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:	September 18, 2021
Hours:	19:00 Hours

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown. THP took total plant shutdown at 00:07 Hrs (17.09.2021).
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00		
		Unit- V	0.00	400kV Malbase - Siliguri Line	-15.34	-	
		Unit- VI	0.00	-	-	-	
		Total	**0.00**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.000%**		
2	720MW MHP	Unit-I	197.81	400kV MHP - Jigmeling Line - I	391.02	+	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 14.15 MW between Total MHP generation & outgoing feeder at JLG end)
		Unit-II	196.25	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	197.80	400kV MHP - Jigmeling Line - III	392.95	+	
		Unit-IV	197.35	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)	2.69	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	191.98	+	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	288.81	+	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	288.81	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	31.96	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	32.64	+	
		-	-	220kV Tsirang - Jigmeling Line	64.42	+	
		-	-	132kV Gelephu - Salakati Line	22.39	+	
		Total	**789.21**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.664%**		
3	336MW CHP	Unit- I	91.55	220kV CHP - Birpara Line- I	81.68	+	
		Unit- II	91.39	220kV CHP - Birpara Line- II	81.59	+	
		Unit- III	91.73	220kV CHP - Malbase Line- III	156.56	+	
		Unit- IV	91.75	220kV CHP - Semtokha Line- IV	26.89	+	
		-	-	220kV Malbase - Birpara Line	11.86	+	
		-	-	66kV CHP - Chumdo Line	9.56	+	
		-	-	66kV CHP - Gedu Line	7.27	+	
		-	-	3x3MVA, 66/11kV TFR	1.58	+	
		Total	**366.42**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.352%**		
4	24MW BHP (U/S)	Unit- I	12.40	220kV BHP - Semtokha Line	85.20	+	
		Unit- II	12.20	66kV BHP - Lobeysa Line	8.98	+	
		Total	**24.60**	220kV BHP - Tsirang Line	-28.62	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	-14.92	-	
		Total	**41.80**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**-0.075%**		
6	126MW DHP	Unit-I	52.43	220kV DHP - Tsirang Line	104.95	+	220kV DHP_Dagapela Line on standby.
		Unit-II	53.04	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.90	+	
		-	-	5MVA, 220/33kV TFR	0.34	+	
		Total	**105.47**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.171%**		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Line	37.72	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	27.50	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.51	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	43.39	+	
		Total	**66.00**	**Auxiliary Consumption & Transformation Losses at Gen. end**	**0.405%**		

Note: Generation-Load Summary (MW) for September 18, 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	538.29	314.08	314.56	159.79	-0.48
2	Eastern Grid	855.21	84.25	78.74	835.38	5.51
Total		**1,393.50**	**398.33**	**393.30**	**995.17**	**5.03**

Note: Generation-Load Summary for September 18, 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	1,681.16	223.91	200.50	1,363.40	23.41
2	Eastern Grid	786.96	53.82	50.46	826.99	3.36
Total		**2,468.12**	**277.73**	**250.96**	**2,190.39**	**26.77**

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:	**September 19, 2021**
Hours:	**09:00 Hours**

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Sign	Remarks
1	**1020MW THP**	Unit- I	0.00	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown. THP took total plant shutdown at 00:07 Hrs(17.09.2021).
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	+	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	+	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	11.37	+	
		Unit- VI	0.00	-	-	-	
		Total	**0.00**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.000%**		
2	**720MW MHP**	Unit-I	170.18	400kV MHP - Jigmeling Line - I	327.45	+	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 12.1 MW between Total MHP generation & outgoing feeder at JLG end)
		Unit-II	158.18	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	160.94	400kV MHP - Jigmeling Line - III	329.18	+	
		Unit-IV	170.70	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)	-39.84	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	170.16	+	
		-	-	400kV Jigmeling - Alipurduar Line - I **(Direct)**	258.80	+	
		-	-	400kV Jigmeling - Alipurduar Line - II **(Direct)**	258.80	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	16.25	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	16.51	+	
		-	-	220kV Tsirang - Jigmeling Line	75.48	+	
		-	-	132kV Gelephu - Salakati Line	18.37	+	
		Total	**660.00**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.511%**		
3	**336MW CHP**	Unit- I	91.49	220kV CHP - Birpara Line- I	77.97	+	
		Unit- II	91.18	220kV CHP - Birpara Line- II	77.75	+	
		Unit- III	91.40	220kV CHP - Malbase Line- III	166.00	+	
		Unit- IV	91.75	220kV CHP - Semtokha Line- IV	29.23	+	
		-	-	220kV Malbase - Birpara Line	-1.33	-	
		-	-	66kV CHP - Chumdo Line	7.13	+	
		-	-	66kV CHP - Gedu Line	6.50	+	
		-	-	3x3MVA, 66/11kV TFR	0.87	+	
		Total	**365.82**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.101%**		
4	**24MW BHP (U/S)**	Unit- I	12.30	220kV BHP - Semtokha Line	81.70	+	
		Unit- II	12.10	66kV BHP - Lobeysa Line	7.89	+	
		Total	**24.40**	220kV BHP - Tsirang Line	-23.23	-	
5	**40MW BHP (L/S)**	Unit- I	20.70	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	-16.49	-	
		Total	**41.80**	**Auxiliary Consumption & Transformation Losses at Generator end**	**-1.601%**		
6	**126MW DHP**	Unit-I	51.37	220kV DHP - Tsirang Line	100.91	+	220kV DHP_Dagapela Line on standby.
		Unit-II	49.98	220kV DHP - Dagapela Line	0.00		
		-		220kV Jigmeling - Dagapela Line	1.50	+	
		-	-	5MVA, 220/33kV TFR	0.43	+	
		Total	**101.35**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.010%**		
7	**60MW KHP**	Unit- I	16.58	132kV KHP - Nangkhor Line	42.99	+	
		Unit-II	16.55	132kV KHP - Kilikhar Line	22.35	+	
		Unit- III	16.55	5MVA, 132/11kV TFR	0.41	+	
		Unit- IV	16.56	132kV Motanga - Rangia Line	29.02	+	
		Total	**66.24**	**Auxiliary Consumption & Transformation Losses at Generator end**	**0.735%**		

Note: Generation-Load Summary (MW) for September 19, 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**	533.37	292.13	294.31	165.76	-2.18
2	**Eastern Grid**	726.24	66.57	62.71	735.15	3.86
Total		**1,259.61**	**358.70**	**357.02**	**900.91**	**1.68**

Note: Generation-Load Summary for September 19, 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**	1,657.70	169.15	150.75	1,418.07	18.40
2	**Eastern Grid**	754.77	40.30	36.21	784.95	4.09
Total		**2,412.47**	**209.45**	**186.96**	**2,203.02**	**22.49**

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