BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	September 14, 2021
Hours:	19:00 Hours

Date	Time	Load(MW)
27-Dec-18	18:18hrs	399.35MW

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	185.66	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	183.16	400kV THP - Siliguri Line - II	351.35	+	
		Unit- III	184.46	400kV THP - Siliguri Line- IV	334.96	+	
		Unit- IV	184.83	400kV THP - Malbase Line - III	414.94	+	
		Unit- V	185.42	400kV Malbase - Siliguri Line	311.57	+	
		Unit- VI	185.30	-	-	-	
		Total	**1,108.83**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.684%**		
2	720MW MHP	Unit-I	180.27	400kV MHP - Jigmeling Line - I	349.47	+	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. (There is MW power difference of 14.22 MW between Total MHP generation & outgoing feeder at JLG end)
		Unit-II	170.05	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	175.93	400kV MHP - Jigmeling Line - III	351.21	+	
		Unit-IV	178.07	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)	-8.53	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	173.80	+	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	262.43	+	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	262.43	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	37.58	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	38.21	+	
		-	-	220kV Tsirang - Jigmeling Line	87.29	+	
		-	-	132kV Gelephu - Salakati Line	21.51	+	
		Total	**704.32**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.517%**		
3	336MW CHP	Unit- I	91.65	220kV CHP - Birpara Line- I	97.17	+	
		Unit- II	91.46	220kV CHP - Birpara Line- II	97.24	+	
		Unit- III	91.88	220kV CHP - Malbase Line- III	107.27	+	
		Unit- IV	91.66	220kV CHP - Semtokha Line- IV	45.34	+	
		-	-	220kV Malbase - Birpara Line	75.53	+	
		-	-	66kV CHP - Chumdo Line	11.21	+	
		-	-	66kV CHP - Gedu Line	5.85	+	
		-	-	3x3MVA, 66/11kV TFR	1.34	+	
		Total	**366.65**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.335%**		
4	24MW BHP (U/S)	Unit- I	12.40	220kV BHP - Semtokha Line	71.50	+	
		Unit- II	12.20	66kV BHP - Lobeysa Line	7.90	+	
		Total	**24.60**	220kV BHP - Tsirang Line	-15.20	-	
5	40MW BHP (L/S)	Unit- I	20.60	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	-14.58	-	
		Total	**41.70**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**1.825%**		
6	126MW DHP	Unit-I	52.43	220kV DHP - Tsirang Line	106.72	+	220kV DHP_Dagapela Line on standby.
		Unit-II	54.84	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.60	+	
		-	-	5MVA, 220/33kV TFR	0.54	+	
		Total	**107.27**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.009%**		
7	60MW KHP	Unit- I	16.59	132kV KHP - Nangkhor Line	24.42	+	Unit III under shutdown.
		Unit-II	16.48	132kV KHP - Kilikhar Line	24.16	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.45	+	
		Unit- IV	16.60	132kV Motanga - Rangia Line	35.64	+	
		Total	**49.67**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**1.293%**		

Note: Generation-Load Summary (MW) for September 14, 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) at Generator end.
1	Western Grid	1,649.05	293.94	285.51	1,267.82	8.43
2	Eastern Grid	753.99	85.47	81.19	755.81	4.28
Total		**2,403.04**	**379.41**	**366.70**	**2,023.63**	**12.71**

Note: Generation-Load Summary for September 14, 2020 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
1	Western Grid	1,604.16	213.45	196.06	1,304.82	17.39
2	Eastern Grid	847.98	47.56	43.03	886.31	4.53
Total		**2,452.14**	**261.01**	**239.09**	**2,191.13**	**21.92**

NOTE-BHP and MHPA data collected from site

1. The Instantaneous load balance is 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

Maximum Load/Demand till Date

Date:	September 15, 2021
Hours:	09:00 Hours

Date	Time	Load(MW)
27-Dec-18	18:18hrs	399.35MW

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	184.93	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	185.07	400kV THP - Siliguri Line - II	358.86	+	
		Unit- III	185.54	400kV THP - Siliguri Line- IV	344.13	+	
		Unit- IV	186.80	400kV THP - Malbase Line - III	402.76	+	
		Unit- V	185.81	400kV Malbase - Siliguri Line	322.31	+	
		Unit- VI	185.97	-	-	-	
		Total	**1,114.12**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.751%**		
2	720MW MHP	Unit-I	185.17	400kV MHP - Jigmeling Line - I	370.76	+	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. (There is MW power difference of 13.15 MW between Total MHP generation & outgoing feeder at JLG end)
		Unit-II	185.25	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	186.11	400kV MHP - Jigmeling Line - III	372.43	+	
		Unit-IV	190.69	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)	-36.91	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	191.25	+	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	289.97	+	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	289.76	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	26.12	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	26.60	+	
		-	-	220kV Tsirang - Jigmeling Line	91.36	+	
		-	-	132kV Gelephu - Salakati Line	21.46	+	
		Total	**747.22**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.539%**		
3	336MW CHP	Unit- I	92.14	220kV CHP - Birpara Line- I	93.94	+	
		Unit- II	91.08	220kV CHP - Birpara Line- II	94.21	+	
		Unit- III	91.63	220kV CHP - Malbase Line- III	128.57	+	
		Unit- IV	91.04	220kV CHP - Semtokha Line- IV	33.62	+	
		-	-	220kV Malbase - Birpara Line	53.62	+	
		-	-	66kV CHP - Chumdo Line	6.88	+	
		-	-	66kV CHP - Gedu Line	6.55	+	
		-	-	3x3MVA, 66/11kV TFR	0.70	+	
		Total	**365.89**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.388%**		
4	24MW BHP (U/S)	Unit- I	12.40	220kV BHP - Semtokha Line	72.33	+	
		Unit- II	12.20	66kV BHP - Lobeysa Line	7.65	+	
		Total	**24.60**	220kV BHP - Tsirang Line	-13.69	-	
5	40MW BHP (L/S)	Unit- I	20.60	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	-16.81	-	
		Total	**41.70**	**Auxiliary Consumption & Transformation Losses at Generator end**	**-1.342%**		
6	126MW DHP	Unit-I	54.41	220kV DHP - Tsirang Line	107.91	+	220kV DHP_Dagapela Line on standby.
		Unit-II	54.05	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	0.80	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	**108.46**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.230%**		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Line	29.25	+	Unit III under shutdown.
		Unit-II	16.50	132kV KHP - Kilikhar Line	19.57	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	29.71	+	
		Total	**49.50**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.566%**		

Note: Generation-Load Summary (MW) for September 15, 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) at Generator end.
1	Western Grid	1,654.77	296.34	287.99	1,267.07	8.35
2	Eastern Grid	796.72	65.93	61.62	822.15	4.31
Total		**2,451.49**	**362.27**	**349.61**	**2,089.22**	**12.66**

Note: Generation-Load Summary for September 15, 2020 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
1	Western Grid	1,658.28	203.48	188.76	1,381.01	14.72
2	Eastern Grid	847.95	41.71	37.82	880.03	3.89
Total		**2,506.23**	**245.19**	**226.58**	**2,261.04**	**18.61**

NOTE-BHP and MHPA data collected from site

1. The Instantaneous load balance is 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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