

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	59.21	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	77.37	400kV THP - Siliguri Line - II	24.93	+	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	102.86	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	10.14	+	
		Unit- VI	0.00	-	-	-	
		Total	136.58	Error at Station/Auxiliary Consumption/Losses		6.436%	
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	114.90	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	113.86	+	
		-	-	132kV MHP - Yurmo Line - I	0.00		
		-	-	132kV MHP - Yurmo Line - II	0.00		
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	86.50	+	
		-	-	400kV Jigmeling - Alipurduar Line - I	26.20	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	24.30	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	24.30	+	
		-	-	220kV Tsirang - Jigmeling Line	-36.40	-	
		-	-	132kV Gelephu - Salakati Line	-6.16	-	
Total	114.90	Error at Station/Auxiliary Consumption/Losses		0.905%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00		Unit-I on Standby. Unit IV under AMP. 220kV CHP-BIR line II on Standby.
		Unit- II	46.58	220kV CHP - Birpara Line- II	13.84	+	
		Unit- III	49.89	220kV CHP - Malbase Line- III	47.92	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	14.99	+	
		-	-	220kV Malbase - Birpara Line	-14.54	-	
		-	-	66kV CHP - Chumdo Line	13.00	+	
		-	-	66kV CHP - Gedu Line	5.00	+	
		-	-	3x3MVA, 66/11kV TFR	1.70	+	
Total	96.47	Error at Station/Auxiliary Consumption/Losses		0.021%			
4	24MW BHP (U/S)	Unit- I	4.40	220kV BHP - Semtokha Line	45.37	+	U/S & L/S Unit-II on standby
		Unit- II	0.00	66kV BHP - Lobeysa Line	11.80	+	
		Total	4.40	220kV BHP - Tsirang Line	-44.64	-	
	40MW BHP (L/S)	Unit- I	9.10	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)			
Total	9.10	Error at Station/Auxiliary Consumption/Losses		0.593%			
5	126MW DHP	Unit-I	15.18	220kV DHP - Tsirang Line	14.87	+	Unit-II AMP
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	2.00	+	
		-	-	5MVA, 220/33kV TFR	0.40		
		Total	15.18	Error at Station/Auxiliary Consumption/Losses		-0.593%	
6	60MW KHP	Unit- I	11.08	132kV KHP - Nangkhor Line	5.87	+	Unit-I & II standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	15.39	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	11.06	132kV Motanga - Rangia Line	5.73	+	
		Total	22.14	Error at Station/Auxiliary Consumption/Losses		2.168%	

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	261.73	263.76	256.96	34.37	6.80
2	Eastern Grid	137.04	74.87	73.35	25.77	1.52
Total		398.77	338.63	330.31	60.14	8.32

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	478.75	235.34	230.08	229.35	5.26
2	Eastern Grid	154.00	71.29	68.48	96.77	2.81
Total		632.75	306.63	298.56	326.12	8.07

NOTE-BHP , Motanga & MHP data collected 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 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	58.88	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	78.38	400kV THP - Siliguri Line - II	35.18		
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	97.70	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	20.50	+	
		Unit- VI	0.00	-	-	-	
		Total	137.26	Error at Station/Auxiliary Consumption/Losses	3.191%		
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	140.20	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	139.36	+	
		-	-	132kV MHP - Yurmo Line - I	0.00		
		-	-	132kV MHP - Yurmo Line - II	0.00		
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	68.70	+	
		-	-	400kV Jigmeling - Alipurduar Line - I	68.40	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	16.10	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	16.10	+	
		-	-	220kV Tsirang - Jigmeling Line	-36.27	-	
		-	-	132kV Gelephu - Salakati Line	-3.09	-	
Total	140.20	Error at Station/Auxiliary Consumption/Losses	0.599%				
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	+	Unit-I & 220kV CHP-BIR line I on Standby. Unit-IV under AMP.
		Unit- II	37.03	220kV CHP - Birpara Line- II	9.54		
		Unit- III	34.23	220kV CHP - Malbase Line- III	53.53	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	-6.30	-	
		-	-	220kV Malbase - Birpara Line	-25.94	-	
		-	-	66kV CHP - Chumdo Line	8.17	+	
		-	-	66kV CHP - Gedu Line	4.75	+	
		-	-	3x3MVA, 66/11kV TFR	0.54	+	
Total	71.26	Error at Station/Auxiliary Consumption/Losses	1.445%				
4	24MW BHP (U/S)	Unit- I	4.40	220kV BHP - Semtokha Line	51.70	+	U/S & L/S Unit-II on standby
		Unit- II	0.00	66kV BHP - Lobeyasa Line	10.90	+	
		Total	4.40	220kV BHP - Tsirang Line	-49.30	-	
	40MW BHP (L/S)	Unit- I	9.40	5MVA, 66/11kV TFR	0.83	+	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)			
Total	9.40	Error at Station/Auxiliary Consumption/Losses	-2.391%				
5	126MW DHP	Unit-I	14.66	220kV DHP - Tsirang Line	14.42	+	Unit-II under AMP
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	0.90	+	
		-	-	5MVA, 220/33kV TFR	0.25	+	
		Total	14.66	Error at Station/Auxiliary Consumption/Losses	-0.068%		
6	60MW KHP	Unit- I	14.04	132kV KHP - Nangkhor Line	15.19	+	Unit-I & III standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	12.33	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.31	+	
		Unit- IV	14.08	132kV Motanga - Rangia Line	7.79	+	
		Total	28.12	Error at Station/Auxiliary Consumption/Losses	1.031%		

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	236.98	233.97	229.80	39.28	4.17
2	Eastern Grid	168.32	58.95	57.82	73.10	1.13
Total		405.30	292.92	287.62	112.38	5.30

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	234.42	210.80	204.15	22.83	6.65
2	Eastern Grid	158.20	43.39	40.06	115.6	3.33
Total		392.62	254.19	244.21	138.43	9.98

NOTE- All 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.