

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	June 26, 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	69.24	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance.
		Unit- II	147.76	400kV THP - Siliguri Line - II	261.04	+	
		Unit- III	138.57	400kV THP - Siliguri Line- IV	250.75	+	
		Unit- IV	139.17	400kV THP - Malbase Line - III	301.39	+	
		Unit- V	138.52	400kV Malbase - Siliguri Line	234.79	+	
		Unit- VI	185.62	-	-	-	
		Total	818.88	Auxiliary Consumption & Transformation Losses at Gen. end	0.696%		
2	720MW MHP	Unit-I	197.86	400kV MHP - Jigmeling Line - I	293.72	+	Unit-III under Restoration. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line I(Interim) under shutdown
		Unit-II	196.86	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.11	+	
		Unit-IV	197.70	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)	-30.98	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	151.30	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	229.49	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	229.50	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	34.87	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	-34.90	-	
		-	-	220kV Tsirang - Jigmeling Line	102.10	+	
-	-	132kV Gelephu - Salakati Line	26.65	+			
Total	592.42	Auxiliary Consumption & Transformation Losses at Gen. end	0.606%				
3	336MW CHP	Unit- I	91.40	220kV CHP - Birpara Line- I	99.29	+	
		Unit- II	91.17	220kV CHP - Birpara Line- II	98.88	+	
		Unit- III	91.78	220kV CHP - Malbase Line- III	143.07	+	
		Unit- IV	91.81	220kV CHP - Semtokha Line- IV	9.75	+	
		-	-	220kV Malbase - Birpara Line	51.39	+	
		-	-	66kV CHP - Chumdo Line	7.83	+	
		-	-	66kV CHP - Gedu Line	5.10	+	
		-	-	3x3MVA, 66/11kV TFR	1.15	+	
Total	366.16	Auxiliary Consumption & Transformation Losses at Gen. end	0.298%				
4	24MW BHP (U/S)	Unit- I	12.20	220kV BHP - Semtokha Line	44.09	+	30MVA ICT(220/66kV) under shutdown.
		Unit- II	12.10	66kV BHP - Lobeysa Line	24.60	+	
		Total	24.30	220kV BHP - Tsirang Line	-5.83	-	
5	40MW BHP (L/S)	Unit- I	19.30	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	19.80	30MVA ICT, 220/66kV (HV)	0.00		
		Total	39.10	Auxiliary Consumption & Transformation Losses at Gen. end	-0.568%		
6	126MW DHP	Unit-I	63.41	220kV DHP - Tsirang Line	109.03	+	220kV DHP_Dagapela Line on standby.
		Unit-II	46.94	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.60	+	
		-	-	5MVA, 220/33kV TFR	1.30	+	
		Total	110.35	Auxiliary Consumption & Transformation Losses at Gen. end	0.018%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkor Line	37.82	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	27.37	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.38	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	50.94	+	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Gen. end	0.655%		

Note: Generation-Load Summary (MW) for June 26, 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	1,358.79	260.55	255.70	996.14	4.85
2	Eastern Grid	658.42	72.64	68.62	687.88	4.02
	Total	2,017.21	333.19	324.32	1,684.02	8.87

Note: Generation-Load Summary for June 26, 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	1,583.48	206.01	192.16	1,289.01	13.85
2	Eastern Grid	809.74	69.94	63.40	828.26	6.54
	Total	2,393.22	275.95	255.56	2,117.27	20.39

NOTE-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 27, 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	138.04	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance.
		Unit- II	146.67	400kV THP - Siliguri Line - II	288.11	+	
		Unit- III	138.73	400kV THP - Siliguri Line- IV	273.70	+	
		Unit- IV	137.62	400kV THP - Malbase Line - III	315.21	+	
		Unit- V	137.63	400kV Malbase - Siliguri Line	261.29	+	
		Unit- VI	185.40	-	-	-	
		Total	884.09	Auxiliary Consumption & Transformation Losses at Generator end	0.800%		
2	720MW MHP	Unit-I	197.83	400kV MHP - Jigmeling Line - I	294.08	+	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 I (Interim) under shutdown.
		Unit-II	197.79	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.63	+	
		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)	28.30	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	151.30	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	229.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	229.00	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	26.30	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	26.30	+	
		-	-	220kV Tsirang - Jigmeling Line	81.50	+	
-	-	132kV Gelephu - Salakati Line	21.22	+			
Total	593.34	Auxiliary Consumption & Transformation Losses at Generator end	0.612%				
3	336MW CHP	Unit- I	91.48	220kV CHP - Birpara Line- I	93.19	+	
		Unit- II	91.19	220kV CHP - Birpara Line- II	93.14	+	
		Unit- III	91.74	220kV CHP - Malbase Line- III	148.21	+	
		Unit- IV	91.94	220kV CHP - Semtokha Line- IV	17.87	+	
		-	-	220kV Malbase - Birpara Line	36.35	+	
		-	-	66kV CHP - Chumdo Line	7.46	+	
		-	-	66kV CHP - Gedu Line	4.52	+	
		-	-	3x3MVA, 66/11kV TFR	1.00	+	
		Total	366.35	Auxiliary Consumption & Transformation Losses at Generator end	0.262%		
4	24MW BHP (U/S)	Unit- I	11.20	220kV BHP - Semtokha Line	36.31	+	30MVA ICT(220/66kV) under shutdown.
		Unit- II	11.00	66kV BHP - Lobeysa Line	21.40	+	
		Total	22.20	220kV BHP - Tsirang Line	3.92	+	
5	40MW BHP (L/S)	Unit- I	20.20	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	20.20	30MVA ICT, 220/66kV (HV)	0.00		
		Total	40.40	Auxiliary Consumption & Transformation Losses at Generator end	0.112%		
6	126MW DHP	Unit-I	50.37	220kV DHP - Tsirang Line	79.96	+	220kV DHP_Dagapela Line on standby.
		Unit-II	30.02	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.40	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	80.39	Auxiliary Consumption & Transformation Losses at Generator end	0.162%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkor Line	40.61	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	24.64	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	43.29	+	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	0.530%		

Note: Generation-Load Summary (MW) for June 27, 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	1,393.43	266.15	259.32	1,045.78	6.83
2	Eastern Grid	659.34	67.03	63.05	673.81	3.98
	Total	2,052.77	333.18	322.37	1,719.59	10.81

Note: Generation-Load Summary for June 27, 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	1,580.52	210.00	193.91	1,297.72	16.09
2	Eastern Grid	837.00	53.17	48.42	856.63	4.75
	Total	2,417.52	263.17	242.33	2,154.35	20.84

NOTE-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.
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