
Modernizing Alberta's Electricity Grid

Canadian Renewable Energy Association
Energy Storage Alberta Summit

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Agenda

- Energy Storage and Non-Wires Solutions – Policy History
- Bill 22
- Energy Storage as a Non-Wires Solution
- Alberta's Changing Electricity Landscape

Energy Storage Policy

2018 DRES report – coal phase out/
Climate Leadership Plan

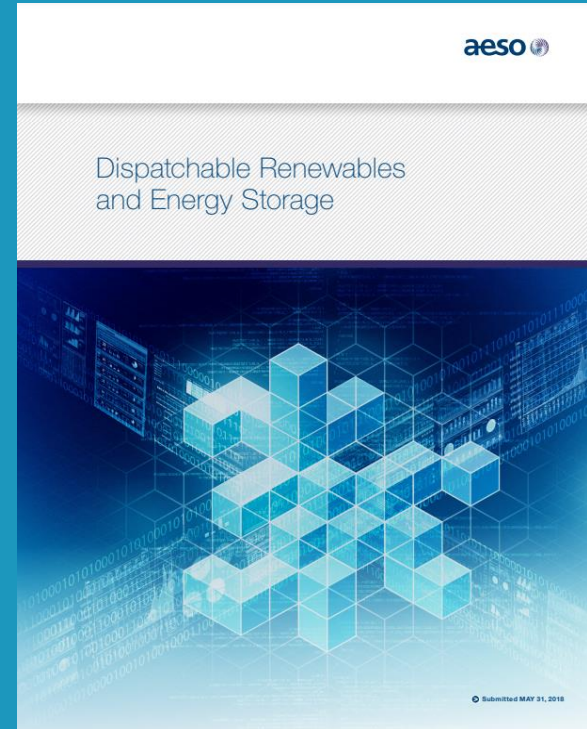
- Concerns about reliability
- Define energy storage as a unique asset

AESO 2019 Energy Storage Roadmap

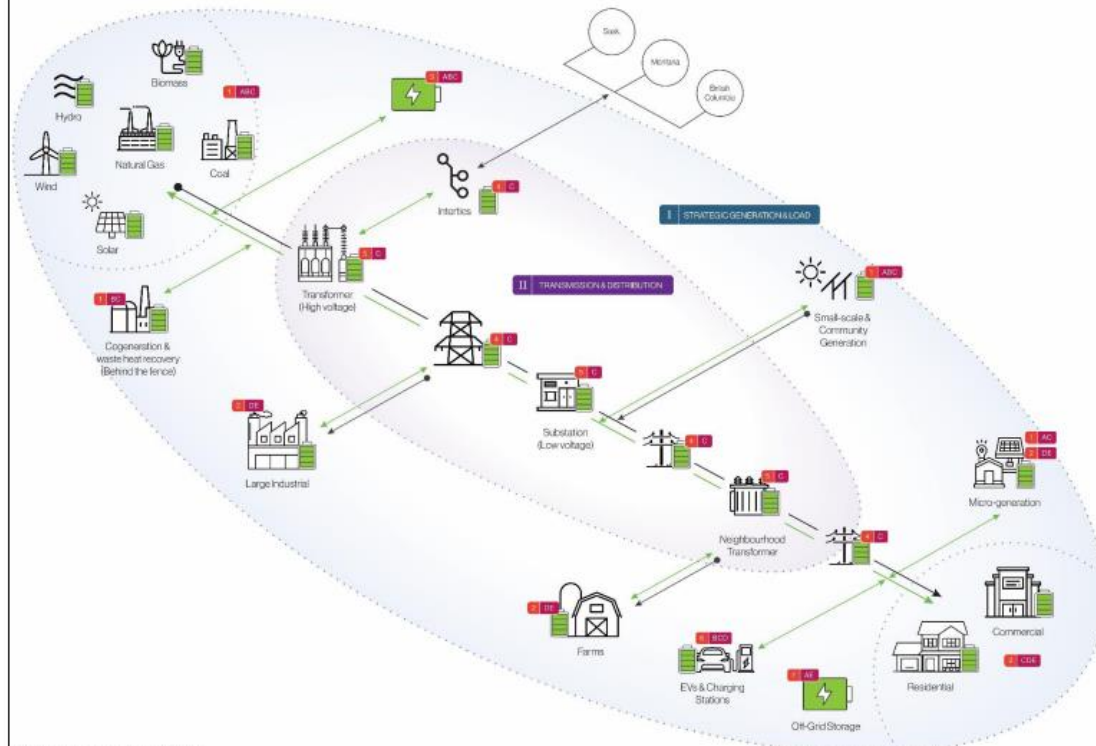
- Plan to facilitate integration of ES into rules, grid and market systems

2020 – 2021 Working group with agencies

- Defined objective: enable energy storage through legislative framework



ALBERTA'S ENERGY STORAGE SYSTEM



How Storage Could Participate in Alberta's Electricity System

The fundamental principle of electricity storage is that it consumes electricity to charge (like a load), then shifts the stored energy, and it exchanges the electricity (like generation).

- Where storage can participate:**
1. Paired with generation
 2. Paired with load
 3. Standalone
 4. Wind alternative
 5. Non-wind alternative
 6. Electric vehicles
 7. Off-grid

- How storage can participate:**
1. Firm generation generation
 2. Energy arbitrage
 3. System services
 4. Peak shaving
 5. Back-up power

Storage as a Hybrid Asset
Storage disrupts the linear model of electricity through its ability to participate in multiple aspects of the electricity system as needed. Fundamentally, storage disrupts the traditional load/generation separation by acting as both a consumer and producer of electricity.

- Further storage services:**
1. Strategic generation and/or strategic load (optional transmission/distribution asset)
 2. Transmission/Distribution and optional generation asset

Note: While energy storage is visually depicted using a battery icon in this graphic, it is recognized that energy storage can come in a variety of technologies from pumped hydro and Compressed Air Energy storage to Flywheels.

Illustration created by Albert Energy Services Inc. for the Alberta Energy Services Inc. website.

Bill 22 - The Electricity Statutes (Modernizing Alberta's Electricity Grid) Amendment Act

- The *Electricity Statutes (Modernizing Alberta's Electricity Grid) Amendment Act, 2022* (Bill 22) received royal assent on May 31, 2022, and was proclaimed on March 6, 2024, the same time the related regulations were brought into force.

Key Changes Enacted Through Bill 22



Energy Storage

Includes a formal definition for energy storage in Alberta's legislative framework.

Allows distribution and transmission utilities to own and/or operate energy storage assets under specific conditions.

Allows competitive models to be used to procure distribution and transmission services from market participants.

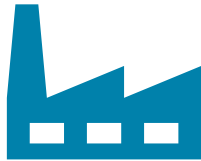


Self-supply with Export

Includes a definition of self-supply with export and exemptions to broadly enable market participants pursue this approach.

Ensures that self-supply with export facilities pay their fair share of system costs through the AESO tariff.

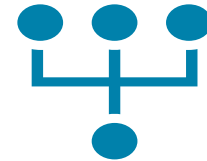
Key Changes Enacted Through Bill 22



Distribution Planning

Establishes a framework for long-term planning of the modernization of Alberta's electric distribution system, which includes requiring distribution companies to prepare system plans.

Further work is required to develop this regulation.



Balancing Pool Responsibilities

Re-assigns many of the current responsibilities of the Balancing Pool to other entities allowing the agency to begin to wind down.

Energy Storage in Bill 22

Incorporate a formal definition for energy storage in Alberta's legislative and regulatory framework for the electricity sector.

- Defines energy storage resources as a different asset class

Enable regulated and transmission utility ownership under specific conditions.

- Defines conditions for regulatory ownership

Competitive procurement from third party energy storage operators.

- Default procurement mechanism for energy storage services

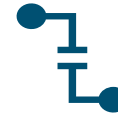
Energy Storage and Wires



Energy storage complements proactive grid planning by providing non-wire solutions, reducing the need to build new transmission and distribution infrastructure. This will maximize the use of Alberta's existing grid infrastructure while minimizing the need for costly upgrades, saving costs to Alberta ratepayers.



Storage assets can play a pivotal role in balancing supply, particularly during congestion, by consuming excess energy.



Determining adequate mechanisms to compensate storage for its role in managing congestion, balancing the grid, and reducing wires costs will be key to ensuring sufficient investment under the restructured market and transmission framework.

Regulatory Amendments

Regulation	Overview of Amendments
<ul style="list-style-type: none">• <i>Payment in Lieu of Tax Regulation</i>• <i>Small Scall Generation Regulation</i>• <i>Liability Protection Regulation</i>• <i>Fair, Efficient and Open Competition Regulation</i>	<ul style="list-style-type: none">• Add energy storage into relevant parts of the regulations while preserving the original intent.
<ul style="list-style-type: none">• <i>Micro-generation Regulation</i>• <i>Isolated Generating Units and Customer Choice Regulation</i>	<ul style="list-style-type: none">• Add energy storage (and hybrid resources) into relevant parts of the regulations while preserving the original intent.
<ul style="list-style-type: none">• <i>City of Medicine Hat Payment in Lieu of Tax Regulation</i>	<ul style="list-style-type: none">• Adding energy storage and include modification of formulas used in the calculation of PILOT while preserving the original intent of the regulation.
<ul style="list-style-type: none">• <i>Transmission Regulation</i>	<ul style="list-style-type: none">• Add energy storage into relevant parts of the regulations.• Enable regulated utility ownership of energy storage resources under certain conditions.

Alberta's Changing Landscape

Electricity Policy Work Underway

Alberta's Changing Electricity Regulatory Landscape

- *Electricity Statutes Amendment Act*
- Market Power Mitigation Regulation
- Supply Cushion Regulation
- *Utilities Affordability Statutes Amendment Act*
- Restructured Energy Market
- Transmission Regulation Review
- Generation Approvals Pause Regulation/ AUC Inquiry
- Federal Clean Electricity Regulations

Questions?

