

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	April 2, 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	98.94	400kV THP - Siliguri Line - I	0.00	+	Unit III Standby. Unit IV, V & VI AMP 400kV THP-SIL Line I & 400kV THP-SIL IV on Standby.
		Unit- II	107.04	400kV THP - Siliguri Line - II	62.74	+	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	140.62	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	42.64	+	
		Unit- VI	0.00	-	-	-	
		Total	205.98	Error at Station/Auxiliary Consumption/Losses		1.272%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00		Unit I on Standby. Unit-III under restoration. Unit-IV under AMP. 400kV MHP-JLG Line I, II & III on standby. 400kV JLG_ALI line II on Standby. 132kV MHP_Yurmoo lines not in service.
		Unit-II	115.19	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	112.72	+	
		-	-	132kV MHP - Yurmo Line - I	0.00		
		-	-	132kV MHP - Yurmo Line - II	0.00		
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	88.72	+	
		-	-	400kV Jigmeling - Alipurduar Line - I	24.21	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	30.37	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	30.45	+	
		-	-	220kV Tsirang - Jigmeling Line	-26.23	-	
		-	-	132kV Gelephu - Salakati Line	-10.65	-	
Total	115.19	Error at Station/Auxiliary Consumption/Losses		2.144%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	17.59	+	Unit-I on Standby. Unit IV under AMP. 220kV CHP-BIR line II on Standby.
		Unit- II	54.01	220kV CHP - Birpara Line- II	0.00		
		Unit- III	51.09	220kV CHP - Malbase Line- III	47.76	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	19.08	+	
		-	-	220kV Malbase - Birpara Line	-9.31	-	
		-	-	66kV CHP - Chumdo Line	13.34	+	
		-	-	66kV CHP - Gedu Line	5.26	+	
		-	-	3x3MVA, 66/11kV TFR	1.60	+	
Total	105.10	Error at Station/Auxiliary Consumption/Losses		0.447%			
4	24MW BHP (U/S)	Unit- I	4.90	220kV BHP - Semtokha Line	42.80	+	U/S & L/S Unit-II on standby
		Unit- II	0.00	66kV BHP - Lobeyasa Line	11.50	+	
		Total	4.90	220kV BHP - Tsirang Line	-40.22	-	
	40MW BHP (L/S)	Unit- I	9.80	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)			
Total	9.80	Error at Station/Auxiliary Consumption/Losses		-1.769%			
5	126MW DHP	Unit-I	17.21	220kV DHP - Tsirang Line	16.96	+	Unit-II AMP
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	2.40	+	
		-	-	5MVA, 220/33kV TFR	0.24	+	
		Total	17.21	Error at Station/Auxiliary Consumption/Losses		0.058%	
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	5.24	+	Unit-I and II on standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	18.97	+	
		Unit- III	12.50	5MVA, 132/11kV TFR	0.50	+	
		Unit- IV	12.50	132kV Motanga - Rangia Line	21.00	+	
		Total	25.00	Error at Station/Auxiliary Consumption/Losses		1.160%	

Note: Generation-Load Summary (MW) for April 02, 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	342.99	255.56	255.12	113.66	0.44
2	Eastern Grid	140.19	79.40	76.64	34.56	2.76
Total		483.18	334.96	331.76	148.22	3.20

Note: Generation-Load Summary for April 02, 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	329.49	198.66	193.92	127.81	4.74
2	Eastern Grid	159.38	55.77	54.11	106.63	1.66
Total		488.87	254.43	248.03	234.44	6.40

NOTE-All data collected from site since WDC & EDC link was down

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 3, 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	78.75	400kV THP - Siliguri Line - I	0.00	+	Unit-III on standby. Unit-IV, V & VI under AMP 400kV THP-SIL Line I & 400kV THP-SIL Line IV on Standby.
		Unit- II	89.94	400kV THP - Siliguri Line - II	51.00	+	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	-	
		Unit- IV	0.00	400kV THP - Malbase Line - III	110.45	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	34.46	+	
		Unit- VI	0.00	-	-	-	
		Total	168.69	Error at Station/Auxiliary Consumption/Losses		4.292%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	-	Unit I on Standby. Unit-III under breakdown. Unit IV under AMP. 400kV MHP-JLG Line I ,II & III on standby. 400kV JLG_ALI line II on Standby. 132kV MHP_Yurmoo lines not in service.
		Unit-II	115.18	400kV MHP - Jigmeling Line - II	0.00	-	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	-	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	114.85	+	
		-	-	132kV MHP - Yurmo Line - I	0.00	-	
		-	-	132kV MHP - Yurmo Line - II	0.00	-	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	65.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - I	48.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00	-	
		-	-	80MVA, 220/132kV ICT - I (HV)	21.10	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.20	+	
		-	-	220kV Tsirang - Jigmeling Line	-23.40	-	
		-	-	132kV Gelephu - Salakati Line	-6.31	-	
Total	115.18	Error at Station/Auxiliary Consumption/Losses		0.287%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	15.89	+	Unit-I & 220kV CHP-BIR line II on Standby. Unit-IV under AMP.
		Unit- II	43.15	220kV CHP - Birpara Line- II	0.00	-	
		Unit- III	47.14	220kV CHP - Malbase Line- III	56.44	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	3.23	+	
		-	-	220kV Malbase - Birpara Line	-17.91	-	
		-	-	66kV CHP - Chumdo Line	8.52	+	
		-	-	66kV CHP - Gedu Line	4.91	+	
		-	-	3x3MVA, 66/11kV TFR	1.00	+	
Total	90.29	Error at Station/Auxiliary Consumption/Losses		0.332%			
4	24MW BHP (U/S)	Unit- I	4.80	220kV BHP - Semtokha Line	43.73	+	U/S & L/S Unit-II on standby
		Unit- II	0.00	66kV BHP - Lobeyasa Line	9.40	+	
		Total	4.80	220kV BHP - Tsirang Line	-39.38	-	
	40MW BHP (L/S)	Unit- I	9.90	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)			
Total	9.90	Error at Station/Auxiliary Consumption/Losses		0.408%			
5	126MW DHP	Unit-I	16.15	220kV DHP - Tsirang Line	15.96	+	Unit-II under AMP
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	-	
		-	-	220kV Jigmeling - Dagapela Line	1.20	+	
		-	-	5MVA, 220/33kV TFR	0.20	+	
		Total	16.15	Error at Station/Auxiliary Consumption/Losses		-0.062%	
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	8.32	+	Unit-I standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	12.07	+	
		Unit- III	10.51	5MVA, 132/11kV TFR	0.46	+	
		Unit- IV	10.51	132kV Motanga - Rangia Line	9.46	+	
		Total	21.02	Error at Station/Auxiliary Consumption/Losses		0.814%	

Note: Generation-Load Summary (MW) for April 03, 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	289.83	229.79	223.40	83.44	6.39
2	Eastern Grid	136.20	61.65	61.15	51.15	0.50
Total		426.03	291.44	284.55	134.59	6.89

Note: Generation-Load Summary for April 03, 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	326.32	193.74	187.59	128.95	6.15
2	Eastern Grid	185.12	48.87	47.00	139.88	1.87
Total		511.44	242.61	234.59	268.83	8.02

NOTE- MHP and Motanga datas collected from site

- 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:
 - 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.
 - The clocks of all the locations are not synchronized.
- This report is generated to give an idea of the generation & load flow for the system at a particular instant.