

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	April 13, 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	0.00	400kV THP - Siliguri Line - I	27.20	+	Unit-I & II Standby. Unit-III & IV AMP 400kV THP_SIL Line II & 400kV THP-SIL 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	129.16	+	
		Unit-V	69.38	400kV Malbase - Siliguri Line	3.30	+	
		Unit-VI	89.72	-	-	-	
		Total	159.10	Error at Station/Auxiliary Consumption/Losses		1.722%	
2	720MW MHP	Unit-I	125.14	400kV MHP - Jigmeling Line - I	116.05	+	Unit-II on Shutdown. Unit-III under breakdown. Unit-IV under AMP. 400kV MHP_JLG Line II, III & IV on standby. 400kV JLG_ALI line II on Standby. 80MVA Xmer ideal charge. 132kV MHP_Yurmoo line I is 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	8.00	+	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I	115.20	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	6.40	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	6.40	+	
		-	-	220kV Tsirang - Jigmeling Line	14.90	+	
		-	-	132kV Gelephu - Salakati Line	-26.00	-	
Total	125.14	Error at Station/Auxiliary Consumption/Losses		0.871%			
3	336MW CHP	Unit-I	0.00	220kV CHP - Birpara Line - I	-8.87	-	Unit-I on standby. Unit-IV under AMP. 220kV CHP_BIR line II on Standby. 66kV CHP_GEDU Line under maintenance.
		Unit-II	40.30	220kV CHP - Birpara Line - II	0.00		
		Unit-III	40.58	220kV CHP - Malbase Line - III	18.37	+	
		Unit-IV	0.00	220kV CHP - Semtokha Line - IV	58.16	+	
		-	-	220kV Malbase - Birpara Line	-25.06	-	
		-	-	66kV CHP - Chumdo Line	14.79	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	1.50	+	
Total	80.88	Error at Station/Auxiliary Consumption/Losses		-3.796%			
4	24MW BHP (U/S)	Unit-I	4.20	220kV BHP - Semtokha Line	-5.18	-	U/S Unit-II on standby. L/S Unit-II AMP
		Unit-II	0.00	66kV BHP - Lobeyasa Line	13.10	+	
		Total	4.20	220kV BHP - Tsirang Line	4.80	+	
	40MW BHP (L/S)	Unit-I	8.90	5MVA, 66/11kV TFR	0.90	+	
		Unit-II	0.00	30MVA ICT, 220/66kV (HV)	5.50		
Total	8.90	Error at Station/Auxiliary Consumption/Losses		-3.969%			
5	126MW DHP	Unit-I	14.20	220kV DHP - Tsirang Line	13.96	+	Unit-II AMP
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	2.10	+	
		-	-	5MVA, 220/33kV TFR	0.21	+	
		Total	14.20	Error at Station/Auxiliary Consumption/Losses		0.211%	
6	60MW KHP	Unit-I	0.00	132kV KHP - Nangkhor Line	9.46	+	Unit-I & III standby.
		Unit-II	13.12	132kV KHP - Kilikhar Line	15.92	+	
		Unit-III	0.00	5MVA, 132/11kV TFR	0.39	+	
		Unit-IV	13.11	132kV Motanga - Rangia Line	3.88	+	
		Total	26.23	Error at Station/Auxiliary Consumption/Losses		1.754%	

Note: Generation-Load Summary (MW) for April 13, 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	267.28	255.81	258.73	-3.43	-2.92
2	Eastern Grid	151.37	73.19	71.64	93.08	1.55
Total		418.65	329.00	330.37	89.65	-1.37

Note: Generation-Load Summary for April 13, 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	476.47	233.30	224.78	243.17	8.52
2	Eastern Grid	165.78	58.67	56.78	107.11	1.89
Total		642.25	291.97	281.56	350.28	10.41

NOTE-BHP & 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 14, 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	35.35	+	Unit-I under breadown. Unit II on standby. Unit III & IV 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	119.86	+	
		Unit- V	70.70	400kV Malbase - Siliguri Line	15.50	+	
		Unit- VI	89.91	-	-	-	
		Total	160.61	Error at Station/Auxiliary Consumption/Losses		3.362%	
2	720MW MHP	Unit-I	145.10	400kV MHP - Jigmeling Line - I	144.31	+	Unit-II on standby. Unit-III under Restoration. 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. 80MVA Xmer ideal charge. 132kV GEL_SALA Line under maintenance.
		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	142.80	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	0.00		
		-	-	80MVA, 220/132kV ICT - II (HV)	0.00		
		-	-	220kV Tsirang - Jigmeling Line	20.43	+	
		-	-	132kV Gelephu - Salakati Line	0.00		
Total	145.10	Error at Station/Auxiliary Consumption/Losses		0.544%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	-13.25	-	Unit-I on Standby. Unit-IV under AMP. 220kV CHP-BIR line II under maintenance. 66kV CHP_GEDU Line under maintenance
		Unit- II	39.99	220kV CHP - Birpara Line- II	0.00		
		Unit- III	36.21	220kV CHP - Malbase Line- III	33.53	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	44.40	+	
		-	-	220kV Malbase - Birpara Line	-46.63	-	
		-	-	66kV CHP - Chumdo Line	9.97	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	0.82	+	
Total	76.20	Error at Station/Auxiliary Consumption/Losses		0.958%			
4	24MW BHP (U/S)	Unit- I	4.20	220kV BHP - Semtokha Line	-7.10	-	U/S & L/S Unit-II on standby
		Unit- II	0.00	66kV BHP - Lobeyasa Line	10.60	+	
		Total	4.20	220kV BHP - Tsirang Line	8.00	+	
	40MW BHP (L/S)	Unit- I	8.30	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	7.00	+	
Total	8.30	Error at Station/Auxiliary Consumption/Losses		0.880%			
5	126MW DHP	Unit-I	14.18	220kV DHP - Tsirang Line	13.95	+	Unit-II under AMP
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	0.90	+	
		-	-	5MVA, 220/33kV TFR	0.12	+	
		Total	14.18	Error at Station/Auxiliary Consumption/Losses		0.776%	
6	60MW KHP	Unit- I	12.09	132kV KHP - Nangkhor Line	14.94	+	Unit-III & IV standby.
		Unit-II	12.07	132kV KHP - Kilikhar Line	8.58	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.36	+	
		Unit- IV	0.00	132kV Motanga - Rangia Line	-11.67	-	
		Total	24.16	Error at Station/Auxiliary Consumption/Losses		1.159%	

Note: Generation-Load Summary (MW) for April 14, 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	263.49	252.09	246.64	-9.03	5.45
2	Eastern Grid	169.26	58.56	57.49	131.13	1.07
Total		432.75	310.65	304.13	122.10	6.52

Note: Generation-Load Summary for April 14, 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	330.83	194.73	185.14	136.1	9.59
2	Eastern Grid	229.51	43.21	40.58	186.3	2.63
Total		560.34	237.94	225.72	322.40	12.22

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.
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