

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	July 9, 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	184.06	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under breakdown.
		Unit- II	185.10	400kV THP - Siliguri Line - II	355.40	+	
		Unit- III	185.60	400kV THP - Siliguri Line- IV	340.68	+	
		Unit- IV	185.13	400kV THP - Malbase Line - III	406.72	+	
		Unit- V	185.41	400kV Malbase - Siliguri Line	317.77	+	
		Unit- VI	185.82	-	-	-	
		Total	1,111.12	Auxiliary Consumption & Transformation Losses at Gen. end	0.749%		
2	720MW MHP	Unit-I	197.85	400kV MHP - Jigmeling Line - I	294.03	+	Unit-III under Restoration 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II(Interim) under shutdown.
		Unit-II	197.86	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.89	+	
		Unit-IV	197.59	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)	-71.70	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	165.60	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	247.70	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	247.70	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	24.40	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	24.50	+	
		-	-	220kV Tsirang - Jigmeling Line	122.63	+	
-	-	132kV Gelephu - Salakati Line	34.69	+			
Total	593.30	Auxiliary Consumption & Transformation Losses at Gen. end	0.570%				
3	336MW CHP	Unit- I	92.05	220kV CHP - Birpara Line- I	106.65	+	
		Unit- II	90.72	220kV CHP - Birpara Line- II	106.77	+	
		Unit- III	92.07	220kV CHP - Malbase Line- III	121.60	+	
		Unit- IV	89.35	220kV CHP - Semtokha Line- IV	14.30	+	
		-	-	220kV Malbase - Birpara Line	80.77	+	
		-	-	66kV CHP - Chumdo Line	8.66	+	
		-	-	66kV CHP - Gedu Line	4.39	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
		Total	364.19	Auxiliary Consumption & Transformation Losses at Gen. end	0.170%		
4	24MW BHP (U/S)	Unit- I	12.20	220kV BHP - Semtokha Line	41.70	+	30MVA ICT(220/66kV) under shutdown.
		Unit- II	12.10	66kV BHP - Lobeysa Line	22.05	+	
		Total	24.30	220kV BHP - Tsirang Line	0.37	+	
5	40MW BHP (L/S)	Unit- I	20.40	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	20.80	30MVA ICT, 220/66kV (HV)	0.00		
		Total	41.20	Auxiliary Consumption & Transformation Losses at Gen. end	0.733%		
6	126MW DHP	Unit-I	63.58	220kV DHP - Tsirang Line	126.24	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.12	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.50	+	
		-	-	5MVA, 220/33kV TFR	0.40	+	
		Total	126.70	Auxiliary Consumption & Transformation Losses at Gen. end	0.047%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkor Line	41.54	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	23.32	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.35	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	21.75	+	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Gen. end	1.197%		

Note: Generation-Load Summary (MW) for July 09, 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	1,667.51	236.84	228.86	1,308.04	7.98
2	Eastern Grid	659.30	64.49	60.32	717.44	4.17
	Total	2,326.81	301.33	289.18	2,025.48	12.15

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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	1,680.79	229.50	210.81	1,358.46	18.69
2	Eastern Grid	856.87	54.57	50.79	895.13	3.78
	Total	2,537.66	284.07	261.60	2,253.59	22.47

NOTE-BHP,KHP and MHEP 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:	July 10, 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	184.91	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under breakdown.
		Unit- II	184.56	400kV THP - Siliguri Line - II	353.91	+	
		Unit- III	184.88	400kV THP - Siliguri Line- IV	339.17	+	
		Unit- IV	184.97	400kV THP - Malbase Line - III	411.58	+	
		Unit- V	186.34	400kV Malbase - Siliguri Line	316.53	+	
		Unit- VI	186.37	-	-	-	
		Total	1,112.03	Auxiliary Consumption & Transformation Losses at Generator end	0.663%		
2	720MW MHP	Unit-I	197.86	400kV MHP - Jigmeling Line - I	294.48	+	Unit-III on Restoration. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) under shutdown.
		Unit-II	197.85	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.96	+	
		Unit-IV	197.66	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)	-69.90	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	163.80	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	243.80	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	243.80	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	19.80	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	19.80	+	
		-	-	220kV Tsirang - Jigmeling Line	111.20	+	
-	-	132kV Gelephu - Salakati Line	29.43	+			
Total	593.37	Auxiliary Consumption & Transformation Losses at Generator end	0.494%				
3	336MW CHP	Unit- I	91.09	220kV CHP - Birpara Line- I	94.02	+	
		Unit- II	71.63	220kV CHP - Birpara Line- II	93.72	+	
		Unit- III	87.78	220kV CHP - Malbase Line- III	123.16	+	
		Unit- IV	88.40	220kV CHP - Semtokha Line- IV	0.57	+	
		-	-	220kV Malbase - Birpara Line	54.58	+	
		-	-	66kV CHP - Chumdo Line	6.15	+	
		-	-	66kV CHP - Gedu Line	4.83	+	
		-	-	3x3MVA, 66/11kV TFR	0.70	+	
		Total	338.90	Auxiliary Consumption & Transformation Losses at Generator end	4.647%		
4	24MW BHP (U/S)	Unit- I	12.20	220kV BHP - Semtokha Line	57.04	+	30MVA ICT(220/66kV) under shutdown
		Unit- II	12.10	66kV BHP - Lobeyza Line	23.00	+	
		Total	24.30	220kV BHP - Tsirang Line	-15.54	-	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	0.00		
		Total	41.50	Auxiliary Consumption & Transformation Losses at Generator end	0.608%		
6	126MW DHP	Unit-I	63.66	220kV DHP - Tsirang Line	126.37	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.26	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.20	+	
		-	-	5MVA, 220/33kV TFR		+	
		Total	126.92	Auxiliary Consumption & Transformation Losses at Generator end	0.433%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkor Line	42.86	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	22.11	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.35	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	29.37	+	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	1.030%		

Note: Generation-Load Summary (MW) for July 10, 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	1,643.65	280.52	257.65	1,251.93	22.87
2	Eastern Grid	659.37	60.37	56.76	710.20	3.61
Total		2,303.02	340.89	314.41	1,962.13	26.48

Note: Generation-Load Summary for July 10, 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	1,683.45	220.77	199.54	1,387.21	21.23
2	Eastern Grid	856.91	39.80	37.61	892.58	2.19
Total		2,540.36	260.57	237.15	2,279.79	23.42

NOTE-BHP,KHP and MHEP data collected from site

- 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:
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