BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

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

Date:	**June 5, 2022**
Hours:	**19:00 Hours**

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	**1020MW THP**	Unit- I	137.15	400kV THP - Siliguri Line - I	0.00	Unit-III & V on standby. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	68.98	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	186.23	
		Unit- IV	99.20	400kV THP - Malbase Line - III	256.09	
		Unit- V	0.00	400kV Malbase - Siliguri Line	172.04	
		Unit- VI	140.32	-	-	
		Total	**445.65**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.75%**	
2	**720MW MHP**	Unit-I	130.18	400kV MHP - Jigmeling Line - I	168.90	Unit- II on standby 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	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	130.80	400kV MHP - Jigmeling Line - III	170.15	
		Unit-IV	80.43	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)	54.06	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	112.77	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	168.59	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	28.79	
		-	-	80MVA, 220/132kV ICT - II (HV)	29.28	
		-	-	220kV Tsirang - Jigmeling Line	31.04	
		-	-	132kV Gelephu - Salakati Line	7.84	
		Total	**341.41**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.69%**	
3	**336MW CHP**	Unit- I	0.00	220kV CHP - Birpara Line- I	48.86	Unit-I on standby.
		Unit- II	78.73	220kV CHP - Birpara Line- II	48.95	
		Unit- III	76.45	220kV CHP - Malbase Line- III	83.22	
		Unit- IV	78.63	220kV CHP - Semtokha Line- IV	33.03	
		-	-	220kV Malbase - Birpara Line	14.25	
		-	-	66kV CHP - Chumdo Line	13.83	
		-	-	66kV CHP - Gedu Line	4.21	
		-	-	3x3MVA, 66/11kV TFR	1.15	
		Total	**233.81**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.24%**	
4	**24MW BHP (U/S)**	Unit- I	12.30	220kV BHP - Semtokha Line	64.30	
		Unit- II	12.10	66kV BHP - Lobeysa Line	26.23	
		Total	**24.40**	220kV BHP - Tsirang Line	-31.05	
5	**40MW BHP (L/S)**	Unit- I	20.40	5MVA, 66/11kV TFR	0.58	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	3.03	
		Total	**41.40**	**Auxiliary Consumption & Transformation Losses at Generator end**	**8.72%**	
6	**126MW DHP**	Unit-I	34.33	220kV DHP - Tsirang Line	65.84	220kV DHP_Dagapela Line on Standby.
		Unit-II	31.98	220kV DHP - Dagapela Line	0.00	
		-		220kV Jigmeling - Dagapela Line	26.23	
		-	-	5MVA, 220/33kV TFR	0.45	
		Total	**66.31**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.03%**	
7	**60MW KHP**	Unit- I	16.53	132kV KHP - Nangkhor Line	41.87	
		Unit-II	16.60	132kV KHP - Kilikhar Line	23.08	
		Unit- III	16.49	5MVA, 132/11kV TFR	0.99	
		Unit- IV	16.59	132kV Motanga - Rangia Line	41.77	
		Total	**66.21**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.41%**	

Note: Generation-Load Summary (MW) for June 05, 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**	811.57	310.20	300.55	470.33	9.65
2	**Eastern Grid**	407.62	107.69	105.06	330.97	2.63
Total		**1,219.19**	**417.89**	**405.61**	**801.30**	**12.28**

Note: Generation-Load Summary for June 05, 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**	731.46	231.65	220.73	474.10	10.92
2	**Eastern Grid**	501.52	38.60	36.00	488.63	2.60
Total		**1,232.98**	**270.25**	**256.73**	**962.73**	**13.52**

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

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

Date:	**June 6, 2022**
Hours:	**09:00 Hours**

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	**1020MW THP**	Unit- I	98.90	400kV THP - Siliguri Line - I	0.00	Unit-III & V on standby. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	166.71	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	271.86	
		Unit- IV	168.77	400kV THP - Malbase Line - III	325.25	
		Unit- V	0.00	400kV Malbase - Siliguri Line	262.98	
		Unit- VI	169.30	-	-	
		Total	**603.68**	**Auxiliary Consumption & Transformation Losses at Generator end**	**1.09%**	
2	**720MW MHP**	Unit-I	0.00	400kV MHP - Jigmeling Line - I	199.09	Unit- I under maintenance. 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	99.86	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	150.86	400kV MHP - Jigmeling Line - III	200.19	
		Unit-IV	150.54	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)	48.65	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	138.95	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	208.14	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	22.06	
		-	-	80MVA, 220/132kV ICT - II (HV)	22.43	
		-	-	220kV Tsirang - Jigmeling Line	39.90	
		-	-	132kV Gelephu - Salakati Line	11.11	
		Total	**401.26**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.49%**	
3	**336MW CHP**	Unit- I	70.67	220kV CHP - Birpara Line- I	69.14	
		Unit- II	71.83	220kV CHP - Birpara Line- II	69.54	
		Unit- III	83.61	220kV CHP - Malbase Line- III	92.13	
		Unit- IV	71.63	220kV CHP - Semtokha Line- IV	49.14	
		-	-	220kV Malbase - Birpara Line	0.00	
		-	-	66kV CHP - Chumdo Line	11.67	
		-	-	66kV CHP - Gedu Line	4.66	
		-	-	3x3MVA, 66/11kV TFR	0.97	
		Total	**297.74**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.16%**	
4	**24MW BHP (U/S)**	Unit- I	9.20	220kV BHP - Semtokha Line	44.80	
		Unit- II	8.80	66kV BHP - Lobeysa Line	22.34	
		Total	**18.00**	220kV BHP - Tsirang Line	-23.37	
5	**40MW BHP (L/S)**	Unit- I	13.30	5MVA, 66/11kV TFR	0.33	
		Unit- II	13.10	30MVA ICT, 220/66kV (HV)	4.99	
		Total	**26.40**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.68%**	
6	**126MW DHP**	Unit-I	29.28	220kV DHP - Tsirang Line	56.84	220kV DHP_Dagapela Line on Standby.
		Unit-II	27.99	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	25.40	
		-	-	5MVA, 220/33kV TFR	0.42	
		Total	**57.27**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.02%**	
7	**60MW KHP**	Unit- I	16.55	132kV KHP - Nangkhor Line	44.40	
		Unit-II	16.53	132kV KHP - Kilikhar Line	20.62	
		Unit- III	16.62	5MVA, 132/11kV TFR	0.37	
		Unit- IV	16.51	132kV Motanga - Rangia Line	33.85	
		Total	**66.21**	**Auxiliary Consumption & Transformation Losses at Generator end**	**1.24%**	

Note: Generation-Load Summary (MW) for June 06, 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**	1,003.09	289.67	282.30	673.52	7.37
2	**Eastern Grid**	467.47	115.32	112.52	392.05	2.80
Total		**1,470.56**	**404.99**	**394.82**	**1,065.57**	**10.17**

Note: Generation-Load Summary for June 06, 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**	777.82	231.38	221.35	524.88	10.03
2	**Eastern Grid**	575.78	70.76	68.08	526.58	2.68
Total		**1,353.60**	**302.14**	**289.43**	**1,051.46**	**12.71**

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.
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