

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	June 25, 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 maintenance.
		Unit- II	138.81	400kV THP - Siliguri Line - II	256.71	+	
		Unit- III	70.21	400kV THP - Siliguri Line- IV	243.92	+	
		Unit- IV	118.43	400kV THP - Malbase Line - III	291.91	+	
		Unit- V	98.99	400kV Malbase - Siliguri Line	228.96	+	
		Unit- VI	185.75	-	-	-	
		Total	797.59	Auxiliary Consumption & Transformation Losses at Gen. end	0.633%		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	195.91	+	Unit-III under breakdown. Unit-I tripped. 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	197.67	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	197.24	+	
		Unit-IV	197.68	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)	-4.29	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	98.18	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	148.07	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	146.07	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	27.70	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	27.80	+	
		-	-	220kV Tsirang - Jigmeling Line	69.78	+	
-	-	132kV Gelephu - Salakati Line	13.80	+			
Total	395.35	Auxiliary Consumption & Transformation Losses at Gen. end	0.556%				
3	336MW CHP	Unit- I	91.59	220kV CHP - Birpara Line- I	90.87	+	
		Unit- II	91.58	220kV CHP - Birpara Line- II	90.47	+	
		Unit- III	91.00	220kV CHP - Malbase Line- III	131.20	+	
		Unit- IV	91.50	220kV CHP - Semtokha Line- IV	36.59	+	
		-	-	220kV Malbase - Birpara Line	46.95	+	
		-	-	66kV CHP - Chumdo Line	8.59	+	
		-	-	66kV CHP - Gedu Line	4.76	+	
		-	-	3x3MVA, 66/11kV TFR	1.07	+	
		Total	365.67	Auxiliary Consumption & Transformation Losses at Gen. end	0.580%		
4	24MW BHP (U/S)	Unit- I	7.80	220kV BHP - Semtokha Line	19.70	+	30MVA ICT(220/66kV) under shutdown.
		Unit- II	7.70	66kV BHP - Lobeysa Line	14.60	+	
		Total	15.50	220kV BHP - Tsirang Line	7.75	+	
5	40MW BHP (L/S)	Unit- I	13.80	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	13.60	30MVA ICT, 220/66kV (HV)	0.00		
		Total	27.40	Auxiliary Consumption & Transformation Losses at Gen. end	-0.070%		
6	126MW DHP	Unit-I	37.30	220kV DHP - Tsirang Line	64.96	+	220kV DHP_Dagapela Line on standby.
		Unit-II	28.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.40	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	65.30	Auxiliary Consumption & Transformation Losses at Gen. end	0.061%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkor Line	13.78	+	Unit-III & IV under shutdown.
		Unit-II	16.29	132kV KHP - Kilikhar Line	17.94	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.36	+	
		Unit- IV	0.00	132kV Motanga - Rangia Line	29.10	+	
		Total	32.79	Auxiliary Consumption & Transformation Losses at Gen. end	2.165%		

Note: Generation-Load Summary (MW) for June 25, 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	1,271.46	243.80	238.02	957.88	5.78
2	Eastern Grid	428.14	62.70	59.79	435.22	2.91
	Total	1,699.60	306.50	297.81	1,393.10	8.69

Note: Generation-Load Summary for June 25, 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	1,569.07	203.50	187.00	1,275.99	16.50
2	Eastern Grid	791.42	56.65	51.48	824.35	5.17
	Total	2,360.49	260.15	238.48	2,100.34	21.67

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 26, 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	185.32	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance.
		Unit- II	181.96	400kV THP - Siliguri Line - II	335.57	+	
		Unit- III	149.17	400kV THP - Siliguri Line- IV	320.22	+	
		Unit- IV	184.61	400kV THP - Malbase Line - III	375.17	+	
		Unit- V	148.05	400kV Malbase - Siliguri Line	303.16	+	
		Unit- VI	185.19	-	-	-	
		Total	1,034.30	Auxiliary Consumption & Transformation Losses at Generator end	0.323%		
2	720MW MHP	Unit-I	197.95	400kV MHP - Jigmeling Line - I	294.62	+	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	197.81	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.96	+	
		Unit-IV	197.85	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)	15.70	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	147.60	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	225.30	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	225.30	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	28.10	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	28.10	+	
		-	-	220kV Tsirang - Jigmeling Line	73.00	+	
-	-	132kV Gelephu - Salakati Line	19.02	+			
Total	593.61	Auxiliary Consumption & Transformation Losses at Generator end	0.510%				
3	336MW CHP	Unit- I	91.42	220kV CHP - Birpara Line- I	94.78	+	
		Unit- II	91.50	220kV CHP - Birpara Line- II	94.48	+	
		Unit- III	90.99	220kV CHP - Malbase Line- III	140.76	+	
		Unit- IV	91.37	220kV CHP - Semtokha Line- IV	23.00	+	
		-	-	220kV Malbase - Birpara Line	45.06	+	
		-	-	66kV CHP - Chumdo Line	6.51	+	
		-	-	66kV CHP - Gedu Line	4.98	+	
		-	-	3x3MVA, 66/11kV TFR	0.70	+	
		Total	365.28	Auxiliary Consumption & Transformation Losses at Generator end	0.019%		
4	24MW BHP (U/S)	Unit- I	9.80	220kV BHP - Semtokha Line	30.73	+	30MVA ICT(220/66kV) under shutdown.
		Unit- II	9.70	66kV BHP - Lobeysa Line	18.30	+	
		Total	19.50	220kV BHP - Tsirang Line	1.36	+	
5	40MW BHP (L/S)	Unit- I	15.50	5MVA, 66/11kV TFR	0.85	+	
		Unit- II	16.70	30MVA ICT, 220/66kV (HV)	0.00		
		Total	32.20	Auxiliary Consumption & Transformation Losses at Generator end	0.890%		
6	126MW DHP	Unit-I	46.37	220kV DHP - Tsirang Line	74.00	+	220kV DHP_Dagapela Line on standby.
		Unit-II	28.03	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	0.134%		
7	60MW KHP	Unit- I	16.46	132kV KHP - Nangkor Line	27.37	+	KHP Unit IV under Shutdown
		Unit-II	16.45	132kV KHP - Kilikhar Line	21.10	+	
		Unit- III	16.58	5MVA, 132/11kV TFR	0.35	+	
		Unit- IV	0.00	132kV Motanga - Rangia Line	37.31	+	
		Total	49.49	Auxiliary Consumption & Transformation Losses at Generator end	1.352%		

Note: Generation-Load Summary (MW) for June 26, 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	1,525.68	259.41	256.44	1,193.27	2.97
2	Eastern Grid	643.10	61.57	57.87	654.53	3.70
	Total	2,168.78	320.98	314.31	1,847.80	6.67

Note: Generation-Load Summary for June 26, 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	1,524.50	206.07	191.47	1,264.68	14.60
2	Eastern Grid	856.76	53.22	48.22	857.29	5.00
	Total	2,381.26	259.29	239.69	2,121.97	19.60

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.
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