

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	April 30, 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	120.45	400kV THP - Siliguri Line - I	62.41	+	Unit- III & IV under AMP. Unit-II & VI on standby. 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	154.08	+	
		Unit- V	101.12	400kV Malbase - Siliguri Line	37.70	+	
		Unit- VI	0.00	-	-	-	
		Total	221.57	Error at Station/Auxiliary Consumption/Losses		2.293%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00		Unit I under AMP Unit-III under breakdown. 400kV MHP_JLG Line I, II & III Standby. 132kV MHP_Yurmo line I & II are not in service. 400/220kV ICT at JLG not in service 400kV JIG-ALI Line-II under standby.
		Unit-II	79.86	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00		
		Unit-IV	110.15	400kV MHP - Jigmeling Line - IV	187.89	+	
		-	-	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	186.30		
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	5.30	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	5.30	+	
		-	-	220kV Tsirang - Jigmeling Line	12.36	+	
		-	-	132kV Gelephu - Salakati Line	-27.55	-	
Total	190.01	Error at Station/Auxiliary Consumption/Losses		1.116%			
3	336MW CHP	Unit- I	52.12	220kV CHP - Birpara Line- I	14.55	+	Unit-II Standby. Unit-IV under AMP. 220kV CHP_BIR line II standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	0.00		
		Unit- III	55.81	220kV CHP - Malbase Line- III	29.74	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	44.77	+	
		-	-	220kV Malbase - Birpara Line	0.58	+	
		-	-	66kV CHP - Chumdo Line	11.82	+	
		-	-	66kV CHP - Gedu Line	3.98	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
Total	107.93	Error at Station/Auxiliary Consumption/Losses		1.733%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	0.54	+	U/S Unit-I & L/S Unit-II Standby 220kV BHP-Tsirang line under shutdown
		Unit- II	4.10	66kV BHP - Lobeyasa Line	11.00	+	
		Total	4.10	220kV BHP - Tsirang Line	0.00		
	40MW BHP (L/S)	Unit- I	8.50	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	7.72	+	
Total	8.50	Error at Station/Auxiliary Consumption/Losses		1.270%			
5	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	15.17	+	Unit-I Standby.
		Unit-II	15.42	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.90	+	
		-	-	5MVA, 220/33kV TFR	0.08	+	
		Total	15.42	Error at Station/Auxiliary Consumption/Losses		1.102%	
6	60MW KHP	Unit- I	12.08	132kV KHP - Nangkhor Line	18.28	+	Unit-IV Standby.
		Unit-II	12.06	132kV KHP - Kilikhar Line	17.25	+	
		Unit- III	12.11	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	0.00	132kV Motanga - Rangia Line	14.64	+	
		Total	36.25	Error at Station/Auxiliary Consumption/Losses		0.883%	

Note: Generation-Load Summary (MW) for April 30, 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	357.52	229.92	224.54	115.24	5.38
2	Eastern Grid	226.26	65.23	62.79	173.39	2.44
Total		583.78	295.15	287.33	288.63	7.82

Note: Generation-Load Summary for April 30, 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	619.52	219.53	208.78	373.91	10.75
2	Eastern Grid	243.32	60.17	58.32	209.23	1.85
Total		862.84	279.70	267.10	583.14	12.60

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.

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	May 1, 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	120.17	400kV THP - Siliguri Line - I	67.00	+	Unit II & VI on standby. Unit III & IV under AMP. 400kV THP-SIL Line II & 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	117.00	+	
		Unit- V	70.08	400kV Malbase - Siliguri Line	51.00	+	
		Unit- VI	0.00		-	-	
		Total	190.25	Error at Station/Auxiliary Consumption/Losses		3.285%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00		Unit-I under AMP. Unit-III under breakdown. 400kV MHP-JLG Line I, II & III on standby. 132kV MHP_Yurmo line I & II not in service. 400/220kV ICT at JLG not in service. 400kV JLG_ALI line II on standby.
		Unit-II	65.16	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00		
		Unit-IV	105.44	400kV MHP - Jigmeling Line - IV	169.80	+	
		-	-	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	167.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - II	0.00		
		-	-	80MVA, 220/132kV ICT - I (HV)	6.00	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	6.00	+	
		-	-	220kV Tsirang - Jigmeling Line	13.09	+	
		-	-	132kV Gelephu - Salakati Line	-15.03	-	
Total	170.60	Error at Station/Auxiliary Consumption/Losses		0.469%			
3	336MW CHP	Unit- I	49.00	220kV CHP - Birpara Line- I	4.00	+	Unit-II on standby. Unit-IV under AMP. 220kV CHP-BIR line II on standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	0.00		
		Unit- III	50.00	220kV CHP - Malbase Line- III	46.00	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	35.00	+	
		-	-	220kV Malbase - Birpara Line	-31.00	-	
		-	-	66kV CHP - Chumdo Line	9.50	+	
		-	-	66kV CHP - Gedu Line	2.60	+	
		-	-	3x3MVA, 66/11kV TFR	0.86	+	
Total	99.00	Error at Station/Auxiliary Consumption/Losses		1.051%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	3.14	+	U/S Unit-I & L/S Unit-II on standby 220kV BHP-Tsirang line under shutdown
		Unit- II	4.10	66kV BHP - Lobeyasa Line	9.70	+	
		Total	4.10	220kV BHP - Tsirang Line	0.00		
	40MW BHP (L/S)	Unit- I	9.30	5MVA, 66/11kV TFR	0.87	+	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	6.28	+	
Total	9.30	Error at Station/Auxiliary Consumption/Losses		-2.313%			
5	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	14.56	+	Unit-I on standby. 220kV DHP-Dagapela Line on standby.
		Unit-II	14.74	220kV DHP - Dagapela Line	0.00	+	
		-	-	220kV Jigmeling - Dagapela Line	1.00	+	
		-	-	5MVA, 220/33kV TFR	0.10	+	
		Total	14.74	Error at Station/Auxiliary Consumption/Losses		0.543%	
6	60MW KHP	Unit- I	11.10	132kV KHP - Nangkhor Line	18.36	+	Unit-IV standby.
		Unit-II	11.10	132kV KHP - Kilikhar Line	14.24	+	
		Unit- III	11.11	5MVA, 132/11kV TFR	0.21	+	
		Unit- IV	0.00	132kV Motanga - Rangia Line	9.59	+	
		Total	33.31	Error at Station/Auxiliary Consumption/Losses		1.507%	

Note: Generation-Load Summary (MW) for May 01, 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	317.39	213.30	207.24	91.00	6.06
2	Eastern Grid	203.91	55.44	54.14	161.56	1.30
Total		521.30	268.74	261.38	252.56	7.36

Note: Generation-Load Summary for May 01, 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	523.24	196.36	194.26	312.51	2.10
2	Eastern Grid	283.23	42.53	40.61	255.07	1.92
Total		806.47	238.89	234.87	567.58	4.02

NOTE-Western 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.