

2018 YEAR IN REVIEW



A RELIABLE FUTURE THROUGH STABLE TRANSITION

MISSION

The AESO provides for the safe, reliable and economic operation of the Alberta electricity system while facilitating a fair, efficient and openly competitive market for electricity.

VISION

As the trusted leader, the AESO is shaping the transformation of Alberta's electricity future to deliver reliability and enhance the quality of life for Albertans.

The future of electricity is changing. The Alberta Electric System Operator (AESO) is leading the province through the transition, ensuring reliability and stability is maintained every minute of every day.

This Year in Review provides a snapshot of how the AESO moved the province forward and delivered on its mandate in 2018.

STRENGTHENING THE GRID

Significant progress was made moving the grid forward in 2018 including publishing the first *Transmission Capability Assessment for Renewables Integration* report with an interactive map, and sustaining, updating and adopting Critical Infrastructure Protection and Alberta Reliability Standards. The AESO also continued to enhance physical and cyber security measures designed to protect the grid.

EVOLVING SYSTEM RELIABILITY

Two transmission system projects are underway to enable electricity to move from where it is generated to where it is needed: the Central East Transfer-out Transmission Development and the Chapel Rock-to-Pincher Creek Transmission Development. The AESO also advanced the Alberta - British Columbia Intertie Restoration project. In addition, we filed two projects – the Addition of Voltage Support at Rycroft 730S Substation and the Provost to Edgerton and Nilrem to Vermilion Transmission Development, which was recently approved by the Alberta Utilities Commission.

MOVING THE MARKET FORWARD

The AESO is leading the transition to introduce a new capacity market to Alberta's electricity framework. In 2018, the AESO worked closely with industry to design the market, advance cost allocation and draft the rules necessary for the market to function. The progress made on the capacity market in 2018 was needed for investors looking for certainty in our market structure and consumers looking for less volatility in electricity prices.

THE ROAD AHEAD FOR ENERGY STORAGE

Alberta's evolving grid must accommodate a diverse range of technologies. In 2018, the AESO continued to examine the role of changing technologies through the release of our *Dispatchable Renewables and Energy Storage (DR&ES)* report that examined how DR&ES could benefit the province's electricity system. While more work still remains, the report illustrated what we learned through engagement with stakeholders about the potential need and role for DR&ES in supporting grid evolution.

A LOOK BACK AT REP

In 2018, the AESO built on the success of the first round of the Renewable Electricity Program (REP) and executed two exceptionally well-designed competitions in parallel for REP Rounds 2 and 3. The results maximized the value for Albertans through competitively low bid prices and use of the existing transmission system.

REP 2
SUCCESSFULLY
DELIVERED



363 MW

at a weighted average bid price of

\$38.69/MWH

NAVIGATING COMPLEXITY

The AESO is finding new strategies to help capture efficiencies in our regulatory and tariff structures to enable technology changes and sustain investor confidence, while keeping the costs low and the lights on. The AESO submitted a revised tariff application and is continuing to engage stakeholders on important tariff design issues.

PARTNERS IN PROGRESS

Consumers want reliable, cost-effective and accessible electricity. We continue to build relationships with Alberta's 201 market participants to explore new and innovative ways to connect to the grid and keep costs low for Albertans.



Stability and predictability within Alberta's electricity industry is necessary to ensure Albertans continue to benefit from reliable, cost-effective power throughout the transition of today and the transformation of tomorrow. The AESO is dedicated to protecting the long-term public interest every step of the way."



REP 3

SUCCESSFULLY
DELIVERED

400 MW

at a weighted average bid price of

\$40.14/MWH



NEW ALL-TIME PEAK DEMAND

11,697 MW

▲ 224 MW INCREASE FROM 2017



SUMMER PEAK DEMAND

11,169 MW

▲ 317 MW INCREASE FROM 2017



PROVINCIAL ELECTRICITY DEMAND

85,330 GWH

▲ 3% INCREASE FROM 2017

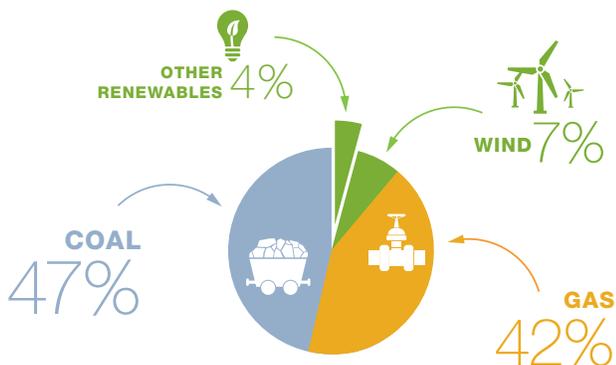


TOTAL GENERATION CAPACITY

16,106 MW

▼ 3% DECREASE FROM 2017

NET TO GRID GENERATION



144 SYSTEM ACCESS SERVICE REQUESTS WERE ACCEPTED IN **2018** FOR A TOTAL OF **9,334 MW**



PEAK DEMAND OVER THE LAST 5 YEARS



NOTE FROM THE PRESIDENT AND CHIEF EXECUTIVE OFFICER

The Alberta Electric System Operator's (AESO) number one priority is to ensure homes, farms, businesses and industrial operations benefit from reliable power. Here in Alberta, technology advancements, changing market structures, and evolving consumer preferences are having an increasing impact on the way electricity is produced, consumed and exchanged. As the AESO's President and Chief Executive Officer, I am committed to acting as the steward for a reliable electricity system in the province, and will work to demonstrate that the AESO is well positioned to continue to adapt to change and contribute successfully to the evolution of our electric system.

Last year, we made considerable advancements on key initiatives designed to ensure Alberta will continue to benefit from a reliable power grid today and into the future. Highlights of this important work include:

- Transitioning Alberta's electricity market to ensure a reliable and affordable supply of electricity
- Enhancing grid resilience through physical and cyber security measures
- Developing the electric system to reliably meet Alberta's long-term electricity needs

Everything we do must support the safe and reliable operation of the grid. Our in-depth analysis of ongoing grid sustainability began in 2011 when we started to notice shifts in the willingness of investors to develop new generation in Alberta. This combined with the global shift toward markets with more stable revenues, trend toward increased renewable generation and the federal coal retirement schedules, led the AESO to conduct a market assessment. The analysis confirmed that the energy-only market as it is today will not continue to meet Alberta's electricity needs.

In 2016, we presented the Government of Alberta with various market structure options and a recommendation that introducing a capacity market would be the best fit for Alberta.

Last year we worked closely with a wide array of stakeholders to complete the market design work and to draft the Independent System Operator (ISO) Rules necessary for the market to function. The Alberta Utilities Commission (AUC) will decide on the rules by the end of July 2019. This will be a major milestone leading up to the first delivery of capacity in 2021.

We also ran two exceptionally well-designed and executed parallel competitions for the Renewable Electricity Program in 2018, building on the success of Round 1 by demonstrating significant competitive interest from local and international investors eager to develop generation facilities in Alberta.

In addition to markets, there are many factors that contribute to maintaining a reliable and cost-effective grid. In 2018 we implemented a number of physical and cyber security measures to further protect the provincial grid from potential attacks. In collaboration with ISOs across North America and national and international security agencies, we stay on top of current risks and regularly enhance our security program to maintain a strong and resilient grid.

Ensuring power can move from where it is generated to where it is needed is another core aspect of our mandate and critical to maintaining a reliable electricity system. Transmission planning is an ongoing process that involves monitoring and analyzing a number of factors to ensure we align transmission system development with the pace of growth in the province. We take a very thorough and consumer-based approach to ensure Albertans benefit from a cost-effective system and that they do not pay for transmission sooner than it is needed. This past year we advanced two transmission system projects that are needed in the southern and central-eastern regions of the province to connect growing renewable generation developments in those areas. Applications for both projects are expected to be filed with the AUC in late 2019.

Looking forward, the AESO will continue to lead the industry through a stable market transition and work with the government and all stakeholders to prepare for the many changes ahead. The decisions we make in our sector today will have lasting effects on the grid of the future. It is critically important that we continue to look at the long-term picture and advance the transformation of the electricity system. Carefully pacing changes will create the reliability, stability and predictability necessary to grow investor confidence and ensure all Albertans have power at their fingertips every minute of every day.

Sincerely,

A handwritten signature in black ink that reads "Michael Law". The signature is written in a cursive, flowing style.

Michael Law
President & Chief Executive Officer