

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

| | |
|--------|------------------|
| Date: | January 17, 2020 |
| Hours: | 19:00 Hours |

| Date | Time | Load(MW) |
|-----------|----------|----------|
| 27-Dec-18 | 18:18hrs | 399.35MW |

| Sl. No. | Hydropower Plant | Unit | MW | Name of Feeders | Load (MW) | Sign | Remarks |
|---------|------------------|--------------|---------------|--|--------------|------|---|
| 1 | 1020MW THP | Unit- I | 0.00 | 400kV THP - Siliguri Fdr- I | 84.00 | + | Unit- III & V AND 400kV THP_SIL II standby. Unit-I & II under shutdown. 400kV THP_SILL-IV under shutdown. |
| | | Unit- II | 0.00 | 400kV THP - Siliguri Fdr- II | 0.00 | | |
| | | Unit- III | 0.00 | 400kV THP - Siliguri Fdr- IV | 0.00 | | |
| | | Unit- IV | 140.00 | 400kV THP - Malbase Fdr- III | 143.00 | + | |
| | | Unit- V | 0.00 | 400kV Malbase - Siliguri | 61.00 | + | |
| | | Unit- VI | 100.00 | - | - | - | |
| | | Total | 240.00 | Error at Station/Auxiliary Consumption/Losses | 13.00 | | |
| 2 | 720MW MHP | Unit-I | 104.15 | 400kV MHP - Jigmeling Fdr - I | 0.00 | | Unit-III under maintenance. Unit-II & IV standby. 400kV MHP-JLG I & II under shutdown. 400kV MHP-JLG IV standby. |
| | | Unit-II | 0.00 | 400kV MHP - Jigmeling Fdr - II | 0.00 | | |
| | | Unit-III | 0.00 | 400kV MHP - Jigmeling Fdr - III | 102.15 | + | |
| | | Unit-IV | 0.00 | 400kV MHP - Jigmeling Fdr - IV | 0.00 | | |
| | | - | - | 200MVA, 400/132kV ICT | | | |
| | | - | - | (Local Load) | | | |
| | | Total | 104.15 | Error at Station/Auxiliary Consumption/Losses | 2.00 | | |
| 3 | 336MW CHP | Unit- I | 0.00 | 220kV CHP - Birpara Fdr- I | 0.00 | | 220kV CHP-BIR I standby Unit-I & II under shutdown |
| | | Unit- II | 0.00 | 220kV CHP - Birpara Fdr- II | 1.30 | + | |
| | | Unit- III | 39.00 | 220kV CHP - Malbase Fdr- III | 32.40 | + | |
| | | Unit- IV | 70.00 | 220kV CHP - Sementokha Fdr- IV | 60.90 | + | |
| | | - | - | 220kV Malbase - Birpara Fdr. | -21.00 | - | |
| | | - | - | 66kV CHP - Chumdo Fdr. | 15.80 | + | |
| | | - | - | 66kV CHP - Gedu Fdr. | 3.30 | + | |
| | | Total | 109.00 | Error at Station/Auxiliary Consumption/Losses | -6.64 | | |
| 4 | 24MW BHP (U/S) | Unit- I | 6.60 | 220kV BHP - Sementokha Fdr. | 3.35 | + | U/S Unit-II & L/S Unit I under maintenance. |
| | | Unit- II | 0.00 | 66kV BHP - Lobeyasa Fdr. | 17.43 | + | |
| | | Total | 6.60 | 220kV BHP - Tsirang Fdr. | -2.05 | - | |
| | 40MW BHP (L/S) | Unit- I | 0.00 | 5MVA, 66/11kV TFR | 0.94 | + | |
| | | Unit- II | 13.20 | 30MVA ICT, 220/66kV | | | |
| | | Total | 13.20 | Error at Station/Auxiliary Consumption/Losses | 0.13 | | |
| 5 | 126MW DHPC | Unit-I | 0.00 | 220kV DHPC - Tsirang Fdr. | 19.92 | + | Unit I under shutdown |
| | | Unit-II | 20.15 | 220kV Jigmeling - Dagapela Fdr. | | | |
| | | - | - | 5MVA, 220/33kV TFR | | | |
| | | Total | 20.15 | Error at Station/Auxiliary Consumption/Losses | 0.23 | | |
| 6 | 60MW KHP | Unit- I | 12.24 | 132kV KHP - Nangkhon Fdr- I | 9.74 | + | Unit-II & III Annual Maintenance. |
| | | Unit-II | 0.00 | 132kV KHP - Kilikhar Fdr- II | 11.39 | + | |
| | | Unit- III | 0.00 | 5MVA, 132/11kV TFR | 0.60 | + | |
| | | Unit- IV | 10.07 | 132kV Gelephu - Salakati Fdr. | -20.00 | - | |
| | | - | - | 132kV Motanga - Rangia Fdr. | -13.00 | - | |
| | | - | - | 220kV Tsirang - Jigmeling | 15.27 | + | |
| | | Total | 22.31 | Error at Station/Auxiliary Consumption/Losses | 0.58 | | |

Note: Load summary on January 17, 2020 at 19:00hrs.

| Sl. No | Region | Total Generation (MW) | Total Load [Generation - Export (MW)] | Total Load [Feeder Summation (MW)] | Total Export/Import | Load Balance |
|--------|--------------|-----------------------|---------------------------------------|------------------------------------|---------------------|--------------|
| 1 | Western Grid | 388.95 | 248.38 | 241.66 | 125.30 | 6.72 |
| 2 | Eastern Grid | 126.46 | 72.58 | 70.00 | 69.15 | 2.58 |
| | Total | 515.41 | 320.96 | 311.66 | 194.45 | 9.30 |

Note: Load Summary on January 17, 2019 at 19:00hrs

| Sl. No | Region | 19:00Hrs Load (MW) | Day Peak Load (MW) | Month Peak Load (MW) |
|--------|-----------------|--------------------|--------------------|----------------------|
| 1 | Western Grid | 263.77 | 263.77 | 308.60 |
| 2 | Eastern Grid | 60.67 | 61.33 | 65.91 |
| | National | 324.44 | 325.10 | 374.51 |

NOTES: Eastern & 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.

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

| | |
|--------|------------------|
| Date: | January 18, 2020 |
| Hours: | 09:00 Hours |

| Date | Time | Load(MW) |
|-----------|----------|----------|
| 27-Dec-18 | 18:18hrs | 399.35MW |

| Sl. No. | Hydropower Plant | Unit | MW | Name of Feeders | Load (MW) | Sign | Remarks |
|--------------|------------------|--|---------------|--|-------------|------|--|
| 1 | 1020MW THP | Unit- I | 0.00 | 400kV THP - Siliguri Fdr- I | 43.00 | + | Unit- III & V at standby. Unit-I & II under shutdown. 400kV THP_SILI-IV under shutdown. |
| | | Unit- II | 0.00 | 400kV THP - Siliguri Fdr- II | 0.00 | | |
| | | Unit- III | 0.00 | 400kV THP - Siliguri Fdr- IV | 0.00 | | |
| | | Unit- IV | 70.00 | 400kV THP - Malbase Fdr- III | 103.00 | + | |
| | | Unit- V | 0.00 | 400kV Malbase - Siliguri | 23.00 | + | |
| | | Unit- VI | 80.00 | - | - | - | |
| | | Total | 150.00 | Error at Station/Auxiliary Consumption/Losses | 4.00 | | |
| 2 | 720MW MHP | Unit-I | 109.00 | 400kV MHP - Jigmeling Fdr - I | 0.00 | | Unit-III under maintenance. Unit-I & II standby. 400kV MHP-JLG I & II under shutdown. 400kV MHP-JLG IV standby. |
| | | Unit-II | 0.00 | 400kV MHP - Jigmeling Fdr - II | 0.00 | | |
| | | Unit-III | 0.00 | 400kV MHP - Jigmeling Fdr - III | 107.00 | + | |
| | | Unit-IV | 0.00 | 400kV MHP - Jigmeling Fdr - IV | 0.00 | | |
| | | - | - | 200MVA, 400/132kV ICT | | | |
| | | - | - | (Local Load) | | | |
| | | Total | 109.00 | Error at Station/Auxiliary Consumption/Losses | 2.00 | | |
| 3 | 336MW CHP | Unit- I | 0.00 | 220kV CHP - Birpara Fdr- I | 0.00 | | Unit-I & II under shutdownn. 220kV CHP-BIR I Standby |
| | | Unit- II | 0.00 | 220kV CHP - Birpara Fdr- II | -5.10 | - | |
| | | Unit- III | 35.50 | 220kV CHP - Malbase Fdr- III | 30.90 | + | |
| | | Unit- IV | 38.50 | 220kV CHP - Sementokha Fdr- IV | 31.00 | + | |
| | | - | - | 220kV Malbase - Birpara Fdr. | -32.00 | - | |
| | | - | - | 66kV CHP - Chumdo Fdr. | 11.00 | + | |
| | | - | - | 66kV CHP - Gedu Fdr. | 3.60 | + | |
| | | Total | 74.00 | Error at Station/Auxiliary Consumption/Losses | 0.90 | | |
| 4 | 24MW BHP (U/S) | Unit- I | 6.70 | 220kV BHP - Sementokha Fdr. | 18.17 | + | U/S Unit-II & L/S Unit I under maintenace. |
| | | Unit- II | 0.00 | 66kV BHP - Lobeyasa Fdr. | 14.12 | + | |
| | | Total | 6.70 | 220kV BHP - Tsirang Fdr. | -12.10 | - | |
| | 40MW BHP (L/S) | Unit- I | 0.00 | 5MVA, 66/11kV TFR | 0.98 | + | |
| | | Unit- II | 13.50 | 30MVA ICT, 220/66kV | | | |
| Total | 13.50 | Error at Station/Auxiliary Consumption/Losses | -0.97 | | | | |
| 5 | 126MW DHPC | Unit-I | 0.00 | 220kV DHPC - Tsirang Fdr. | 21.92 | + | Unit I under shutdown |
| | | Unit-II | 22.15 | 220kV Jigmeling - Dagapela Fdr. | | | |
| | | - | - | 5MVA, 220/33kV TFR | | | |
| | | Total | 22.15 | Error at Station/Auxiliary Consumption/Losses | 0.23 | | |
| 6 | 60MW KHP | Unit- I | 0.00 | 132kV KHP - Nangkhor Fdr- I | 15.58 | + | Unit-I on standby. Unit-II & III Annual Maintenance. |
| | | Unit-II | 0.00 | 132kV KHP - Kilikhar Fdr- II | 0.00 | + | |
| | | Unit- III | 0.00 | 5MVA, 132/11kV TFR | 0.45 | + | |
| | | Unit- IV | 16.43 | 132kV Gelephu - Salakati Fdr. | -13.00 | - | |
| | | - | - | 132kV Motanga - Rangia Fdr. | -8.65 | - | |
| | | - | - | 220kV Tsirang - Jigmeling | 7.00 | + | |
| | | Total | 16.43 | Error at Station/Auxiliary Consumption/Losses | 0.40 | | |

Note: Load summary on January 18, 2020 at 09:00hrs.

| Sl. No | Region | Total Generation (MW) | Total Load [Generation - Export (MW)] | Total Load [Feeder Summation (MW)] | Total Export/Import | Load Balance |
|--------|--------------|-----------------------|---------------------------------------|------------------------------------|---------------------|--------------|
| 1 | Western Grid | 266.35 | 230.45 | 226.29 | 28.90 | 4.16 |
| 2 | Eastern Grid | 125.43 | 47.08 | 44.68 | 85.35 | 2.40 |
| | Total | 391.78 | 277.53 | 270.97 | 114.25 | 6.56 |

Note: Load Summary on January 18, 2019 at 09:00hrs

| Sl. No | Region | 09:00Hrs Load (MW) | Day Peak Load (MW) | Month Peak Load (MW) |
|--------|-----------------|--------------------|--------------------|----------------------|
| 1 | Western Grid | 242.53 | 270.43 | 308.60 |
| 2 | Eastern Grid | 45.69 | 58.37 | 65.91 |
| | National | 288.22 | 328.80 | 374.51 |

NOTES:Eastern and 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.
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