

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	July 12, 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	185.40	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under breakdown.
		Unit- II	185.30	400kV THP - Siliguri Line - II	354.91	+	
		Unit- III	185.55	400kV THP - Siliguri Line- IV	341.19	+	
		Unit- IV	184.96	400kV THP - Malbase Line - III	410.14	+	
		Unit- V	185.63	400kV Malbase - Siliguri Line	316.72	+	
		Unit- VI	185.14	-	-	-	
		Total	1,111.98	Auxiliary Consumption & Transformation Losses at Gen. end	0.516%		
2	720MW MHP	Unit-I	197.92	400kV MHP - Jigmeling Line - I	293.99	+	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	197.73	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.75	+	
		Unit-IV	197.28	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)	-50.90	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	158.90	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	237.20	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	237.20	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	35.20	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	35.20	+	
		-	-	220kV Tsirang - Jigmeling Line	123.30	+	
-	-	132kV Gelephu - Salakati Line	25.93	+			
Total	592.93	Auxiliary Consumption & Transformation Losses at Gen. end	0.538%				
3	336MW CHP	Unit- I	91.70	220kV CHP - Birpara Line- I	103.22	+	
		Unit- II	91.11	220kV CHP - Birpara Line- II	103.18	+	
		Unit- III	91.33	220kV CHP - Malbase Line- III	126.63	+	
		Unit- IV	91.54	220kV CHP - Semtokha Line- IV	16.04	+	
		-	-	220kV Malbase - Birpara Line	70.15	+	
		-	-	66kV CHP - Chumdo Line	8.97	+	
		-	-	66kV CHP - Gedu Line	4.85	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
		Total	365.68	Auxiliary Consumption & Transformation Losses at Gen. end	0.435%		
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	40.43	+	30MVA ICT(220/66kV) under shutdown.
		Unit- II	12.10	66kV BHP - Lobeysa Line	23.00	+	
		Total	24.40	220kV BHP - Tsirang Line	1.07	+	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)			
		Total	41.50	Auxiliary Consumption & Transformation Losses at Gen. end	0.759%		
6	126MW DHP	Unit-I	63.55	220kV DHP - Tsirang Line	126.21	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.15	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.60	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	126.70	Auxiliary Consumption & Transformation Losses at Gen. end	0.150%		
7	60MW KHP	Unit- I	16.57	132kV KHP - Nangkor Line	38.89	+	
		Unit-II	16.41	132kV KHP - Kilikhar Line	26.00	+	
		Unit- III	16.40	5MVA, 132/11kV TFR	0.32	+	
		Unit- IV	16.43	132kV Motanga - Rangia Line	50.45	+	
		Total	65.81	Auxiliary Consumption & Transformation Losses at Gen. end	0.912%		

Note: Generation-Load Summary (MW) for July 12, 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	1,670.26	257.59	251.17	1,289.37	6.42
2	Eastern Grid	658.74	72.36	68.57	709.68	3.79
Total		2,329.00	329.95	319.74	1,999.05	10.21

Note: Generation-Load Summary for July 12, 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	1,678.62	203.63	188.96	138.18	14.67
2	Eastern Grid	857.03	63.07	61.47	885.77	1.60
Total		2,535.65	266.70	250.43	1,023.95	16.27

NOTE-MAT,KHP ,BHP and MHP 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 13, 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	185.10	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under breakdown.
		Unit- II	186.59	400kV THP - Siliguri Line - II	363.00	+	
		Unit- III	185.81	400kV THP - Siliguri Line- IV	346.00	+	
		Unit- IV	185.50	400kV THP - Malbase Line - III	398.00	+	
		Unit- V	186.14	400kV Malbase - Siliguri Line	329.00	+	
		Unit- VI	186.42	-	-	-	
		Total	1,115.56	Auxiliary Consumption & Transformation Losses at Generator end	0.767%		
2	720MW MHP	Unit-I	197.84	400kV MHP - Jigmeling Line - I	294.04	+	Unit-III on Restoration. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line II (Interim) under standby.
		Unit-II	197.85	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.74	+	
		Unit-IV	197.42	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)	-67.00	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	162.70	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	242.70	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	242.70	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	25.60	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	25.60	+	
		-	-	220kV Tsirang - Jigmeling Line	119.76	+	
		-	-	132kV Gelephu - Salakati Line	23.07	+	
Total	593.11	Auxiliary Consumption & Transformation Losses at Generator end	0.561%				
3	336MW CHP	Unit- I	91.53	220kV CHP - Birpara Line- I	100.81	+	
		Unit- II	91.80	220kV CHP - Birpara Line- II	100.98	+	
		Unit- III	92.46	220kV CHP - Malbase Line- III	142.90	+	
		Unit- IV	92.00	220kV CHP - Semtokha Line- IV	8.58	+	
		-	-	220kV Malbase - Birpara Line	55.00	+	
		-	-	66kV CHP - Chumdo Line	6.00	+	
		-	-	66kV CHP - Gedu Line	5.10	+	
		-	-	3x3MVA, 66/11kV TFR	0.80	+	
		Total	367.79	Auxiliary Consumption & Transformation Losses at Generator end	0.712%		
4	24MW BHP (U/S)	Unit- I	12.20	220kV BHP - Semtokha Line	45.14	+	30MVA ICT(220/66kV) under shutdown
		Unit- II	12.10	66kV BHP - Lobeysa Line	23.00	+	
		Total	24.30	220kV BHP - Tsirang Line	-3.62	-	
5	40MW BHP (L/S)	Unit- I	20.60	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)			
		Total	41.60	Auxiliary Consumption & Transformation Losses at Generator end	0.744%		
6	126MW DHP	Unit-I	63.63	220kV DHP - Tsirang Line	124.14	+	220kV DHP_Dagapela Line on standby.
		Unit-II	61.04	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.10	+	
		-	-	5MVA, 220/33kV TFR	0.28	+	
		Total	124.67	Auxiliary Consumption & Transformation Losses at Generator end	0.201%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkor Line	44.06	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	21.27	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.32	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	52.86	+	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	0.530%		

Note: Generation-Load Summary (MW) for July 13, 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	1,673.92	259.37	248.55	1,294.79	10.82
2	Eastern Grid	659.11	54.84	51.16	724.03	3.68
Total		2,333.03	314.21	299.71	2,018.82	14.50

Note: Generation-Load Summary for July 13, 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	1,679.73	212.75	193.25	1,390.99	19.50
2	Eastern Grid	855.98	45.69	44.28	886.28	1.41
Total		2,535.71	258.44	237.53	2,277.27	20.91

NOTE- BHP, CHP, THP & 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.
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