

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	April 6, 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	108.44	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. 400kV Malbase-SIL on AMP
		Unit-II	81.54	400kV THP - Siliguri Line - II	72.06	+	
		Unit-III	0.00	400kV THP - Siliguri Line - IV	0.00		
		Unit-IV	0.00	400kV THP - Malbase Line - III	113.70	+	
		Unit-V	0.00	400kV Malbase - Siliguri Line	0.00		
		Unit-VI	0.00	-	-	-	
		Total	189.98	Error at Station/Auxiliary Consumption/Losses		2.221%	
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_Yurmo lines not in service.
		Unit-II	115.09	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	114.26	+	
		-	-	132kV MHP - Yurmo Line - I	0.00		
		-	-	132kV MHP - Yurmo Line - II	0.00		
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	88.40	+	
		-	-	400kV Jigmeling - Alipurduar Line - I	24.10	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	27.50	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	27.40	+	
		-	-	220kV Tsirang - Jigmeling Line	-32.66	-	
		-	-	132kV Gelephu - Salakati Line	-4.17	-	
Total	115.09	Error at Station/Auxiliary Consumption/Losses		0.721%			
3	336MW CHP	Unit-I	0.00	220kV CHP - Birpara Line - I	18.84	+	Unit-I on Standby. Unit IV under AMP. 220kV CHP-BIR line II on Standby.
		Unit-II	50.03	220kV CHP - Birpara Line - II	0.00		
		Unit-III	48.21	220kV CHP - Malbase Line - III	41.73	+	
		Unit-IV	0.00	220kV CHP - Semtokha Line - IV	17.73	+	
		-	-	220kV Malbase - Birpara Line	-2.41	-	
		-	-	66kV CHP - Chumdo Line	12.63	+	
		-	-	66kV CHP - Gedu Line	5.40	+	
		-	-	3x3MVA, 66/11kV TFR	1.50	+	
Total	98.24	Error at Station/Auxiliary Consumption/Losses		0.417%			
4	24MW BHP (U/S)	Unit-I	4.40	220kV BHP - Semtokha Line	43.40	+	U/S Unit-II on standby. L/S Unit-II under maintenance.
		Unit-II	0.00	66kV BHP - Lobeyasa Line	13.40	+	
		Total	4.40	220kV BHP - Tsirang Line	-44.48	-	
	40MW BHP (L/S)	Unit-I	9.00	5MVA, 66/11kV TFR	0.88	+	
		Unit-II	0.00	30MVA ICT, 220/66kV (HV)			
Total	9.00	Error at Station/Auxiliary Consumption/Losses		1.493%			
5	126MW DHP	Unit-I	15.07	220kV DHP - Tsirang Line	14.77	+	Unit-II AMP
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	2.00	+	
		-	-	5MVA, 220/33kV TFR	0.07	+	
		Total	15.07	Error at Station/Auxiliary Consumption/Losses		1.526%	
6	60MW KHP	Unit-I	12.11	132kV KHP - Nangkhor Line	7.29	+	Unit-II & III standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	16.08	+	
		Unit-III	0.00	5MVA, 132/11kV TFR	0.39	+	
		Unit-IV	12.08	132kV Motanga - Rangia Line	8.60	-	
		Total	24.19	Error at Station/Auxiliary Consumption/Losses		1.778%	

Note: Generation-Load Summary (MW) for April 06, 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	316.69	260.86	257.80	88.49	3.06
2	Eastern Grid	139.28	78.09	76.83	28.53	1.26
Total		455.97	338.95	334.63	117.02	4.32

Note: Generation-Load Summary for April 06, 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	390.13	259.40	251.22	128.28	8.18
2	Eastern Grid	155.25	47.57	45.33	110.13	2.24
Total		545.38	306.97	296.55	238.41	10.42

NOTE-BHP, Motanga & MHP data collected 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 7, 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	0.00	400kV THP - Siliguri Line - I	0.00	+	Unit-I under breakdown. Unit-IV, V & VI under AMP 400kV THP-SIL Line I & 400kV THP-SIL Line IV on Standby. 400kV MAL_SIL Line under AMP
		Unit- II	70.23	400kV THP - Siliguri Line - II	49.48		
		Unit- III	69.78	400kV THP - Siliguri Line- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	87.47	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	0.00	+	
		Unit- VI	0.00	-	-	-	
		Total	140.01	Error at Station/Auxiliary Consumption/Losses	2.186%		
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	140.26	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	139.32	+	
		-	-	132kV MHP - Yurmo Line - I	0.00		
		-	-	132kV MHP - Yurmo Line - II	0.00		
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	77.10	+	
		-	-	400kV Jigmeling - Alipurduar Line - I	61.50	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	22.60	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	22.70	+	
		-	-	220kV Tsirang - Jigmeling Line	-31.15	-	
		-	-	132kV Gelephu - Salakati Line	-2.87	-	
Total	140.26	Error at Station/Auxiliary Consumption/Losses	0.670%				
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	9.82	+	Unit-I on Standby. Unit IV under AMP. 220kV CHP-BIR line II on Standby.
		Unit- II	36.26	220kV CHP - Birpara Line- II	0.00		
		Unit- III	39.83	220kV CHP - Malbase Line- III	52.90	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	-1.87	-	
		-	-	220kV Malbase - Birpara Line	-24.90	-	
		-	-	66kV CHP - Chumdo Line	7.82	+	
		-	-	66kV CHP - Gedu Line	5.36	+	
		-	-	3x3MVA, 66/11kV TFR	0.98	+	
Total	76.09	Error at Station/Auxiliary Consumption/Losses	1.419%				
4	24MW BHP (U/S)	Unit- I	4.40	220kV BHP - Semtokha Line	46.10	+	U/S & L/S Unit-II on standby
		Unit- II	0.00	66kV BHP - Lobeyasa Line	10.00	+	
		Total	4.40	220kV BHP - Tsirang Line	-41.90	-	
	40MW BHP (L/S)	Unit- I	10.00	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)			
Total	10.00	Error at Station/Auxiliary Consumption/Losses	-4.722%				
5	126MW DHP	Unit-I	14.16	220kV DHP - Tsirang Line	13.88	+	Unit-II under AMP
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	0.90	+	
		-	-	5MVA, 220/33kV TFR	0.08	+	
		Total	14.16	Error at Station/Auxiliary Consumption/Losses	1.412%		
6	60MW KHP	Unit- I	14.05	132kV KHP - Nangkhor Line	13.19	+	Unit-I & III standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	14.37	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.41	+	
		Unit- IV	14.07	132kV Motanga - Rangia Line	14.76	+	
		Total	28.12	Error at Station/Auxiliary Consumption/Losses	0.548%		

Note: Generation-Load Summary (MW) for April 07, 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	244.66	241.41	238.65	34.40	2.76
2	Eastern Grid	168.38	63.84	62.75	73.39	1.09
Total		413.04	305.25	301.40	107.79	3.85

Note: Generation-Load Summary for April 07, 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	266.70	222.59	221.85	41.08	0.74
2	Eastern Grid	211.07	45.31	43.42	168.79	1.89
Total		477.77	267.90	265.27	209.87	2.63

NOTE- All datas 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.

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