BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	June 10, 2022
Hours:	19:00 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	166.70	400kV THP - Siliguri Line - I	0.00	Unit-V under breakdown.. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	167.50	400kV THP - Siliguri Line - II	0.00	
		Unit- III	158.83	400kV THP - Siliguri Line- IV	370.12	
		Unit- IV	158.81	400kV THP - Malbase Line - III	444.40	
		Unit- V	0.00	400kV Malbase - Siliguri Line	350.40	
		Unit- VI	169.40	-	-	
		Total	**821.24**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.82%**	
2	720MW MHP	Unit-I	139.85	400kV MHP - Jigmeling Line - I	259.06	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	130.13	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	130.80	400kV MHP - Jigmeling Line - III	260.78	
		Unit-IV	130.41	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)	44.32	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	117.34	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	176.40	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	175.29	
		-	-	80MVA, 220/132kV ICT - I (HV)	32.45	
		-	-	80MVA, 220/132kV ICT - II (HV)	33.01	
		-	-	220kV Tsirang - Jigmeling Line	52.69	
		-	-	132kV Gelephu - Salakati Line	15.80	
		Total	**531.19**	**Auxiliary Consumption & Transformation Losses at Generator end**	**2.14%**	
3	336MW CHP	Unit- I	91.28	220kV CHP - Birpara Line- I	88.16	
		Unit- II	90.89	220kV CHP - Birpara Line- II	88.15	
		Unit- III	91.55	220kV CHP - Malbase Line- III	103.26	
		Unit- IV	91.69	220kV CHP - Semtokha Line- IV	64.94	
		-	-	220kV Malbase - Birpara Line	63.62	
		-	-	66kV CHP - Chumdo Line	14.25	
		-	-	66kV CHP - Gedu Line	5.28	
		-	-	3x3MVA, 66/11kV TFR	1.12	
		Total	**365.41**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.07%**	
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	37.00	
		Unit- II	12.10	66kV BHP - Lobeysa Line	25.91	
		Total	**24.40**	220kV BHP - Tsirang Line	1.87	
5	40MW BHP (L/S)	Unit- I	20.20	5MVA, 66/11kV TFR	0.60	
		Unit- II	21.20	30MVA ICT, 220/66kV (HV)	2.68	
		Total	**41.40**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.64%**	
6	126MW DHP	Unit-I	26.26	220kV DHP - Tsirang Line	53.83	220kV DHP_Dagapela Line on Standby.
		Unit-II	27.97	220kV DHP - Dagapela Line	0.00	
		-		220kV Jigmeling - Dagapela Line	30.96	
		-	-	5MVA, 220/33kV TFR	0.20	
		Total	**54.23**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.37%**	
7	60MW KHP	Unit- I	16.40	132kV KHP - Nangkhor Line	41.60	
		Unit-II	16.60	132kV KHP - Kilikhar Line	23.20	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.30	
		Unit- IV	16.60	132kV Motanga - Rangia Line	50.30	
		Total	**66.10**	**Auxiliary Consumption & Transformation Losses at Generator end**	**1.51%**	

Note: Generation-Load Summary (MW) for June 10, 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	1,306.68	293.54	285.95	960.45	7.59
2	Eastern Grid	597.29	114.85	102.50	535.13	12.35
Total		**1,903.97**	**408.39**	**388.45**	**1,495.58**	**19.94**

Note: Generation-Load Summary for June 10, 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	971.88	239.55	229.31	687.01	10.24
2	Eastern Grid	461.62	65.92	62.67	441.02	3.25
Total		**1,433.50**	**305.47**	**291.98**	**1,128.03**	**13.49**

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

Coincidental Maximum Load

Date:	June 11, 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	166.94	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	107.88	400kV THP - Siliguri Line - II	0.00	
		Unit- III	128.43	400kV THP - Siliguri Line- IV	393.31	
		Unit- IV	158.50	400kV THP - Malbase Line - III	449.83	
		Unit- V	118.03	400kV Malbase - Siliguri Line	378.49	
		Unit- VI	168.12	-	-	
		Total	**847.90**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.56%**	
2	720MW MHP	Unit-I	135.26	400kV MHP - Jigmeling Line - I	268.94	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	135.25	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	135.79	400kV MHP - Jigmeling Line - III	270.82	
		Unit-IV	135.50	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)	-9.80	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Interim)**	136.10	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Interim)**	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	203.90	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	202.50	
		-	-	80MVA, 220/132kV ICT - I (HV)	22.80	
		-	-	80MVA, 220/132kV ICT - II (HV)	23.20	
		-	-	220kV Tsirang - Jigmeling Line	56.30	
		-	-	132kV Gelephu - Salakati Line	15.10	
		Total	**541.80**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.38%**	
3	336MW CHP	Unit- I	91.74	220kV CHP - Birpara Line- I	92.07	.
		Unit- II	91.09	220kV CHP - Birpara Line- II	91.94	
		Unit- III	90.78	220kV CHP - Malbase Line- III	122.09	
		Unit- IV	91.30	220kV CHP - Semtokha Line- IV	41.39	
		-	-	220kV Malbase - Birpara Line	55.29	
		-	-	66kV CHP - Chumdo Line	11.12	
		-	-	66kV CHP - Gedu Line	4.86	
		-	-	3x3MVA, 66/11kV TFR	0.99	
		Total	**364.91**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.12%**	
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	42.90	
		Unit- II	12.10	66kV BHP - Lobeysa Line	22.62	
		Total	**24.40**	220kV BHP - Tsirang Line	-1.37	
5	40MW BHP (L/S)	Unit- I	20.20	5MVA, 66/11kV TFR	0.36	
		Unit- II	20.80	30MVA ICT, 220/66kV (HV)	-0.84	
		Total	**41.00**	**Auxiliary Consumption & Transformation Losses at Generator end**	**1.36%**	
6	126MW DHP	Unit-I	30.26	220kV DHP - Tsirang Line	59.81	220kV Jigmeling - Dagapela Line tripped at 08:48hrs. 220kV DHP_Dagapela Line on Standby.
		Unit-II	29.96	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	0.00	
		-	-	5MVA, 220/33kV TFR	0.20	
		Total	**60.22**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.35%**	
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Line	44.30	
		Unit-II	16.40	132kV KHP - Kilikhar Line	20.80	
		Unit- III	16.40	5MVA, 132/11kV TFR	0.40	
		Unit- IV	16.50	132kV Motanga - Rangia Line	40.70	
		Total	**65.80**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.46%**	

Note: Generation-Load Summary (MW) for June 11, 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	1,338.43	271.03	264.72	1,011.10	6.31
2	Eastern Grid	607.60	65.60	63.26	598.30	2.34
Total		**1,946.03**	**336.63**	**327.98**	**1,609.40**	**8.65**

Note: Generation-Load Summary for June 11, 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	1,005.84	227.93	216.24	743.91	11.69
2	Eastern Grid	658.88	63.33	60.12	629.55	3.21
Total		**1,664.72**	**291.26**	**276.36**	**1,373.46**	**14.90**

NOTE- MHP & 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.