

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	June 23, 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	185.65	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance.
		Unit- II	186.41	400kV THP - Siliguri Line - II	355.57	+	
		Unit- III	184.90	400kV THP - Siliguri Line- IV	340.30	+	
		Unit- IV	185.80	400kV THP - Malbase Line - III	405.78	+	
		Unit- V	185.54	400kV Malbase - Siliguri Line	320.87	+	
		Unit- VI	185.98	-	-	-	
		Total	1,114.28	Auxiliary Consumption & Transformation Losses at Gen. end	1.133%		
2	720MW MHP	Unit-I	197.45	400kV MHP - Jigmeling Line - I	293.77	+	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	197.92	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.42	+	
		Unit-IV	197.89	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)	5.60	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	146.17	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	221.44	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	220.06	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	30.70	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	30.80	+	
		-	-	220kV Tsirang - Jigmeling Line	68.03	+	
-	-	132kV Gelephu - Salakati Line	19.55	+			
Total	593.26	Auxiliary Consumption & Transformation Losses at Gen. end	0.686%				
3	336MW CHP	Unit- I	91.65	220kV CHP - Birpara Line- I	96.95	+	
		Unit- II	91.19	220kV CHP - Birpara Line- II	96.99	+	
		Unit- III	91.81	220kV CHP - Malbase Line- III	128.10	+	
		Unit- IV	90.81	220kV CHP - Semtokha Line- IV	26.49	+	
		-	-	220kV Malbase - Birpara Line	58.79	+	
		-	-	66kV CHP - Chumdo Line	8.60	+	
		-	-	66kV CHP - Gedu Line	4.81	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
		Total	365.46	Auxiliary Consumption & Transformation Losses at Gen. end	0.635%		
4	24MW BHP (U/S)	Unit- I	7.30	220kV BHP - Semtokha Line	34.50	+	30MVA ICT(220/66kV) under shutdown.
		Unit- II	7.40	66kV BHP - Lobeysa Line	14.10	+	
		Total	14.70	220kV BHP - Tsirang Line	-7.89	-	
5	40MW BHP (L/S)	Unit- I	13.30	5MVA, 66/11kV TFR	0.86	+	
		Unit- II	13.40	30MVA ICT, 220/66kV (HV)	0.00		
		Total	26.70	Auxiliary Consumption & Transformation Losses at Gen. end	-0.411%		
6	126MW DHP	Unit-I	54.35	220kV DHP - Tsirang Line	79.00	+	220kV DHP_Dagapela Line on standby.
		Unit-II	25.04	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.50	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	79.39	Auxiliary Consumption & Transformation Losses at Gen. end	0.113%		
7	60MW KHP	Unit- I	16.60	132kV KHP - Nangkhor Line	38.11	+	
		Unit-II	16.60	132kV KHP - Kilikhar Line	26.07	+	
		Unit- III	16.60	5MVA, 132/11kV TFR	0.37	+	
		Unit- IV	16.60	132kV Motanga - Rangia Line	39.88	+	
		Total	66.40	Auxiliary Consumption & Transformation Losses at Gen. end	2.786%		

Note: Generation-Load Summary (MW) for June 23, 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	1,600.53	263.03	249.66	1,269.47	13.37
2	Eastern Grid	659.66	80.59	74.67	647.10	5.92
Total		2,260.19	343.62	324.33	1,916.57	19.29

Note: Generation-Load Summary for June 23, 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	1,470.04	235.77	219.87	1,164.27	15.90
2	Eastern Grid	659.78	50.81	47.15	678.97	3.66
Total		2,129.82	286.58	267.02	1,843.24	19.56

NOTE-KHP,BHP and MHPA 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 24, 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	184.57	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance.
		Unit- II	182.98	400kV THP - Siliguri Line - II	360.64	+	
		Unit- III	185.53	400kV THP - Siliguri Line- IV	344.35	+	
		Unit- IV	184.65	400kV THP - Malbase Line - III	399.78	+	
		Unit- V	185.24	400kV Malbase - Siliguri Line	324.66	+	
		Unit- VI	185.64	-	-	-	
		Total	1,108.61	Auxiliary Consumption & Transformation Losses at Generator end	0.346%		
2	720MW MHP	Unit-I	197.09	400kV MHP - Jigmeling Line - I	293.87	+	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	197.95	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.37	+	
		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)	11.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	147.62	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	222.92	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	221.63	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	26.30	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	26.20	+	
		-	-	220kV Tsirang - Jigmeling Line	64.56	+	
-	-	132kV Gelephu - Salakati Line	19.07	+			
Total	592.73	Auxiliary Consumption & Transformation Losses at Generator end	0.589%				
3	336MW CHP	Unit- I	91.90	220kV CHP - Birpara Line- I	96.64	+	
		Unit- II	91.10	220kV CHP - Birpara Line- II	96.26	+	
		Unit- III	91.74	220kV CHP - Malbase Line- III	131.26	+	
		Unit- IV	91.64	220kV CHP - Semtokha Line- IV	27.36	+	
		-	-	220kV Malbase - Birpara Line	56.13	+	
		-	-	66kV CHP - Chumdo Line	6.64	+	
		-	-	66kV CHP - Gedu Line	4.44	+	
		-	-	3x3MVA, 66/11kV TFR	0.70	+	
		Total	366.38	Auxiliary Consumption & Transformation Losses at Generator end	0.841%		
4	24MW BHP (U/S)	Unit- I	6.50	220kV BHP - Semtokha Line	27.99	+	30MVA ICT(220/66kV) under shutdown.
		Unit- II	6.40	66kV BHP - Lobeysa Line	11.90	+	
		Total	12.90	220kV BHP - Tsirang Line	-2.52	-	
5	40MW BHP (L/S)	Unit- I	12.30	5MVA, 66/11kV TFR	0.87	+	
		Unit- II	12.50	30MVA ICT, 220/66kV (HV)	0.00		
		Total	24.80	Auxiliary Consumption & Transformation Losses at Generator end	-1.432%		
6	126MW DHP	Unit-I	40.33	220kV DHP - Tsirang Line	69.97	+	220kV DHP_Dagapela Line on standby.
		Unit-II	30.02	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.00	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	70.35	Auxiliary Consumption & Transformation Losses at Generator end	0.114%		
7	60MW KHP	Unit- I	16.26	132kV KHP - Nangkor Line	39.35	+	
		Unit-II	16.24	132kV KHP - Kilikhar Line	25.18	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.27	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	45.57	+	
		Total	65.50	Auxiliary Consumption & Transformation Losses at Generator end	1.069%		

Note: Generation-Load Summary (MW) for June 24, 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	1,583.04	239.80	234.34	1,278.68	5.46
2	Eastern Grid	658.23	65.98	61.79	656.81	4.19
	Total	2,241.27	305.78	296.13	1,935.49	9.65

Note: Generation-Load Summary for June 24, 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	1,554.97	204.37	190.92	1,283.06	13.45
2	Eastern Grid	658.51	50.48	47.91	675.57	2.57
	Total	2,213.48	254.85	238.83	1,958.63	16.02

NOTE-BHP, KHP, JLG and MHPA 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:

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