BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Date:	July 11, 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	167.02	400kV THP - Siliguri Line - I	0.00	Unit IV on standby. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	78.70	400kV THP - Siliguri Line - II	0.00	
		Unit- III	129.23	400kV THP - Siliguri Line- IV	331.72	
		Unit- IV	0.00	400kV THP - Malbase Line - III	326.42	
		Unit- V	147.07	400kV Malbase - Siliguri Line	328.10	
		Unit- VI	139.70	-	-	
		Total	**661.72**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.54%**	
2	720MW MHP	Unit-I	160.19	400kV MHP - Jigmeling Line - I	233.08	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	150.16	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	234.73	
		Unit-IV	160.62	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)	61.68	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	98.90	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	151.02	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	150.25	
		-	-	80MVA, 220/132kV ICT - I (HV)	26.47	
		-	-	80MVA, 220/132kV ICT - II (HV)	26.98	
		-	-	220kV Tsirang - Jigmeling Line	32.20	
		-	-	132kV Gelephu - Salakati Line	6.95	
		Total	**470.97**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.67%**	
3	336MW CHP	Unit- I	91.36	220kV CHP - Birpara Line- I	46.42	Unit IV under Shutdown.
		Unit- II	91.47	220kV CHP - Birpara Line- II	46.22	
		Unit- III	91.21	220kV CHP - Malbase Line- III	115.71	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	44.86	
		-	-	220kV Malbase - Birpara Line	-12.22	
		-	-	66kV CHP - Chumdo Line	12.81	
		-	-	66kV CHP - Gedu Line	5.34	
		-	-	3x3MVA, 66/11kV TFR	1.24	
		Total	**274.04**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.53%**	
4	24MW BHP (U/S)	Unit- I	9.70	220kV BHP - Semtokha Line	50.18	
		Unit- II	9.20	66kV BHP - Lobeysa Line	23.08	
		Total	**18.90**	220kV BHP - Tsirang Line	-19.02	
5	40MW BHP (L/S)	Unit- I	18.00	5MVA, 66/11kV TFR	0.53	
		Unit- II	18.30	30MVA ICT, 220/66kV (HV)	5.24	
		Total	**36.30**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.78%**	
6	126MW DHP	Unit-I	53.41	220kV DHP - Tsirang Line	53.16	DHP unit II on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-		220kV Jigmeling - Dagapela Line	39.89	
		-	-	5MVA, 220/33kV TFR	0.20	
		Total	**53.41**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.09%**	
7	60MW KHP	Unit- I	16.49	132kV KHP - Nangkhor Line	41.69	
		Unit-II	16.56	132kV KHP - Kilikhar Line	23.45	
		Unit- III	16.54	5MVA, 132/11kV TFR	0.50	
		Unit- IV	16.59	132kV Motanga - Rangia Line	23.85	
		Total	**66.18**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.81%**	

Note: Generation-Load Summary (MW) for July 11, 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	1,044.37	271.93	266.43	740.24	5.50
2	Eastern Grid	537.15	138.38	134.68	430.97	3.70
Total		**1,581.52**	**410.31**	**401.11**	**1,171.21**	**9.20**

Note: Generation-Load Summary for July 11, 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	1,668.43	268.80	265.02	1,273.33	3.78
2	Eastern Grid	659.46	79.73	74.98	706.03	4.75
Total		**2,327.89**	**348.53**	**340.00**	**1,979.36**	**8.53**

NOTES: BHP Generaton 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:	July 12, 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	176.49	400kV THP - Siliguri Line - I	0.00	Unit-V on standby & unit VI under maintenance. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	127.63	400kV THP - Siliguri Line - II	0.00	
		Unit- III	137.76	400kV THP - Siliguri Line- IV	313.01	
		Unit- IV	0.00	400kV THP - Malbase Line - III	308.80	
		Unit- V	184.04	400kV Malbase - Siliguri Line	310.51	
		Unit- VI	0.00	-	-	
		Total	**625.92**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.66%**	
2	720MW MHP	Unit-I	194.92	400kV MHP - Jigmeling Line - I	289.75	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	194.84	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	291.60	
		Unit-IV	195.31	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)	68.74	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	123.62	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	189.22	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	190.07	
		-	-	80MVA, 220/132kV ICT - I (HV)	27.67	
		-	-	80MVA, 220/132kV ICT - II (HV)	28.21	
		-	-	220kV Tsirang - Jigmeling Line	26.36	
		-	-	132kV Gelephu - Salakati Line	1.91	
		Total	**585.07**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.64%**	
3	336MW CHP	Unit- I	91.25	220kV CHP - Birpara Line- I	47.10	Unit IV under Shutdown.
		Unit- II	91.39	220kV CHP - Birpara Line- II	47.02	
		Unit- III	91.06	220kV CHP - Malbase Line- III	122.97	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	37.47	
		-	-	220kV Malbase - Birpara Line	-17.97	
		-	-	66kV CHP - Chumdo Line	10.42	
		-	-	66kV CHP - Gedu Line	5.85	
		-	-	3x3MVA, 66/11kV TFR	0.92	
		Total	**273.70**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.71%**	
4	24MW BHP (U/S)	Unit- I	9.20	220kV BHP - Semtokha Line	53.55	
		Unit- II	8.70	66kV BHP - Lobeysa Line	22.06	
		Total	**17.90**	220kV BHP - Tsirang Line	-25.32	
5	40MW BHP (L/S)	Unit- I	16.60	5MVA, 66/11kV TFR	0.40	
		Unit- II	16.60	30MVA ICT, 220/66kV (HV)	5.07	
		Total	**33.20**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.80%**	
6	126MW DHP	Unit-I	53.40	220kV DHP - Tsirang Line	53.15	Unit-II on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	39.31	
		-	-	5MVA, 220/33kV TFR	0.23	
		Total	**53.40**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.04%**	
7	60MW KHP	Unit- I	16.51	132kV KHP - Nangkhor Line	42.78	
		Unit-II	16.59	132kV KHP - Kilikhar Line	22.44	
		Unit- III	16.58	5MVA, 132/11kV TFR	0.40	
		Unit- IV	16.52	132kV Motanga - Rangia Line	35.32	
		Total	**66.20**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.88%**	

Note: Generation-Load Summary (MW) for July 12, 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	1,004.12	278.09	271.60	699.67	6.49
2	Eastern Grid	651.27	137.49	133.19	540.14	4.30
Total		**1,655.39**	**415.58**	**404.79**	**1,239.81**	**10.79**

Note: Generation-Load Summary for July 12, 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	1,669.75	241.45	235.08	1,303.80	6.37
2	Eastern Grid	659.67	67.82	64.80	716.35	3.02
Total		**2,329.42**	**309.27**	**299.88**	**2,020.15**	**9.39**

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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