

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: March 15, 2022
Hours: 18:00 Hours

Date **Time** **Load(MW)**
 12-Jan-22 18:00hrs 492.25

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	0.00	THP under total Shutdown.
		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	0.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-46.99	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	186.61	Unit-I & II under Annual Maintenance. 400kV MHP-JLG Line III under Annual Maintenance . 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG-ALI I (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	45.01	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	143.50	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)	64.33	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	46.54	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	73.10	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	15.25	
		-	-	80MVA, 220/132kV ICT - II (HV)	15.51	
		-	-	220kV Tsirang - Jigmeling Line	-59.37	
-	-	132kV Gelephu - Salakati Line	-0.73			
Total	188.51	Auxiliary Consumption & Transformation Losses at Generator end	1.01%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	18.10	Unit-I under maintenance. Unit-II on standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	18.00	
		Unit- III	90.14	220kV CHP - Malbase Line- III	70.74	
		Unit- IV	89.75	220kV CHP - Semtokha Line- IV	52.34	
		-	-	220kV Malbase - Birpara Line	-25.02	
		-	-	66kV CHP - Chumdo Line	13.92	
		-	-	66kV CHP - Gedu Line	3.43	
		-	-	3x3MVA, 66/11kV TFR	1.19	
Total	179.89	Auxiliary Consumption & Transformation Losses at Generator end	1.21%			
4	24MW BHP (U/S)	Unit- I	7.70	220kV BHP - Semtokha Line	57.80	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	21.86	
		Total	7.70	220kV BHP - Tsirang Line	-55.31	
5	40MW BHP (L/S)	Unit- I	17.10	5MVA, 66/11kV TFR	0.53	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	14.93	
		Total	17.10	Auxiliary Consumption & Transformation Losses at Generator end	-0.32%	
6	126MW DHP	Unit-I	32.28	220kV DHP - Tsirang Line	0.00	Unit-II under Annual Maintenance. 220kV DHP_Tsirang Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	32.05	
		-	-	220kV Jigmeling - Dagapela Line	-26.34	
		-	-	5MVA, 220/33kV TFR	0.22	
Total	32.28	Auxiliary Consumption & Transformation Losses at Gen. end	0.03%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	22.11	Unit-I under AMP.
		Unit-II	13.40	132kV KHP - Kilikhar Line	16.85	
		Unit- III	13.39	5MVA, 132/11kV TFR	0.69	
		Unit- IV	13.28	132kV Motanga - Rangia Line	7.41	
		Total	40.07	Auxiliary Consumption & Transformation Losses at Generator end	1.05%	

Note: Generation-Load Summary (MW) for March 15, 2022 at 18:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	236.97	332.25	330.15	-35.91	2.10
2	Eastern Grid	228.58	42.89	40.57	126.32	2.32
Total		465.55	375.14	370.72	90.41	4.42

Note: Generation-Load Summary for March 15, 2021 at 18:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	370.87	256.37	253.57	93.96	2.80
2	Eastern Grid	152.69	77.96	76.93	95.27	1.03
Total		523.56	334.33	330.50	189.23	3.83

NOTE- BHP data collected from site.

1. The Instantaneous load balance,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

Coincidental Maximum Load

Date:	March 16, 2022
Hours:	09:00 Hours

Date	Time	Load(MW)
12-Jan-22	18:00hrs	492.25

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	0.00	THP under total shutdown.
		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	0.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-55.67	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	207.11	Unit-I & II under Annual Maintenance. 400kV MHP-JLG Line III under Annual Maintenance. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG-ALI I (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	103.58	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	105.42	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)	72.62	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	50.90	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	79.67	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	17.03	
		-	-	80MVA, 220/132kV ICT - II (HV)	17.32	
		-	-	220kV Tsirang - Jigmeling Line	-60.52	
-	-	132kV Gelephu - Salakati Line	-3.11			
Total	209.00	Auxiliary Consumption & Transformation Losses at Generator end	0.90%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	6.91	Unit-II on standby. Unit-I under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Line- II	6.97	
		Unit- III	68.83	220kV CHP - Malbase Line- III	67.58	
		Unit- IV	73.70	220kV CHP - Semtokha Line- IV	42.04	
		-	-	220kV Malbase - Birpara Line	-40.78	
		-	-	66kV CHP - Chumdo Line	13.14	
		-	-	66kV CHP - Gedu Line	3.59	
		-	-	3x3MVA, 66/11kV TFR	1.15	
Total	142.53	Auxiliary Consumption & Transformation Losses at Generator end	0.81%			
4	24MW BHP (U/S)	Unit- I	8.40	220kV BHP - Semtokha Line	64.90	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	21.98	
		Total	8.40	220kV BHP - Tsirang Line	-58.26	
5	40MW BHP (L/S)	Unit- I	20.20	5MVA, 66/11kV TFR	0.38	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	13.90	
		Total	20.20	Auxiliary Consumption & Transformation Losses at Generator end	-1.40%	
6	126MW DHP	Unit-I	30.77	220kV DHP - Tsirang Line	0.00	Unit-II under Annual maintenance. 220kV DHP_Tsirang Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	30.57	
		-	-	220kV Jigmeling - Dagapela Line	-23.09	
		-	-	5MVA, 220/33kV TFR	0.15	
Total	30.77	Auxiliary Consumption & Transformation Losses at Generator end	0.16%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	19.55	Unit-I under AMP.
		Unit-II	11.78	132kV KHP - Kilikhar Line	14.81	
		Unit- III	11.80	5MVA, 132/11kV TFR	0.68	
		Unit- IV	11.71	132kV Motanga - Rangia Line	6.55	
		Total	35.29	Auxiliary Consumption & Transformation Losses at Generator end	0.72%	

Note: Generation-Load Summary (MW) for March 16, 2022 at 09:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	201.90	344.99	344.19	-82.57	0.80
2	Eastern Grid	244.29	49.76	47.62	134.01	2.14
Total		446.19	394.75	391.81	51.44	2.94

Note: Generation-Load Summary for March 16, 2021 at 09:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	272.66	227.58	227.62	36.86	-0.04
2	Eastern Grid	176.14	58.46	57.89	125.90	0.57
Total		448.80	286.04	285.51	162.76	0.53

NOTE-BHP data collected from Site.

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- 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.
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