BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load		
Date	**Time**	**Load(MW)**
12-Jan-22	18:00hrs	492.25

Date:	**June 7, 2022**
Hours:	**19:00 Hours**

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	**1020MW THP**	Unit- I	117.93	400kV THP - Siliguri Line - I	0.00	Unit-II & V on standby. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	99.35	400kV THP - Siliguri Line- IV	202.28	
		Unit- IV	119.67	400kV THP - Malbase Line - III	277.72	
		Unit- V	0.00	400kV Malbase - Siliguri Line	187.39	
		Unit- VI	149.14	-	-	
		Total	**486.09**	**Auxiliary Consumption & Transformation Losses at Generator end**	**1.25%**	
2	**720MW MHP**	Unit-I	100.11	400kV MHP - Jigmeling Line - I	244.72	400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby.
		Unit-II	130.18	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	130.87	400kV MHP - Jigmeling Line - III	246.28	
		Unit-IV	130.54	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)	93.66	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	155.77	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	235.34	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	37.18	
		-	-	80MVA, 220/132kV ICT - II (HV)	37.86	
		-	-	220kV Tsirang - Jigmeling Line	5.81	
		-	-	132kV Gelephu - Salakati Line	16.68	
		Total	**491.70**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.14%**	
3	**336MW CHP**	Unit- I	58.18	220kV CHP - Birpara Line- I	53.91	220kV Malbase-Birpara line under shutdown.
		Unit- II	60.57	220kV CHP - Birpara Line- II	53.93	
		Unit- III	56.61	220kV CHP - Malbase Line- III	69.85	
		Unit- IV	58.13	220kV CHP - Semtokha Line- IV	36.74	
		-	-	220kV Malbase - Birpara Line	0.00	
		-	-	66kV CHP - Chumdo Line	12.05	
		-	-	66kV CHP - Gedu Line	4.93	
		-	-	3x3MVA, 66/11kV TFR	1.47	
		Total	**233.49**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.26%**	
4	**24MW BHP (U/S)**	Unit- I	12.30	220kV BHP - Semtokha Line	63.36	
		Unit- II	12.10	66kV BHP - Lobeysa Line	25.99	
		Total	**24.40**	220kV BHP - Tsirang Line	-27.00	
5	**40MW BHP (L/S)**	Unit- I	20.20	5MVA, 66/11kV TFR	0.82	
		Unit- II	20.00	30MVA ICT, 220/66kV (HV)	3.05	
		Total	**40.20**	**Auxiliary Consumption & Transformation Losses at Generator end**	**2.21%**	
6	**126MW DHP**	Unit-I	37.34	220kV DHP - Tsirang Line	37.10	Unit II on standby 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-		220kV Jigmeling - Dagapela Line	26.12	
		-	-	5MVA, 220/33kV TFR	0.20	
		Total	**37.34**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.11%**	
7	**60MW KHP**	Unit- I	16.37	132kV KHP - Nangkhor Line	41.47	
		Unit-II	16.49	132kV KHP - Kilikhar Line	23.18	
		Unit- III	16.56	5MVA, 132/11kV TFR	0.56	
		Unit- IV	16.53	132kV Motanga - Rangia Line	45.37	
		Total	**65.95**	**Auxiliary Consumption & Transformation Losses at Generator end**	**1.12%**	

Note: Generation-Load Summary (MW) for June 07, 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**	821.52	318.20	310.03	497.51	8.17
2	**Eastern Grid**	557.65	110.30	108.86	453.16	1.44
Total		**1,379.17**	**428.50**	**418.89**	**950.67**	**9.61**

Note: Generation-Load Summary for June 07, 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**	1,294.22	243.97	229.87	989.95	14.10
2	**Eastern Grid**	576.54	79.87	76.36	556.97	3.51
Total		**1,870.76**	**323.84**	**306.23**	**1,546.92**	**17.61**

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.
   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:	June 8, 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	117.39	400kV THP - Siliguri Line - I	0.00	Unit-II &V on standby. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	98.96	400kV THP - Siliguri Line- IV	203.99	
		Unit- IV	97.66	400kV THP - Malbase Line - III	257.95	
		Unit- V	0.00	400kV Malbase - Siliguri Line	191.80	
		Unit- VI	149.68	-	-	
		Total	**463.69**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.38%**	
2	720MW MHP	Unit-I	197.72	400kV MHP - Jigmeling Line - I	388.63	400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby.
		Unit-II	192.96	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	195.90	400kV MHP - Jigmeling Line - III	390.76	
		Unit-IV	196.68	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)	87.88	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	272.94	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	407.72	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	36.98	
		-	-	80MVA, 220/132kV ICT - II (HV)	37.67	
		-	-	220kV Tsirang - Jigmeling Line	14.03	
		-	-	132kV Gelephu - Salakati Line	32.24	
		Total	**783.26**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.49%**	
3	336MW CHP	Unit- I	57.80	220kV CHP - Birpara Line- I	64.53	220kV Malbase-Birpara line under shutdown.
		Unit- II	55.55	220kV CHP - Birpara Line- II	64.50	
		Unit- III	75.89	220kV CHP - Malbase Line- III	90.55	
		Unit- IV	48.80	220kV CHP - Semtokha Line- IV	0.69	
		-	-	220kV Malbase - Birpara Line	0.00	
		-	-	66kV CHP - Chumdo Line	9.66	
		-	-	66kV CHP - Gedu Line	5.16	
		-	-	3x3MVA, 66/11kV TFR	0.79	
		Total	**238.04**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.91%**	
4	24MW BHP (U/S)	Unit- I	12.00	220kV BHP - Semtokha Line	87.90	
		Unit- II	11.70	66kV BHP - Lobeysa Line	24.13	
		Total	**23.70**	220kV BHP - Tsirang Line	-47.68	
5	40MW BHP (L/S)	Unit- I	20.20	5MVA, 66/11kV TFR	0.37	
		Unit- II	21.20	30MVA ICT, 220/66kV (HV)	1.43	
		Total	**41.40**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.58%**	
6	126MW DHP	Unit-I	32.26	220kV DHP - Tsirang Line	63.85	220kV DHP_Dagapela Line on Standby.
		Unit-II	32.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	26.68	
		-	-	5MVA, 220/33kV TFR	0.40	
		Total	**64.26**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.02%**	
7	60MW KHP	Unit- I	15.84	132kV KHP - Nangkhor Line	42.94	
		Unit-II	16.09	132kV KHP - Kilikhar Line	21.11	
		Unit- III	16.43	5MVA, 132/11kV TFR	0.36	
		Unit- IV	16.38	132kV Motanga - Rangia Line	50.68	
		Total	**64.74**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.51%**	

Note: Generation-Load Summary (MW) for June 08, 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	831.09	292.24	287.94	524.82	4.30
2	Eastern Grid	848.00	98.45	94.25	763.58	4.20
Total		**1,679.09**	**390.69**	**382.19**	**1,288.40**	**8.50**

Note: Generation-Load Summary for June 08, 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	1,406.68	238.65	226.48	1,112.29	12.17
2	Eastern Grid	658.06	61.55	58.21	652.25	3.34
Total		**2,064.74**	**300.20**	**284.69**	**1,764.54**	**15.51**

NOTE- BHP 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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