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.41%**	
7	60MW KHP	Unit- I	16.52	132kV KHP - Nangkhor Line	42.10	
		Unit-II	16.52	132kV KHP - Kilikhar Line	23.19	
		Unit- III	16.45	5MVA, 132/11kV TFR	0.30	
		Unit- IV	16.52	132kV Motanga - Rangia Line	24.61	
		Total	**66.01**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.64%**	

Note: Generation-Load Summary (MW) for August 20, 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	1,597.48	349.66	340.21	1,233.98	9.45
2	Eastern Grid	792.86	106.08	101.68	700.62	4.40
Total		**2,390.34**	**455.74**	**441.89**	**1,934.60**	**13.85**

Note: Generation-Load Summary for August 20, 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	1,672.01	263.15	254.04	1,303.50	9.11
2	Eastern Grid	831.23	76.63	72.02	859.96	4.61
Total		**2,503.24**	**339.78**	**326.06**	**2,163.46**	**13.72**

NOTE: BHP 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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