

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	April 22, 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	117.09	400kV THP - Siliguri Line - I	0.00	Unit-IV under Annual Maintenance & Unit-III & V on standby. 400kV THP-Siliguri line I & II under breakdown
		Unit- II	120.43	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	143.15	
		Unit- IV	0.00	400kV THP - Malbase Line - III	211.28	
		Unit- V	0.00	400kV Malbase - Siliguri Line	125.75	
		Unit- VI	119.78	-	-	
		Total	357.30	Auxiliary Consumption & Transformation Losses at Generator end	0.80%	
2	720MW MHP	Unit-I	104.80	400kV MHP - Jigmeling Line - I	103.71	Unit- III on Standby. Unit-II under Annual Maintenance. 400kV MHP-JLG Line II & 400kV MHP-JLG Line III on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby. 132kV Gelephu_Salakati line under shutdown
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	105.02	400kV MHP - Jigmeling Line - IV	104.26	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	81.08	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	49.87	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	75.75	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	18.85	
		-	-	80MVA, 220/132kV ICT - II (HV)	19.16	
		-	-	220kV Tsirang - Jigmeling Line	-56.10	
-	-	132kV Gelephu - Salakati Line	0.00			
Total	209.82	Auxiliary Consumption & Transformation Losses at Generator end	0.88%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	18.50	Unit-I & Unit-II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Line- II	18.61	
		Unit- III	84.32	220kV CHP - Malbase Line- III	65.09	
		Unit- IV	91.14	220kV CHP - Semtokha Line- IV	51.68	
		-	-	220kV Malbase - Birpara Line	-19.24	
		-	-	66kV CHP - Chumdo Line	12.85	
		-	-	66kV CHP - Gedu Line	4.87	
		-	-	3x3MVA, 66/11kV TFR	1.10	
Total	175.46	Auxiliary Consumption & Transformation Losses at Generator end	1.57%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	45.76	U/S Unit-I under AMP. L/S Unit-II under AMP.
		Unit- II	5.60	66kV BHP - Lobeysa Line	19.21	
		Total	5.60	220kV BHP - Tsirang Line	-47.99	
5	40MW BHP (L/S)	Unit- I	11.40	5MVA, 66/11kV TFR	0.49	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	14.09	
		Total	11.40	Auxiliary Consumption & Transformation Losses at Generator end	-2.76%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	0.00	Unit-I on standby. 220kV DHP_Tsirang Line on Standby.
		Unit-II	21.49	220kV DHP - Dagapela Line	21.26	
		-	-	220kV Jigmeling - Dagapela Line	-12.87	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	21.49	Auxiliary Consumption & Transformation Losses at Gen. end	0.14%			
7	60MW KHP	Unit- I	15.11	132kV KHP - Nangkhon Line	28.77	Unit II on standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	15.72	
		Unit- III	15.06	5MVA, 132/11kV TFR	0.35	
		Unit- IV	15.09	132kV Motanga - Rangia Line	11.86	
		Total	45.26	Auxiliary Consumption & Transformation Losses at Generator end	0.92%	

Note: Generation-Load Summary (MW) for April 22, 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	571.25	327.71	322.52	286.77	5.19
2	Eastern Grid	255.08	74.37	72.10	137.48	2.27
Total		826.33	402.08	394.62	424.25	7.46

Note: Generation-Load Summary for April 22, 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	271.77	221.28	217.22	37.86	4.06
2	Eastern Grid	171.99	78.40	76.34	106.22	2.06
Total		443.76	299.68	293.56	144.08	6.12

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:	April 23, 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	78.13	400kV THP - Siliguri Line - I	0.00	Unit-IV under Annual Maintenance, Unit-III & V on standby. 400kV THP-Siliguri line I & II under breakdown
		Unit- II	99.29	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	117.80	
		Unit- IV	0.00	400kV THP - Malbase Line - III	175.45	
		Unit- V	0.00	400kV Malbase - Siliguri Line	103.03	
		Unit- VI	119.66	-	-	
		Total	297.08	Auxiliary Consumption & Transformation Losses at Generator end	1.29%	
2	720MW MHP	Unit-I	140.19	400kV MHP - Jigmeling Line - I	139.06	Unit- III on Standby. Unit-II under Annual Maintenance. 400kV MHP-JLG Line II under AMP & 400kV MHP-JLG Line III on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby. 132kV Gelephu_Salakati line under shutdown
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	140.51	400kV MHP - Jigmeling Line - IV	139.66	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	73.94	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	80.68	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	121.77	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	9.02	
		-	-	80MVA, 220/132kV ICT - II (HV)	9.22	
		-	-	220kV Tsirang - Jigmeling Line	-67.14	
-	-	132kV Gelephu - Salakati Line	0.00			
Total	280.70	Auxiliary Consumption & Transformation Losses at Generator end	0.71%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	11.52	Unit-I on Standby & Unit-II under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Line- II	11.60	
		Unit- III	74.88	220kV CHP - Malbase Line- III	64.33	
		Unit- IV	74.09	220kV CHP - Semtokha Line- IV	41.38	
		-	-	220kV Malbase - Birpara Line	-30.40	
		-	-	66kV CHP - Chumdo Line	12.59	
		-	-	66kV CHP - Gedu Line	4.46	
		-	-	3x3MVA, 66/11kV TFR	0.81	
Total	148.97	Auxiliary Consumption & Transformation Losses at Generator end	1.53%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	58.00	U/S Unit-I on Standby. L/S Unit-II under AMP.
		Unit- II	5.70	66kV BHP - Lobeyasa Line	19.70	
		Total	5.70	220kV BHP - Tsirang Line	-60.97	
5	40MW BHP (L/S)	Unit- I	11.50	5MVA, 66/11kV TFR	0.42	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	14.56	
		Total	11.50	Auxiliary Consumption & Transformation Losses at Generator end	0.29%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	0.00	Unit-I on Standby. 220kV DHP_Tsirang Line on Standby.
		Unit-II	20.37	220kV DHP - Dagapela Line	20.15	
		-	-	220kV Jigmeling - Dagapela Line	-12.01	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	20.37	Auxiliary Consumption & Transformation Losses at Generator end	0.10%			
7	60MW KHP	Unit- I	15.08	132kV KHP - Nangkhoh Line	41.39	
		Unit-II	15.03	132kV KHP - Kilikhar Line	18.05	
		Unit- III	15.11	5MVA, 132/11kV TFR	0.35	
		Unit- IV	15.07	132kV Motanga - Rangia Line	7.70	
		Total	60.29	Auxiliary Consumption & Transformation Losses at Generator end	0.83%	

Note: Generation-Load Summary (MW) for April 23, 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	483.62	325.20	319.02	213.55	6.18
2	Eastern Grid	340.99	75.71	73.23	210.15	2.48
Total		824.61	400.91	392.25	423.70	8.66

Note: Generation-Load Summary for April 23, 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	366.50	195.39	189.11	155.76	6.28
2	Eastern Grid	176.47	55.04	53.42	136.78	1.62
Total		542.97	250.43	242.53	292.54	7.90

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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