

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	April 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	119.12	400kV THP - Siliguri Line - I	80.62	+	Unit- III & IV under AMP. Unit-II & VI on standby. 400kV THP-SIL Line II & 400kV THP-SIL Line IV on Standby.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	171.46	+	
		Unit- V	140.01	400kV Malbase - Siliguri Line	56.15	+	
		Unit- VI	0.00	-	-	-	
		Total	259.13	Error at Station/Auxiliary Consumption/Losses		2.721%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00		Unit I Standby Unit-III under breakdown. 400kV MHP_JLG Line I, II & III Standby. 132kV MHP_Yurmoo line I & II are not in service. 400/220kV ICT at JLG not in service 400kV JIG-ALI Line-II under standby.
		Unit-II	40.21	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00		
		Unit-IV	130.52	400kV MHP - Jigmeling Line - IV	170.11	+	
		-	-	132kV MHP - Yurmoo Line - I	0.00		
		-	-	132kV MHP - Yurmoo Line - II	0.00		
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I	168.90		
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	4.30	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	4.30	+	
		-	-	220kV Tsirang - Jigmeling Line	10.60	+	
		-	-	132kV Gelephu - Salakati Line	-32.22	-	
Total	170.73	Error at Station/Auxiliary Consumption/Losses		0.363%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	12.01	+	Unit-I Standby. Unit-IV under AMP. 220kV CHP_BIR line II standby.
		Unit- II	55.14	220kV CHP - Birpara Line- II	0.00		
		Unit- III	50.12	220kV CHP - Malbase Line- III	26.73	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	47.29	+	
		-	-	220kV Malbase - Birpara Line	1.77	+	
		-	-	66kV CHP - Chumdo Line	12.15	+	
		-	-	66kV CHP - Gedu Line	3.82	+	
		-	-	3x3MVA, 66/11kV TFR	1.33	+	
Total	105.26	Error at Station/Auxiliary Consumption/Losses		1.834%			
4	24MW BHP (U/S)	Unit- I	3.90	220kV BHP - Semtokha Line	0.42	+	U/S Unit-II & L/S Unit-I Standby 220kV BHP-Tsirang line under shutdown
		Unit- II	0.00	66kV BHP - Lobeyasa Line	11.30	+	
		Total	3.90	220kV BHP - Tsirang Line	0.00		
	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	8.60	30MVA ICT, 220/66kV (HV)	8.42	+	
Total	8.60	Error at Station/Auxiliary Consumption/Losses		-0.800%			
5	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	13.49	+	Unit-I Standby.
		Unit-II	13.76	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.90	+	
		-	-	5MVA, 220/33kV TFR	0.26	+	
		Total	13.76	Error at Station/Auxiliary Consumption/Losses		0.073%	
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	12.53	+	Unit-I and Unit-IV Standby.
		Unit-II	15.46	132kV KHP - Kilikhar Line	17.50	+	
		Unit- III	15.45	5MVA, 132/11kV TFR	0.55	+	
		Unit- IV	0.00	132kV Motanga - Rangia Line	8.55	+	
		Total	30.91	Error at Station/Auxiliary Consumption/Losses		1.068%	

Note: Generation-Load Summary (MW) for April 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)	Load Balance (MW)
1	Western Grid	390.65	229.50	222.51	150.55	6.99
2	Eastern Grid	201.64	67.01	66.06	145.23	0.95
Total		592.29	296.51	288.57	295.78	7.94

Note: Generation-Load Summary for April 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)	Load Balance (MW)
1	Western Grid	373.47	234.97	228.30	124.8	6.67
2	Eastern Grid	198.18	63.56	62.25	148.32	1.31
Total		571.65	298.53	290.55	273.12	7.98

NOTE-BHP & 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:	April 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	119.53	400kV THP - Siliguri Line - I	63.10	+	Unit III & IV under AMP. Unit II & VI on standby. 400kV THP-SIL Line II & 400kV THP-SIL Line IV on Standby.
		Unit-II	0.00	400kV THP - Siliguri Line - II	0.00		
		Unit-III	0.00	400kV THP - Siliguri Line - IV	0.00		
		Unit-IV	0.00	400kV THP - Malbase Line - III	131.68	+	
		Unit-V	80.33	400kV Malbase - Siliguri Line	44.20	+	
		Unit-VI	0.00	-	-	-	
		Total	199.86	Error at Station/Auxiliary Consumption/Losses		2.542%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00		Unit-I under AMP. Unit -III under breakdown. 400kV MHP-JLG Line I, II & III on standby. 400kV JLG_ALI line II under shutdown. 132kV MHP_Yurmo line I & II not in service. 400/220kV ICT at JLG not in service
		Unit-II	70.26	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00		
		Unit-IV	129.20	400kV MHP - Jigmeling Line - IV	196.30	+	
		-	-	132kV MHP - Yurmo Line - I	0.00		
		-	-	132kV MHP - Yurmo Line - II	0.00		
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I	197.80		
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	5.40	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	5.40	+	
		-	-	220kV Tsirang - Jigmeling Line	11.80	+	
		-	-	132kV Gelephu - Salakati Line	-19.46	-	
Total	199.46	Error at Station/Auxiliary Consumption/Losses		1.584%			
3	336MW CHP	Unit-I	57.38	220kV CHP - Birpara Line - I	17.70	+	Unit-III on Standby. Unit-IV under AMP. 220kV CHP-BIR line II standby.
		Unit-II	58.43	220kV CHP - Birpara Line - II	0.00		
		Unit-III	0.00	220kV CHP - Malbase Line - III	52.27	+	
		Unit-IV	0.00	220kV CHP - Semtokha Line - IV	32.32	+	
		-	-	220kV Malbase - Birpara Line	-10.41	-	
		-	-	66kV CHP - Chumdo Line	7.87	+	
		-	-	66kV CHP - Gedu Line	4.03	+	
		-	-	3x3MVA, 66/11kV TFR	0.80	+	
Total	115.81	Error at Station/Auxiliary Consumption/Losses		0.708%			
4	24MW BHP (U/S)	Unit-I	4.10	220kV BHP - Semtokha Line	1.40	+	U/S Unit-II .& L/S Unit-I Standby 220kV BHP-Tsirang line under shutdown
		Unit-II	0.00	66kV BHP - Lobeyasa Line	9.90	+	
		Total	4.10	220kV BHP - Tsirang Line	0.00	+	
	40MW BHP (L/S)	Unit-I	0.00	5MVA, 66/11kV TFR	0.90	+	
		Unit-II	8.30	30MVA ICT, 220/66kV (HV)	5.50	+	
		Total	8.30	Error at Station/Auxiliary Consumption/Losses		1.613%	
5	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	13.27	+	Unit-I standby.
		Unit-II	13.52	220kV DHP - Dagapela Line	0.00	+	
		-	-	220kV Jigmeling - Dagapela Line	0.90	+	
		-	-	5MVA, 220/33kV TFR	0.08	+	
		Total	13.52	Error at Station/Auxiliary Consumption/Losses		1.257%	
6	60MW KHP	Unit-I	0.00	132kV KHP - Nangkhor Line	14.61	+	Unit-I & II on standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	12.87	+	
		Unit-III	14.00	5MVA, 132/11kV TFR	0.32	+	
		Unit-IV	14.10	132kV Motanga - Rangia Line	7.13	+	
		Total	28.10	Error at Station/Auxiliary Consumption/Losses		1.068%	

Note: Generation-Load Summary (MW) for April 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)	Load Balance (MW)
1	Western Grid	341.59	215.20	209.83	114.59	5.37
2	Eastern Grid	227.56	53.89	50.43	185.47	3.46
Total		569.15	269.09	260.26	300.06	8.83

Note: Generation-Load Summary for April 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)	Load Balance (MW)
1	Western Grid	325.84	207.02	201.33	114.88	5.69
2	Eastern Grid	255.75	45.67	43.87	214.02	1.80
Total		581.59	252.69	245.20	328.90	7.49

NOTE- BHP & 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.