BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date		
Date	Time	Load(MW)
27-Dec-18	18:18hrs	399.35MW

Date:	October 6, 2021
Hours:	19:00 Hours

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	166.35	400kV THP - Siliguri Line - I	0.00		THP Unit II under Standby. 400kV THP-Siliguri line I under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	261.60	+	
		Unit- III	167.99	400kV THP - Siliguri Line- IV	249.70	+	
		Unit- IV	167.87	400kV THP - Malbase Line - III	322.18	+	
		Unit- V	167.61	400kV Malbase - Siliguri Line	229.23	+	
		Unit- VI	167.93	-	-	-	
		Total	**837.75**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.510%**		
2	720MW MHP	Unit-I	130.76	400kV MHP - Jigmeling Line - I	193.81	+	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 I (Interim) on standby. 132kV Gelephu_Salakati line under shutdown. (There is MW power difference of 8.15 MW between Total MHP generation & outgoing feeder at JLG end)
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	130.87	400kV MHP - Jigmeling Line - III	194.93	+	
		Unit-IV	130.49	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)	-19.20	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	99.63	+	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	151.77	+	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	151.77	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.80	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.00	+	
		-	-	220kV Tsirang - Jigmeling Line	64.23	+	
		-	-	132kV Gelephu - Salakati Line	0.00		
		Total	**392.12**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.862%**		
3	336MW CHP	Unit- I	91.86	220kV CHP - Birpara Line- I	88.93	+	
		Unit- II	90.94	220kV CHP - Birpara Line- II	89.13	+	
		Unit- III	91.41	220kV CHP - Malbase Line- III	114.90	+	
		Unit- IV	91.69	220kV CHP - Semtokha Line- IV	54.57	+	
		-	-	220kV Malbase - Birpara Line	55.69	+	
		-	-	66kV CHP - Chumdo Line	11.05	+	
		-	-	66kV CHP - Gedu Line	5.28	+	
		-	-	3x3MVA, 66/11kV TFR	1.50	+	
		Total	**365.90**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.148%**		
4	24MW BHP (U/S)	Unit- I	10.70	220kV BHP - Semtokha Line	30.21	+	
		Unit- II	10.50	66kV BHP - Lobeysa Line	26.73	+	
		Total	**21.20**	220kV BHP - Tsirang Line	0.76	+	
5	40MW BHP (L/S)	Unit- I	18.30	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	19.20	30MVA ICT, 220/66kV (HV)	6.34	+	
		Total	**37.50**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.187%**		
6	126MW DHP	Unit-I	35.29	220kV DHP - Tsirang Line	64.86	+	220kV DHP_Dagapela Line on standby.
		Unit-II	29.97	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	2.70	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	**65.26**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.153%**		
7	60MW KHP	Unit- I	16.51	132kV KHP - Nangkhor Line	39.35	+	
		Unit-II	16.57	132kV KHP - Kilikhar Line	25.64	+	
		Unit- III	16.47	5MVA, 132/11kV TFR	0.38	+	
		Unit- IV	16.59	132kV Motanga - Rangia Line	46.04	+	
		Total	**66.14**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**1.164%**		

Note: Generation-Load Summary (MW) for October 06, 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	1,327.61	289.10	286.78	974.28	2.32
2	Eastern Grid	458.26	73.28	69.13	449.21	4.15
Total		**1,785.87**	**362.38**	**355.91**	**1,423.49**	**6.47**

Note: Generation-Load Summary for October 06, 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	1,493.10	214.65	200.08	1,194.45	14.57
2	Eastern Grid	659.52	53.51	49.68	690.01	3.83
Total		**2,152.62**	**268.16**	**249.76**	**1,884.46**	**18.40**

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

Date:	**October 7, 2021**
Hours:	**09:00 Hours**

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Sign	Remarks
1	**1020MW THP**	Unit- I	138.57	400kV THP - Siliguri Line - I	0.00		Unit- II under maintenenace 400kV THP-Siliguri line I under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	218.29	+	
		Unit- III	139.33	400kV THP - Siliguri Line- IV	208.48	+	
		Unit- IV	137.88	400kV THP - Malbase Line - III	260.61	+	
		Unit- V	137.84	400kV Malbase - Siliguri Line	193.55	+	
		Unit- VI	139.33	-	-	-	
		Total	**692.95**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.804%**		
2	**720MW MHP**	Unit-I	130.16	400kV MHP - Jigmeling Line - I	193.99	+	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 I (Interim) on standby. 132kV Gelephu_Salakati line under shutdown. (There is MW power difference of 6.7 MW between Total MHP generation & outgoing feeder at JLG end)
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	130.74	400kV MHP - Jigmeling Line - III	195.35	+	
		Unit-IV	130.70	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)	-38.70	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	104.72	+	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	159.34	+	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	159.34	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	9.31	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	9.41	+	
		-	-	220kV Tsirang - Jigmeling Line	60.08	+	
		-	-	132kV Gelephu - Salakati Line	0.00		
		Total	**391.60**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.577%**		
3	**336MW CHP**	Unit- I	82.21	220kV CHP - Birpara Line- I	73.95	+	
		Unit- II	84.45	220kV CHP - Birpara Line- II	73.66	+	
		Unit- III	83.52	220kV CHP - Malbase Line- III	114.98	+	
		Unit- IV	84.19	220kV CHP - Semtokha Line- IV	58.16	+	
		-	-	220kV Malbase - Birpara Line	32.00	+	
		-	-	66kV CHP - Chumdo Line	7.72	+	
		-	-	66kV CHP - Gedu Line	5.23	+	
		-	-	3x3MVA, 66/11kV TFR	0.79	+	
		Total	**334.37**	**Auxiliary Consumption & Transformation Losses at Generator end**	**-0.036%**		
4	**24MW BHP (U/S)**	Unit- I	10.40	220kV BHP - Semtokha Line	30.10	+	
		Unit- II	10.20	66kV BHP - Lobeysa Line	27.62	+	
		Total	**20.60**	220kV BHP - Tsirang Line	-0.87	-	
5	**40MW BHP (L/S)**	Unit- I	18.40	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	18.50	30MVA ICT, 220/66kV (HV)	7.29	+	
		Total	**36.90**	**Auxiliary Consumption & Transformation Losses at Generator end**	**-0.417%**		
6	**126MW DHP**	Unit-I	33.33	220kV DHP - Tsirang Line	62.93	+	220kV DHP_Dagapela Line on standby.
		Unit-II	29.99	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.74	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	**63.32**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.142%**		
7	**60MW KHP**	Unit- I	16.50	132kV KHP - Nangkhor Line	42.35	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	22.83	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.24	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	51.27	+	
		Total	**66.00**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.879%**		

Note: Generation-Load Summary (MW) for October 07, 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**	1,148.14	288.13	284.57	799.93	3.56
2	**Eastern Grid**	457.60	43.01	40.17	474.67	2.84
Total		**1,605.74**	**331.14**	**324.74**	**1,274.60**	**6.40**

Note: Generation-Load Summary for October 07, 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**	1,430.84	187.24	173.75	1,172.57	13.49
2	**Eastern Grid**	659.03	42.04	39.04	688.02	3.00
Total		**2,089.87**	**229.28**	**212.79**	**1,860.59**	**16.49**

NOTE-BHP & 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.