

Introduction

This plan provides an overview of the market-related initiatives that the AESO intends to progress in 2020. The intent is to provide stakeholders with a consolidated view of the AESO's 2020 proposed market-related initiative activities for their information and planning purposes. This material focuses solely on market-related initiatives. Items related to the Tariff, technical rules and non-market aspects of the Distributed Energy Resources (DER) and the Energy Storage Roadmaps are not included here.

Currently, the electricity system is undergoing significant change driven by the integration of an increased number of DER, new technologies such as energy storage and coal-to-gas conversions, as well as increased amounts of intermittent generation. As such, the AESO has determined it will progress these market-related initiatives in 2020 as they are important to the long-term sustainability of the energy-only market structure, to maintaining system reliability, and in ensuring the AESO is facilitating a fair, efficient and openly competitive (FEOC) market for an evolving electrical system while also providing certainty and stability to the market structure.

For each initiative, the AESO plans to engage stakeholders during the design process in alignment with the newly launched draft AESO Stakeholder Engagement Framework available on www.aeso.ca. The plan below outlines the timing for the 2020 market-related initiatives including market design phases and anticipated stakeholder engagement, recognizing timelines may change as initiatives progress and more information becomes available. Additional information including detailed timelines and engagement opportunities will be communicated as each initiative progresses.

The AESO continues to work cross-functionally across the organization to ensure all AESO initiatives which are connected or interrelated remain coordinated at a corporate level. Further, while the listed market-related initiatives will be the focus of the market design efforts in 2020, ongoing market monitoring and analysis will continue internally. Unanticipated findings or learnings could impact the *2020 Plan for Market-Related Initiatives* resulting in changes to this schedule or the initiatives themselves. The AESO will endeavor to keep stakeholders informed of any such changes.

2020 Plan for Market-Related Initiatives

Market design process

The following provides a description of the market design process phases:

Analysis (A)

In the Analysis phase the AESO identifies market issues resulting from stakeholder feedback, market participant proposal, AESO identified issue, government policy, Market Surveillance Administrator (MSA) originated work or investigation, or market design review. The Analysis phase is an internal work phase for the AESO. There may be initiatives that the AESO has not yet progressed internally to the point of determining the requirement for stakeholder input. Such initiatives may not appear on the plan and may be added once initial analysis has been completed or an engagement decision has been reached. While in this phase the AESO will research and define the issue, analyze other markets, perform analytics, and/or seek out external expert opinions to ultimately make a decision on whether to move forward to the next phase.

Conception (C)

During the Conception phase the AESO will formalize the issue and conduct an options analysis. Input for the options analysis may be gathered through stakeholder engagement and/or third-party studies. From that effort the AESO may develop recommendations, a draft market design, and/or determine the stakeholder engagement approach.

Development (D)

During the Development phase the AESO works with stakeholders to create proposed draft ISO rules. The proposed drafts are released to stakeholders for comment, and those comments are considered in the development of a proposed ISO rule or information document (ID).

Regulatory (R)

The Regulatory phase begins with the filing of an application for approval of a proposed ISO rule with the Commission, and typically concludes with the issuance of a Commission decision on the application, but may extend beyond a Commission decision if compliance filings or review and variance applications need to be addressed.

Implementation (I)

The Implementation phase includes changes to information technology, business processes, and training. Implementation concludes with the new ISO rules being implemented.

Government Policy Advice (G)

This phase of work only applies to initiatives originated through government direction. In this phase the AESO develops recommendations or advice for government policy regarding the electricity market.

*Of note, for all phases other than the Implementation phase, progression of the initiative may terminate if market developments, stakeholder input, a Commission decision, or the AESO determines there is little value for the initiative to continue. The approaches taken and extent of activity for each phase will be uniquely dependent on the market-related initiative.

2020 Plan for Market-Related Initiatives

Classification	Market-related Initiatives	2020 Q1			2020 Q2			2020 Q3			2020 Q4		
		J	F	M	A	M	J	J	A	S	O	N	D
Technology Integration	Distributed Energy Resources (DER) Review of DER participation in the energy and ancillary services markets considering must offer, must comply (MOMC), minimum asset size and aggregation	A	A	C	C	C	D	D	D	R	R	R	R
	Short-Term Storage Integrate energy storage in the short term	Progress will be aligned with the Energy Storage Roadmap											
	Long-Term Storage Integrate energy storage in the long term	Progress will be aligned with the Energy Storage Roadmap											
System Reliability	Dispatch Tolerance Investigate implementing tighter dispatch tolerance threshold in Section 203.4 of the ISO rules				A	A	C	C	C	C	D	D	D
	Ramp Table Submissions Investigate a ramp table submission requirement in Section 203.1 of the ISO rules				A	A	C	C	C	C	D	D	D
	Mothball Rule Review Conduct a review of Section 306.7 of the ISO rules	C	C	C	C	D	D	D	D	D	R	R	R
Market Efficiency	Sub-hourly Settlement Determine if sub-hourly settlement will improve price fidelity and incent flexibility	A	C	C	C	C	C	C	D	D	D	R	R
	Priced Interties Enable intertie transactions to submit a non-zero dollar offer	C	C	D	D	D	D	R	R	R	R	R	R
	Price Cap, Price Floor and Shortage Pricing Evaluate the sustainability of the existing pricing structure in maintaining resource adequacy and efficiency in both the short and long term. A review of the price cap, offer cap and floor levels, and a determination if shortage pricing is required.	C	C	C	C	G	G	G	D	D	D	D	R

Market design process phases: Analysis (A), Conception (C), Development (D), Regulatory (R), Implementation (I), Government Policy Advice (G)

Market-related initiatives

Distributed Energy Resources (DER)

Growing volumes of DER connecting to Alberta's distribution system, now and in the future, is a transformational change that the electricity system needs to adapt to. Over 500 MW of DER are connected to the network currently. The pace of growth is difficult to predict, but the ripple effects of DER participation on the Alberta Interconnected Electric System (AIES) is inevitable given consumer choice, government community generation and microgeneration policy, and DER price competitiveness. The AESO needs to be part of the transformation as it continues its mandate of providing for the safe, reliable and economic operation of the AIES.

This initiative is designed to facilitate DER integration and access to AESO electricity markets by removing unnecessary barriers and ensuring a FEOC market. The AESO intends to review and update any ISO rule changes (if recommended) to foster investor understanding of market expectations to aid them when making future decisions.

Short-term Storage

This initiative will provide energy storage projects with clarity for participation in the markets under the existing ISO rules, should energy storage projects come online prior to the implementation of anticipated longer-term changes to market rules. IDs may be required to clarify how energy storage facilities will be enabled in the short term. This is being undertaken now to facilitate those storage resources with active connection projects with in-service dates in 2020.

Initiative progress will be aligned with the Energy Storage Roadmap.

Long-term Storage

The longer-term implementation of energy storage integration includes the anticipated development of AESO authoritative documents and associated stakeholder engagements, and will ensure coordination with the Alberta Utilities Commission (AUC) proceeding timelines and longer-term AESO grid and market systems changes for integrating energy storage.

The long-term storage initiative builds upon the work completed in the short-term storage initiative, and will be aligned with the Energy Storage Roadmap.

Enabling energy storage will continue beyond 2022, primarily as a mature technology in a sustainment phase.

Dispatch Tolerance

The dispatch tolerance requirements under the current Section 203.4 *Delivery Requirements for Energy* may not be sufficient to ensure future dispatch response will be adequate as net demand variability increases with the increasing development of intermittent generation technologies.

This initiative will investigate whether additional dispatch response certainty is required for system controllers to effectively manage the system in future years. The project was identified as part of the Flexibility roadmap.

Ramp Table Submissions

At the present time, supply forecasts are calculated using a single ramp rate for assets. However, an asset's ramp rate is not always a simple linear function and a single value does not accurately reflect different operating states of an asset. This initiative will provide for the submission of ramping information in a manner that allows operators to describe how their asset's ramp rate changes at various levels of output and as ramp rates change through differing operating configurations.

The ramp table submissions solution will improve system operator analysis and responsiveness by providing more accurate ramp rate information for assets participating in the market. The AESO is of the view that having the ability to rely on more accurate ramp characteristics will allow the system controller to dispatch with more certainty and accuracy. The project was identified as part of the Flexibility roadmap.

For this initiative, the AESO will engage with stakeholders in conjunction with the dispatch tolerance initiative.

Mothball Rule Review

In June 2016 the AESO filed Section 306.7 *Mothball Outage Reporting* ("mothball rule") with the AUC on an expedited basis. Following the expedited filing, the AESO committed to a comprehensive review of the mothball outage reporting requirements and held stakeholder consultation sessions throughout 2016 and 2017. The review of mothball outage reporting requirements was put on hold during the capacity market consultation. The AESO is re-initiating its review of the mothball rule to address stakeholder concerns raised in past consultations and to determine whether revisions to the mothball rule are required.

Sub-hourly Settlement

The intended outcome of this initiative is make an informed decision on whether shortening the settlement interval from one hour to sub-hourly (15 minutes or less) would improve price fidelity and incent flexibility, and to identify implementation considerations and costs.

This initiative was identified for further discussion during the capacity market engagement and continues to be of importance as it is expected to help incent efficient energy supply and consumption flexibility and improve price fidelity.

Priced Interties

One of the primary functions of the AESO mandate is to operate a FEOC market. Currently, intertie transactions are required to buy and sell in Alberta's electricity market as a price taker, meaning all offers to sell must be at \$0/MWh and all bids to purchase must be \$999.99/MWh. Unlike intra-Alberta generators, intertie market participants are unable to reflect their respective costs in their bids and offers. Price fidelity is a key driver of any openly competitive market. Enabling intertie market participants to reflect the cost of their energy in their energy bids and offers creates a better reflection of the true market value of energy. During the conceptualization of the capacity market, the AESO conducted stakeholder engagement on the design and development of ISO rules for the integration of priced interties. The AESO sees value in facilitating priced interties in the energy-only market framework and will leverage the previous work done on this initiative.

Price Cap, Price Floor and Shortage Pricing

The objective of this initiative is to evaluate the economic sustainability of the existing energy-only market pricing structure in maintaining resource adequacy and efficiency in both the short and long term. This initiative entails a review of the price cap, offer cap and floor levels, and a determination if a change to any of these pricing elements is required.

With the cancellation of the capacity market, there is a need to ensure sustainability and certainty in Alberta's energy-only market. This assessment will establish a path forward for pricing in the energy market. This initiative is aligned with the government direction letter issued on July 25, 2019, and will build on the market power advice AESO provided to the government in November 2019.