

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	June 24, 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	185.86	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance.
		Unit- II	185.47	400kV THP - Siliguri Line - II	352.43	+	
		Unit- III	186.74	400kV THP - Siliguri Line- IV	336.44	+	
		Unit- IV	185.26	400kV THP - Malbase Line - III	416.84	+	
		Unit- V	185.57	400kV Malbase - Siliguri Line	313.70	+	
		Unit- VI	184.89	-	-	-	
		Total	1,113.79	Auxiliary Consumption & Transformation Losses at Gen. end	0.725%		
2	720MW MHP	Unit-I	197.51	400kV MHP - Jigmeling Line - I	293.65	+	Unit-III under breakdown 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line I(Interim) under shutdown
		Unit-II	197.88	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.52	+	
		Unit-IV	197.72	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)	-13.60	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	141.10	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	212.70	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	212.70	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	29.50	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	30.30	+	
		-	-	220kV Tsirang - Jigmeling Line	46.77	+	
-	-	132kV Gelephu - Salakati Line	18.87	+			
Total	593.11	Auxiliary Consumption & Transformation Losses at Gen. end	0.664%				
3	336MW CHP	Unit- I	91.64	220kV CHP - Birpara Line- I	74.33	+	Unit-IV under emergency shutdown.
		Unit- II	91.18	220kV CHP - Birpara Line- II	74.28	+	
		Unit- III	91.59	220kV CHP - Malbase Line- III	85.68	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	23.51	+	
		-	-	220kV Malbase - Birpara Line	55.35	+	
		-	-	66kV CHP - Chumdo Line	8.05	+	
		-	-	66kV CHP - Gedu Line	4.19	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
Total	274.41	Auxiliary Consumption & Transformation Losses at Gen. end	1.155%				
4	24MW BHP (U/S)	Unit- I	6.00	220kV BHP - Semtokha Line	39.36	+	30MVA ICT(220/66kV) under shutdown.
		Unit- II	6.00	66kV BHP - Lobeysa Line	10.50	+	
		Total	12.00	220kV BHP - Tsirang Line	-17.40	-	
5	40MW BHP (L/S)	Unit- I	10.70	5MVA, 66/11kV TFR	0.95	+	30MVA ICT, 220/66kV (HV) under shutdown.
		Unit- II	11.20	30MVA ICT, 220/66kV (HV)	0.00		
		Total	21.90	Auxiliary Consumption & Transformation Losses at Gen. end	1.445%		
6	126MW DHP	Unit-I	40.32	220kV DHP - Tsirang Line	67.96	+	220kV DHP_Dagapela Line on standby.
		Unit-II	28.04	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.60	+	
		-	-	5MVA, 220/33kV TFR	0.35	+	
		Total	68.36	Auxiliary Consumption & Transformation Losses at Gen. end	0.073%		
7	60MW KHP	Unit- I	16.08	132kV KHP - Nangkor Line	38.33	+	
		Unit-II	16.04	132kV KHP - Kilikhar Line	26.16	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.31	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	46.11	+	
		Total	65.12	Auxiliary Consumption & Transformation Losses at Gen. end	0.499%		

Note: Generation-Load Summary (MW) for June 24, 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	1,490.46	237.16	226.97	1,206.53	10.19
2	Eastern Grid	658.23	73.52	69.26	631.48	4.27
Total		2,148.69	310.68	296.23	1,838.01	14.45

Note: Generation-Load Summary for June 24, 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	1,543.44	243.34	223.76	1,228.75	19.58
2	Eastern Grid	657.11	59.47	54.88	668.99	4.59
Total		2,200.55	302.81	278.64	1,897.74	24.17

NOTE-KHP,BHP 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:	June 25, 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	185.59	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance.
		Unit- II	183.13	400kV THP - Siliguri Line - II	302.85	+	
		Unit- III	99.90	400kV THP - Siliguri Line- IV	290.24	+	
		Unit- IV	184.15	400kV THP - Malbase Line - III	337.79	+	
		Unit- V	98.14	400kV Malbase - Siliguri Line	274.55	+	
		Unit- VI	186.12	-	-	-	
		Total	937.03	Auxiliary Consumption & Transformation Losses at Generator end	0.656%		
2	720MW MHP	Unit-I	197.46	400kV MHP - Jigmeling Line - I	293.74	+	Unit-III on breakdown 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line I(Interim) under shutdown.
		Unit-II	197.87	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.26	+	
		Unit-IV	197.69	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)	2.20	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	144.71	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	219.42	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	218.41	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	35.70	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	35.80	+	
		-	-	220kV Tsirang - Jigmeling Line	74.70	+	
-	-	132kV Gelephu - Salakati Line	16.26	+			
Total	593.02	Auxiliary Consumption & Transformation Losses at Generator end	0.678%				
3	336MW CHP	Unit- I	91.71	220kV CHP - Birpara Line- I	95.44	+	
		Unit- II	91.01	220kV CHP - Birpara Line- II	95.37	+	
		Unit- III	91.59	220kV CHP - Malbase Line- III	134.20	+	
		Unit- IV	91.68	220kV CHP - Semtokha Line- IV	27.66	+	
		-	-	220kV Malbase - Birpara Line	51.25	+	
		-	-	66kV CHP - Chumdo Line	6.42	+	
		-	-	66kV CHP - Gedu Line	4.73	+	
		-	-	3x3MVA, 66/11kV TFR	0.69	+	
		Total	365.99	Auxiliary Consumption & Transformation Losses at Generator end	0.404%		
4	24MW BHP (U/S)	Unit- I	8.50	220kV BHP - Semtokha Line	26.39	+	30MVA ICT(220/66kV) under shutdown.
		Unit- II	8.40	66kV BHP - Lobeysa Line	15.80	+	
		Total	16.90	220kV BHP - Tsirang Line	2.75	-	
5	40MW BHP (L/S)	Unit- I	14.60	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	14.80	30MVA ICT, 220/66kV (HV)	0.00		
		Total	29.40	Auxiliary Consumption & Transformation Losses at Generator end	0.994%		
6	126MW DHP	Unit-I	46.38	220kV DHP - Tsirang Line	74.01	+	220kV DHP_Dagapela Line on standby.
		Unit-II	28.02	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.00	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	74.40	Auxiliary Consumption & Transformation Losses at Generator end	0.121%		
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Line	-8.97	-	KHP all Units under Shutdown for Dam Scoring and Intake Cleaning
		Unit-II	0.00	132kV KHP - Kilikhar Line	8.51	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	0.00	132kV Motanga - Rangia Line	6.07	+	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.000%		

Note: Generation-Load Summary (MW) for June 25, 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	1,423.72	239.32	232.14	1,109.70	7.18
2	Eastern Grid	593.02	62.85	58.67	604.87	4.18
Total		2,016.74	302.17	290.81	1,714.57	11.36

Note: Generation-Load Summary for June 25, 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	1,538.62	227.86	210.76	1,242.80	17.10
2	Eastern Grid	772.58	48.14	45.54	792.40	2.60
Total		2,311.20	276.00	256.30	2,035.20	19.70

NOTE-BHP, JLG 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.
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