

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	July 26, 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	97.42	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I & II under breakdown.
		Unit- II	96.93	400kV THP - Siliguri Line - II	0.00		
		Unit- III	108.44	400kV THP - Siliguri Line- IV	271.01	+	
		Unit- IV	98.79	400kV THP - Malbase Line - III	325.25	+	
		Unit- V	97.79	400kV Malbase - Siliguri Line	256.80	+	
		Unit- VI	98.56	-	-	-	
		Total	597.93	Auxiliary Consumption & Transformation Losses at Gen. end	0.279%		
2	720MW MHP	Unit-I	197.97	400kV MHP - Jigmeling Line - I	294.10	+	Unit-III under Restoration . 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II(Interim) under shutdown.
		Unit-II	196.39	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.61	+	
		Unit-IV	197.86	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)	-13.20	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	148.10	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	221.20	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	221.20	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	39.30	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	39.40	+	
		-	-	220kV Tsirang - Jigmeling Line	97.10	+	
-	-	132kV Gelephu - Salakati Line	21.37	+			
Total	592.22	Auxiliary Consumption & Transformation Losses at Gen. end	0.424%				
3	336MW CHP	Unit- I	91.52	220kV CHP - Birpara Line- I	103.73	+	
		Unit- II	90.63	220kV CHP - Birpara Line- II	103.80	+	
		Unit- III	91.56	220kV CHP - Malbase Line- III	114.43	+	
		Unit- IV	91.53	220kV CHP - Semtokha Line- IV	26.53	+	
		-	-	220kV Malbase - Birpara Line	82.09	+	
		-	-	66kV CHP - Chumdo Line	10.03	+	
		-	-	66kV CHP - Gedu Line	4.85	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
		Total	365.24	Auxiliary Consumption & Transformation Losses at Gen. end	0.183%		
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	31.70	+	
		Unit- II	12.10	66kV BHP - Lobeyssa Line	24.50	+	
		Total	24.40	220kV BHP - Tsirang Line	7.21	+	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	2.54	+	
		Total	41.50	Auxiliary Consumption & Transformation Losses at Gen. end	2.413%		
6	126MW DHP	Unit-I	47.40	220kV DHP - Tsirang Line	94.05	+	220kV DHP_Dagapela Line on standby.
		Unit-II	47.03	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.70	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	94.43	Auxiliary Consumption & Transformation Losses at Gen. end	0.085%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	24.53	+	KHP Unit III under emergency shutdown.
		Unit-II	16.50	132kV KHP - Kilikhar Line	23.90	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.36	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	44.16	+	
		Total	49.50	Auxiliary Consumption & Transformation Losses at Gen. end	1.434%		

Note: Generation-Load Summary (MW) for July 26, 2021 at 19:00hrs.

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) at Generator end.
1	Western Grid	1,123.50	208.97	206.66	817.43	2.31
2	Eastern Grid	641.72	82.79	79.57	656.03	3.22
	Total	1,765.22	291.76	286.23	1,473.46	5.53

Note: Generation-Load Summary for July 26, 2020 at 19:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses
1	Western Grid	1,676.87	225.46	210.74	1,359.96	14.72
2	Eastern Grid	659.81	55.30	54.46	695.96	0.84
	Total	2,336.68	280.76	265.20	2,055.92	15.56

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.
 - 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:	July 27, 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	97.17	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I & II under breakdown.
		Unit- II	99.59	400kV THP - Siliguri Line - II	0.00		
		Unit- III	108.71	400kV THP - Siliguri Line- IV	282.76	+	
		Unit- IV	99.49	400kV THP - Malbase Line - III	315.38	+	
		Unit- V	98.34	400kV Malbase - Siliguri Line	271.54	+	
		Unit- VI	98.38	-	-	-	
		Total	601.68	Auxiliary Consumption & Transformation Losses at Generator end	0.588%		
2	720MW MHP	Unit-I	197.87	400kV MHP - Jigmeling Line - I	294.01	+	Unit-III under Restoration. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line II (Interim) under standby.
		Unit-II	197.02	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.66	+	
		Unit-IV	197.82	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)	-60.20	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	160.30	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	240.50	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	240.50	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	28.20	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	28.30	+	
		-	-	220kV Tsirang - Jigmeling Line	118.32	+	
		-	-	132kV Gelephu - Salakati Line	21.94	+	
Total	592.71	Auxiliary Consumption & Transformation Losses at Generator end	0.513%				
3	336MW CHP	Unit- I	91.92	220kV CHP - Birpara Line- I	102.46	+	
		Unit- II	90.69	220kV CHP - Birpara Line- II	102.70	+	
		Unit- III	91.64	220kV CHP - Malbase Line- III	139.43	+	
		Unit- IV	91.64	220kV CHP - Semtokha Line- IV	7.73	+	
		-	-	220kV Malbase - Birpara Line	59.00	+	
		-	-	66kV CHP - Chumdo Line	6.36	+	
		-	-	66kV CHP - Gedu Line	5.06	+	
		-	-	3x3MVA, 66/11kV TFR	0.70	+	
		Total	365.89	Auxiliary Consumption & Transformation Losses at Generator end	0.396%		
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	45.23	+	
		Unit- II	12.20	66kV BHP - Lobeysa Line	23.50	+	
		Total	24.50	220kV BHP - Tsirang Line	-4.76	-	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	1.39	+	
		Total	41.50	Auxiliary Consumption & Transformation Losses at Generator end	1.742%		
6	126MW DHP	Unit-I	63.63	220kV DHP - Tsirang Line	126.37	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.24	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.10	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	126.87	Auxiliary Consumption & Transformation Losses at Generator end	0.158%		
7	60MW KHP	Unit- I	16.69	132kV KHP - Nangkhon Line	29.45	+	Unit-III under maintenance
		Unit-II	16.68	132kV KHP - Kilikhar Line	19.85	+	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.32	+	
		Unit- IV	16.53	132kV Motanga - Rangia Line	29.25	+	
		Total	49.90	Auxiliary Consumption & Transformation Losses at Generator end	0.561%		

Note: Generation-Load Summary (MW) for July 27, 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) at Generator end.
1	Western Grid	1,160.44	223.66	218.42	818.46	5.24
2	Eastern Grid	642.61	68.44	65.12	692.49	3.32
	Total	1,803.05	292.10	283.54	1,510.95	8.56

Note: Generation-Load Summary for July 27, 2020 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
1	Western Grid	1,676.87	239.72	224.73	1,359.96	14.99
2	Eastern Grid	659.81	37.37	36.30	699.63	1.07
	Total	2,336.68	277.09	261.03	2,059.59	16.06

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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