

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	April 17, 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	79.27	400kV THP - Siliguri Line - I	35.73	+	Unit-IV & VI on standby. Unit-II & III under AMP. 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	129.26	+	
		Unit- V	89.30	400kV Malbase - Siliguri Line	13.20	+	
		Unit- VI	0.00	-	-	-	
		Total	168.57	Error at Station/Auxiliary Consumption/Losses		2.124%	
2	720MW MHP	Unit-I	99.91	400kV MHP - Jigmeling Line - I	99.74	+	Unit-II on Standby. Unit-III under breakdown & Unit-IV under AMP. 400kV MHP_JLG Line II,III & IV Standby. 400kV JLG_ALI line II Standby. 132kV MHP_Yurmoo line I & II are not in service.
		Unit-II	0.00	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	0.00		
		-	-	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	97.50	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	12.10	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	12.10	+	
		-	-	220kV Tsirang - Jigmeling Line	26.20	+	
		-	-	132kV Gelephu - Salakati Line	-19.52	-	
Total	99.91	Error at Station/Auxiliary Consumption/Losses		0.170%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00		Unit-I Standby. Unit-IV under AMP. 220kV CHP_BIR line I under AMP. 66kV CHP_GEDU Line under maintenance.
		Unit- II	44.82	220kV CHP - Birpara Line- II	-13.42	-	
		Unit- III	42.72	220kV CHP - Malbase Line- III	18.71	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	65.36	+	
		-	-	220kV Malbase - Birpara Line	-35.36	-	
		-	-	66kV CHP - Chumdo Line	14.22	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	1.55	+	
Total	87.54	Error at Station/Auxiliary Consumption/Losses		1.279%			
4	24MW BHP (U/S)	Unit- I	4.10	220kV BHP - Semtokha Line	-15.00	-	U/S Unit-II Standby. L/S Unit-II AMP
		Unit- II	0.00	66kV BHP - Lobeyasa Line	12.40	+	
		Total	4.10	220kV BHP - Tsirang Line	14.24	+	
	40MW BHP (L/S)	Unit- I	8.80	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	9.21	+	
Total	8.80	Error at Station/Auxiliary Consumption/Losses		2.946%			
5	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	14.85	+	Unit-I Standby.
		Unit-II	15.06	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.90	+	
		-	-	5MVA, 220/33kV TFR	0.20	+	
		Total	15.06	Error at Station/Auxiliary Consumption/Losses		0.066%	
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	7.62	+	Unit-I & II Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	14.60	+	
		Unit- III	11.50	5MVA, 132/11kV TFR	0.50	+	
		Unit- IV	11.40	132kV Motanga - Rangia Line	0.00	+	
		Total	22.90	Error at Station/Auxiliary Consumption/Losses		0.786%	

Note: Generation-Load Summary (MW) for April 17, 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	284.07	257.72	254.53	0.15	3.19
2	Eastern Grid	122.81	71.03	70.68	77.98	0.35
Total		406.88	328.75	325.21	78.13	3.54

Note: Generation-Load Summary for April 17, 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	444.07	230.88	221.37	213.19	9.51
2	Eastern Grid	179.18	59.28	58.51	119.9	0.77
Total		623.25	290.16	279.88	333.09	10.28

NOTE-BHP & MHP data 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.

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	April 18, 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	79.39	400kV THP - Siliguri Line - I	50.14	+	Unit II & III on standby. Unit IV & VI under AMP. 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	114.71	+	
		Unit- V	90.10	400kV Malbase - Siliguri Line	32.36	+	
		Unit- VI	0.00	-	-	-	
		Total	169.49	Error at Station/Auxiliary Consumption/Losses		2.738%	
2	720MW MHP	Unit-I	149.87	400kV MHP - Jigmeling Line - I	209.09	+	Unit-III under breakdown & Unit-IV under AMP. 400kV MHP-JLG Line II ,III & IV on standby. 400kV JLG_ALI line II on Standby. 132kV MHP_Yurmoo lines not in service.
		Unit-II	59.82	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	0.00		
		-	-	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	206.50	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	4.90		
		-	-	80MVA, 220/132kV ICT - II (HV)	4.80		
		-	-	220kV Tsirang - Jigmeling Line	10.83	+	
		-	-	132kV Gelephu - Salakati Line	-14.82	-	
Total	209.69	Error at Station/Auxiliary Consumption/Losses		0.286%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	-11.51	-	Unit-I on Standby. Unit-IV under AMP. 220kV CHP-BIR line II standby. 66kV CHP_GEDU Line under maintenance
		Unit- II	38.06	220kV CHP - Birpara Line- II	0.00		
		Unit- III	38.44	220kV CHP - Malbase Line- III	38.09	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	36.21	+	
		-	-	220kV Malbase - Birpara Line	-47.14	-	
		-	-	66kV CHP - Chumdo Line	10.51	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	1.00	+	
Total	76.50	Error at Station/Auxiliary Consumption/Losses		2.876%			
4	24MW BHP (U/S)	Unit- I	4.30	220kV BHP - Semtokha Line	2.26	+	U/S Unit-II Standby. L/S Unit-II AMP
		Unit- II	0.00	66kV BHP - Lobeyasa Line	11.30	+	
		Total	4.30	220kV BHP - Tsirang Line	-1.36	-	
	40MW BHP (L/S)	Unit- I	8.90	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	7.93	+	
Total	8.90	Error at Station/Auxiliary Consumption/Losses		0.909%			
5	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	14.19	+	Unit-I standby.
		Unit-II	14.43	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.00	+	
		-	-	5MVA, 220/33kV TFR	0.26	+	
		Total	14.43	Error at Station/Auxiliary Consumption/Losses		-0.139%	
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	12.88	+	Unit-I & II standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	10.63	+	
		Unit- III	12.06	5MVA, 132/11kV TFR	0.32	+	
		Unit- IV	12.03	132kV Motanga - Rangia Line	-6.19	-	
		Total	24.09	Error at Station/Auxiliary Consumption/Losses		1.079%	

Note: Generation-Load Summary (MW) for April 18, 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	273.62	238.94	233.00	23.85	5.94
2	Eastern Grid	233.78	59.12	58.26	185.49	0.86
Total		507.40	298.06	291.26	209.34	6.80

Note: Generation-Load Summary for April 18, 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	313.54	214.53	205.75	99.01	8.78
2	Eastern Grid	277.02	43.54	42.54	233.48	1.00
Total		590.56	258.07	248.29	332.49	9.78

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.