

Market Design Evolution and Forecasting Integration in the AESO

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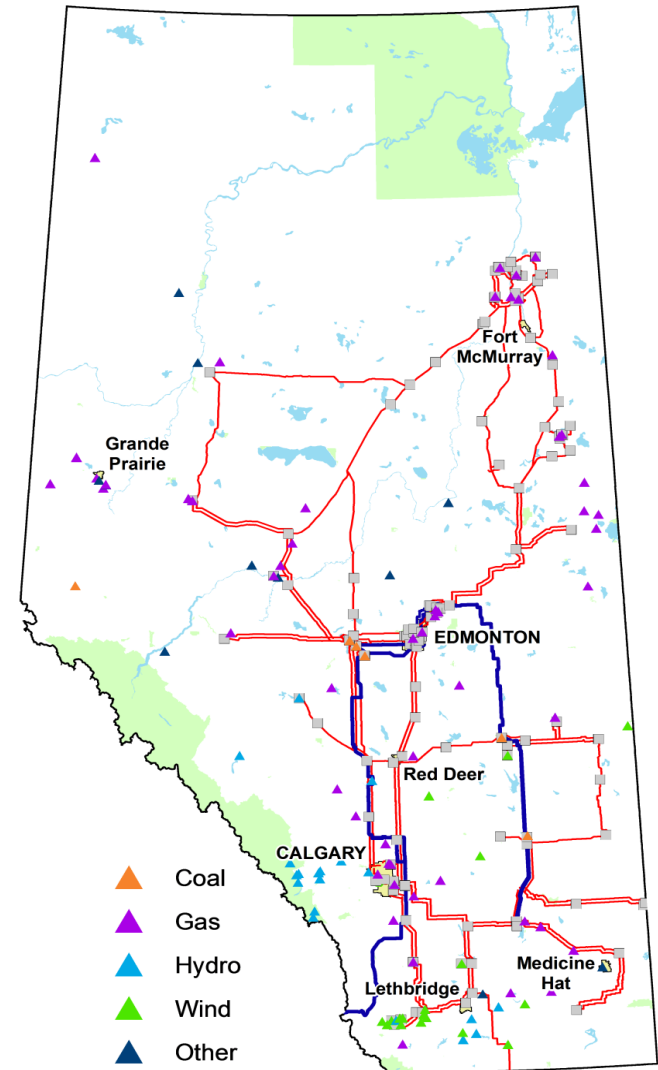
Renewables Advisor

ESIG Saint Paul, MN

June 2018

Alberta's power grid: A snapshot

- Reliability mandate for Alberta
- High industrial load
- 26,000+ km of transmission
- 235 generating units
- 200+ projects active in AESO connection queue
- 16,626 MW installed generation
- Winter Peaking ~11,400 MW
- 1,445 MW installed wind
- Three interconnections: B.C., Saskatchewan, Montana



Alberta has 16,626 MW of installed generation (2017 Market Stats)



Type

Installed
Capacity
(MW)

Percentage of
Installed
Capacity (%)

Portion of Energy
Production in 2015
(%, Net-to-grid)



Coal

6,283

38%

58%



Cogeneration

4,936

30%

17%



Gas

2,619

16%

13%



Hydro

894

5%

3%



Wind

1,445

9%

7%



Other Renewables

449

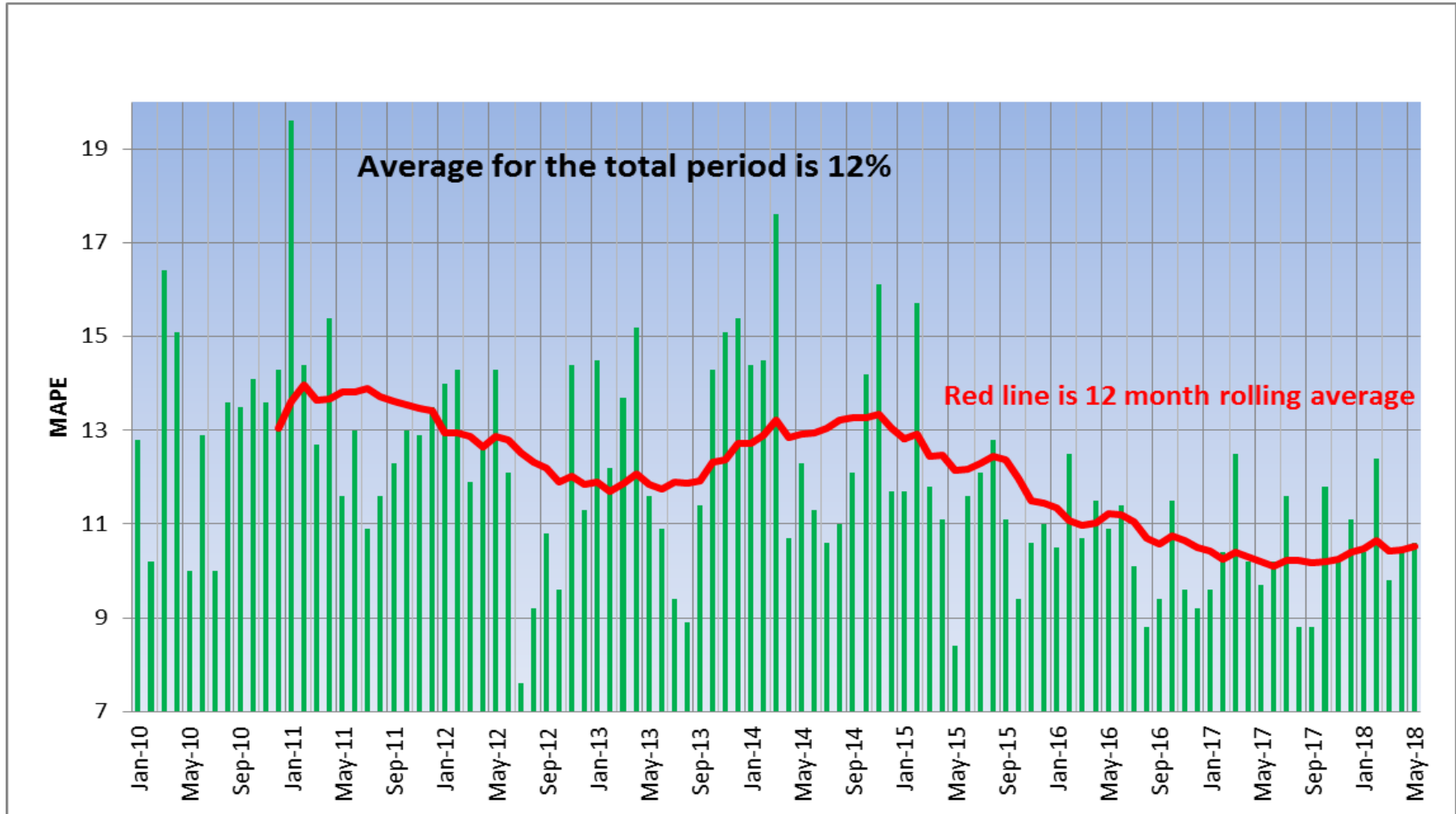
3%

1%

REP (Renewable Electricity Program)

- Phase-out coal by 2030 under the Climate Leadership Plan
- In Dec 2017, 600 MW of wind at a weighted average bid price of \$37/MWh was awarded
- Must be operational in 2019
- REP round 2 and 3 are in parallel and selection will be Dec 2018. Target commercial date June 2021
- REP 2 target is 300 MW and REP 3 is 400 MW
- REP 2 requires a minimum 25 per cent Indigenous equity ownership

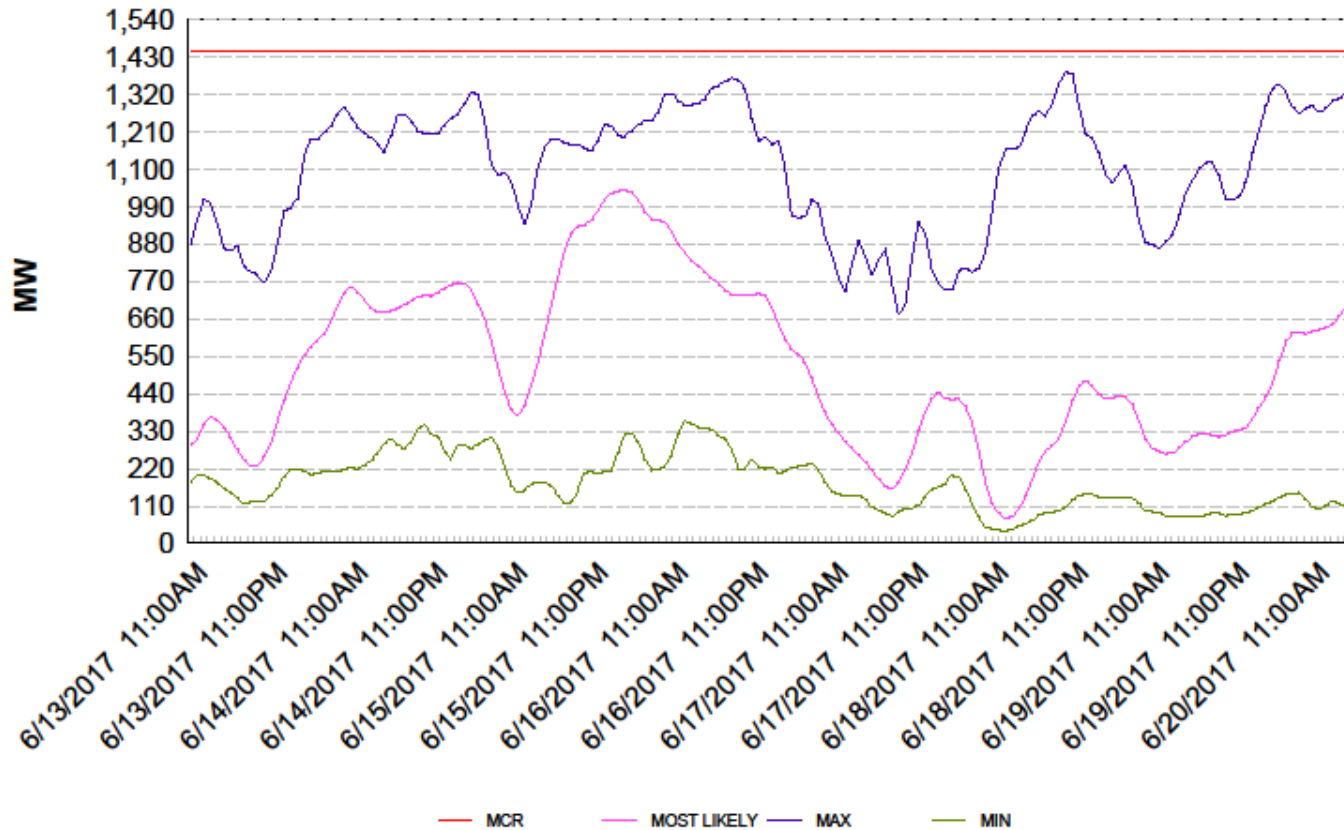
Day Ahead Wind Forecast Accuracy



7 Day Forecast



Alberta 7 day Wind Power forecast updated as of
6/13/2017 11:04:00AM MT



Forecasting Time Frame

- 12 hrs ahead and updated every 10 minutes
- 7 day ahead and updated every 6 hours
- All wind farms are providing 10 minute average data

New Forecasting Rule

- Apply to all wind or solar 5 MW or greater distribution or transmission connected
- Will be effective Sept 01, 2018
- Every site will send one minute average data

On Going Activities

- Capacity Market Design
- Net Demand Variability
- Dispatchable Renewables and Storage
- RECSI (Regional Electricity Cooperation and Strategic Infrastructure Initiative)
- Distributed Energy Resources

Thank you !

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