BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

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

Date:	**June 22, 2022**
Hours:	**19:00 Hours**

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	**1020MW THP**	Unit- I	185.20	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	184.82	400kV THP - Siliguri Line - II	0.00	
		Unit- III	184.74	400kV THP - Siliguri Line- IV	557.98	
		Unit- IV	183.92	400kV THP - Malbase Line - III	547.32	
		Unit- V	185.42	400kV Malbase - Siliguri Line	549.30	
		Unit- VI	185.69	-	-	
		Total	**1,109.79**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.40%**	
2	**720MW MHP**	Unit-I	197.70	400kV MHP - Jigmeling Line - I	293.84	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 II (Interim) on standby
		Unit-II	197.78	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.48	
		Unit-IV	197.72	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)	37.12	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	136.78	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	203.80	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	205.58	
		-	-	80MVA, 220/132kV ICT - I (HV)	33.29	
		-	-	80MVA, 220/132kV ICT - II (HV)	33.86	
		-	-	220kV Tsirang - Jigmeling Line	66.74	
		-	-	132kV Gelephu - Salakati Line	10.08	
		Total	**593.20**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.65%**	
3	**336MW CHP**	Unit- I	91.82	220kV CHP - Birpara Line- I	73.99	
		Unit- II	91.45	220kV CHP - Birpara Line- II	73.59	
		Unit- III	91.66	220kV CHP - Malbase Line- III	150.47	
		Unit- IV	91.95	220kV CHP - Semtokha Line- IV	48.59	
		-	-	220kV Malbase - Birpara Line	3.98	
		-	-	66kV CHP - Chumdo Line	13.11	
		-	-	66kV CHP - Gedu Line	4.93	
		-	-	3x3MVA, 66/11kV TFR	1.25	
		Total	**366.88**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.26%**	
4	**24MW BHP (U/S)**	Unit- I	11.85	220kV BHP - Semtokha Line	49.02	
		Unit- II	11.85	66kV BHP - Lobeysa Line	25.07	
		Total	**23.70**	220kV BHP - Tsirang Line	-10.09	
5	**40MW BHP (L/S)**	Unit- I	20.44	5MVA, 66/11kV TFR	0.48	
		Unit- II	21.01	30MVA ICT, 220/66kV (HV)	2.20	
		Total	**41.45**	**Auxiliary Consumption & Transformation Losses at Generator end**	**1.03%**	
6	**126MW DHP**	Unit-I	40.35	220kV DHP - Tsirang Line	79.85	220kV DHP_Dagapela Line on Standby.
		Unit-II	39.97	220kV DHP - Dagapela Line	0.00	
		-		220kV Jigmeling - Dagapela Line	35.13	
		-	-	5MVA, 220/33kV TFR	0.42	
		Total	**80.32**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.06%**	
7	**60MW KHP**	Unit- I	16.50	132kV KHP - Nangkhor Line	40.18	
		Unit-II	16.52	132kV KHP - Kilikhar Line	24.63	
		Unit- III	16.40	5MVA, 132/11kV TFR	0.48	
		Unit- IV	16.62	132kV Motanga - Rangia Line	29.18	
		Total	**66.04**	**Auxiliary Consumption & Transformation Losses at Generator end**	**1.14%**	

Note: Generation-Load Summary (MW) for June 22, 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**	1,622.14	296.56	290.40	1,258.84	6.16
2	**Eastern Grid**	659.24	140.56	135.93	585.42	4.63
Total		**2,281.38**	**437.12**	**426.33**	**1,844.26**	**10.79**

Note: Generation-Load Summary for June 22, 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**	1,601.96	302.62	296.53	1,225.44	6.09
2	**Eastern Grid**	658.64	67.92	64.65	664.62	3.27
Total		**2,260.60**	**370.54**	**361.18**	**1,890.06**	**9.36**

NOTE-BHP Generation 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:	June 23, 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	185.57	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	145.04	400kV THP - Siliguri Line - II	0.00	
		Unit- III	168.04	400kV THP - Siliguri Line- IV	426.19	
		Unit- IV	99.31	400kV THP - Malbase Line - III	421.78	
		Unit- V	185.98	400kV Malbase - Siliguri Line	424.67	
		Unit- VI	70.53	-	-	
		Total	**854.47**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.76%**	
2	720MW MHP	Unit-I	197.89	400kV MHP - Jigmeling Line - I	290.35	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 II (Interim) on standby
		Unit-II	197.84	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	292.35	
		Unit-IV	190.70	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)	37.05	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	136.40	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	205.03	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	204.45	
		-	-	80MVA, 220/132kV ICT - I (HV)	27.74	
		-	-	80MVA, 220/132kV ICT - II (HV)	28.20	
		-	-	220kV Tsirang - Jigmeling Line	54.26	
		-	-	132kV Gelephu - Salakati Line	4.60	
		Total	**586.43**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.64%**	
3	336MW CHP	Unit- I	91.71	220kV CHP - Birpara Line- I	75.73	
		Unit- II	91.15	220kV CHP - Birpara Line- II	75.92	
		Unit- III	92.05	220kV CHP - Malbase Line- III	153.18	
		Unit- IV	91.59	220kV CHP - Semtokha Line- IV	42.92	
		-	-	220kV Malbase - Birpara Line	4.91	
		-	-	66kV CHP - Chumdo Line	11.08	
		-	-	66kV CHP - Gedu Line	5.71	
		-	-	3x3MVA, 66/11kV TFR	0.69	
		Total	**366.50**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.35%**	
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	48.31	
		Unit- II	12.10	66kV BHP - Lobeysa Line	24.16	
		Total	**24.40**	220kV BHP - Tsirang Line	-7.37	
5	40MW BHP (L/S)	Unit- I	20.60	5MVA, 66/11kV TFR	0.39	
		Unit- II	21.20	30MVA ICT, 220/66kV (HV)	0.81	
		Total	**41.80**	**Auxiliary Consumption & Transformation Losses at Generator end**	**1.07%**	
6	126MW DHP	Unit-I	31.96	220kV DHP - Tsirang Line	64.43	220kV DHP_Dagapela Line on Standby.
		Unit-II	32.99	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	34.60	
		-	-	5MVA, 220/33kV TFR	0.20	
		Total	**64.95**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.49%**	
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Line	40.82	
		Unit-II	16.50	132kV KHP - Kilikhar Line	23.96	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.39	
		Unit- IV	16.50	132kV Motanga - Rangia Line	31.99	
		Total	**66.00**	**Auxiliary Consumption & Transformation Losses at Generator end**	**1.26%**	

Note: Generation-Load Summary (MW) for June 23, 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	1,352.12	290.44	281.64	1,007.42	8.80
2	Eastern Grid	652.43	124.22	119.66	582.47	4.56
Total		**2,004.55**	**414.66**	**401.30**	**1,589.89**	**13.36**

Note: Generation-Load Summary for June 23, 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	1,638.77	244.98	240.80	1,293.47	4.18
2	Eastern Grid	658.89	63.50	59.78	695.71	3.72
Total		**2,297.66**	**308.48**	**300.58**	**1,989.18**	**7.90**

NOTE-BHP and All EDC 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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