

Energy Storage Engagement and Progress Update

January 19, 2022

OUR ENGAGEMENT PRINCIPLES

Inclusive and Accessible

Strategic and Coordinated

Transparent and Timely

Customized and Meaningful

Energy Storage Roadmap Update

- Provide a quarterly progress update on energy storage activities:
 - Share progress update on the Energy Storage Roadmap integration activities since the August 2021 update;
 - Provide an update on activities planned for Q1 2022;
 - Provide an update on interrelated initiatives; and
 - Provide an opportunity for stakeholders to submit questions on the update information provided.

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What's New Since August?

- There are three ES-connected projects to the AIES
- There are 19 projects currently on the connection list:
 - Ascent Sunnynook Solar Battery
 - AltaLink Greengate Jurassic MPC
 - ATCO Mercer Hill
 - ATCO Michichi Creek
 - ATCO Sturgeon DER Battery
 - BluEarth Bindloss MPC
 - BowArk Drywood
 - Federation Marguerite Lake CAES
 - EDTI DG Solar
 - Fortis Alberta Killarney Lake
 - Fortis Alberta Metiskow
 - Fortis Hughenden DER Battery
 - Georgetown Battery Addition
 - Greengate Luna MPC
 - Greengate Midnight MPC
 - Sol Aurora Solar Battery
 - Vega Solar Battery
 - TPG Canyon Creek
 - TCE Saddlebrook
- 10 of these projects have in-service dates in 2022 (highlighted above)

- Activities completed since the last update:
 - Functional testing by the service providers is complete
- Next steps:
 - Service providers' functional test results are currently under review by the AESO
 - AESO to complete implementation of SCADA, communications and settlement systems
- Further information on the FFR Pilot is available on the AESO's website: <https://www.aeso.ca/market/ancillary-services/fast-frequency-response/>
- Questions can be directed to EnergyStorage@aeso.ca

- ESILF 4th workshop held on November 9 with the attendance of majority of members, Market Surveillance Administrator (MSA), the Alberta Utilities Commission (AUC) and guest speakers.
- The topics presented were:
 - Battery Energy Storage: unlocking new revenue and stabilizing electric grids, by Hitachi Energy
 - Stand-alone energy storage economic analysis in Alberta's market, by the University of Calgary
- As with previous sessions, the presentations and summary of the workshop will be posted on www.aeso.ca
- Next steps for the forum will be released in January 2022

Looking Ahead

Cross-Functional Internal Work Continuing Through 2021

- Initiation phase for ES long-term implementation started; high-level activities for Q1 and Q2 in 2022 include:
 - Create project governance and communication plans
 - Build project team, structure and strategy
 - Determine scope for systems, tools and process changes
- Energy Storage Next Steps letter regarding the ISO rule amendments posted on November 30; further information on this process can be found on the AESO website:

<https://www.aeso.ca/stakeholder-engagement/rules-standards-and-tariff/energy-storage-rule-amendments/>

12-Month Rolling Timeline

Classification	ES Roadmap Integration Activities	2021 Q3			2021 Q4			2022 Q1			2022 Q2		
		J	A	S	O	N	D	J	F	M	A	M	J
Education and Awareness	ES Progress Updates – UPDATED Share progress on the Energy Storage (ES) Roadmap integration activities, interrelated initiatives and provide a forum to address stakeholder questions.		E				E			E			E
	ES Industry Learnings Forum (ESILF) – UPDATED Organize forum to provide expertise and key learnings to the AESO on targeted matters related to the integration of energy storage in Alberta.					E		ESILF plan and approach for 2022 to be communicated in January					
Phase 2 Long-term Implementation	ISO Tariff Design Work in concert with ISO tariff design to ensure ES is considered.	The AESO filed its Bulk and Regional Rate Design and Modernized DOS Rate application with the Alberta Utilities Commission (AUC) on October 15, 2021. Please refer to AUC Proceeding 26911.											
	Forecasting, Planning and Market Reports* Develop and implement forecasting and planning models to support Long-term Outlook (LTO) and Long-term Transmission Plan (LTP).	I, E (only pertaining to AESO internal changes) <i>*These work streams provided input on potential ISO rule changes to enable storage and will continue to provide support to the single ISO rule changes process as required.</i>											
	Configuration, Qualification and Connection Requirements* Develop appropriate functional specification documents; identify market participation options, permissible configurations, and metering requirements for ES.												
	Market Participation* Evaluate long-term options for energy storage participation in the Energy and Ancillary Service markets.												
	Operations* Perform technical studies for the review of the operating parameters and requirements for the different types and configurations of ES; identify the impact to the connection processes and system applications to enable full range of ES operation.												
ISO Rule Changes Based on the work performed by the different cross-functional teams, the AESO will conduct a single consultation process under AUC rule 017 to develop and file the proposed	Progress and information will be provided as part of the Energy Storage Rule Amendments process												

E – Engagement: inform and/or discuss topics with Stakeholders

A – Analysis: internal work phase for the AESO where an activity is researched, performed analytics, studies, etc.

C – Conception: after analysis, AESO will conduct an options analysis and may develop recommendations on the matter.

D – Development: AESO shares recommendations and works with stakeholders to create proposed ISO rules or changes to existing ISO rules.

I – Implementation: includes changes to IT, business processes and training to integrate ES.

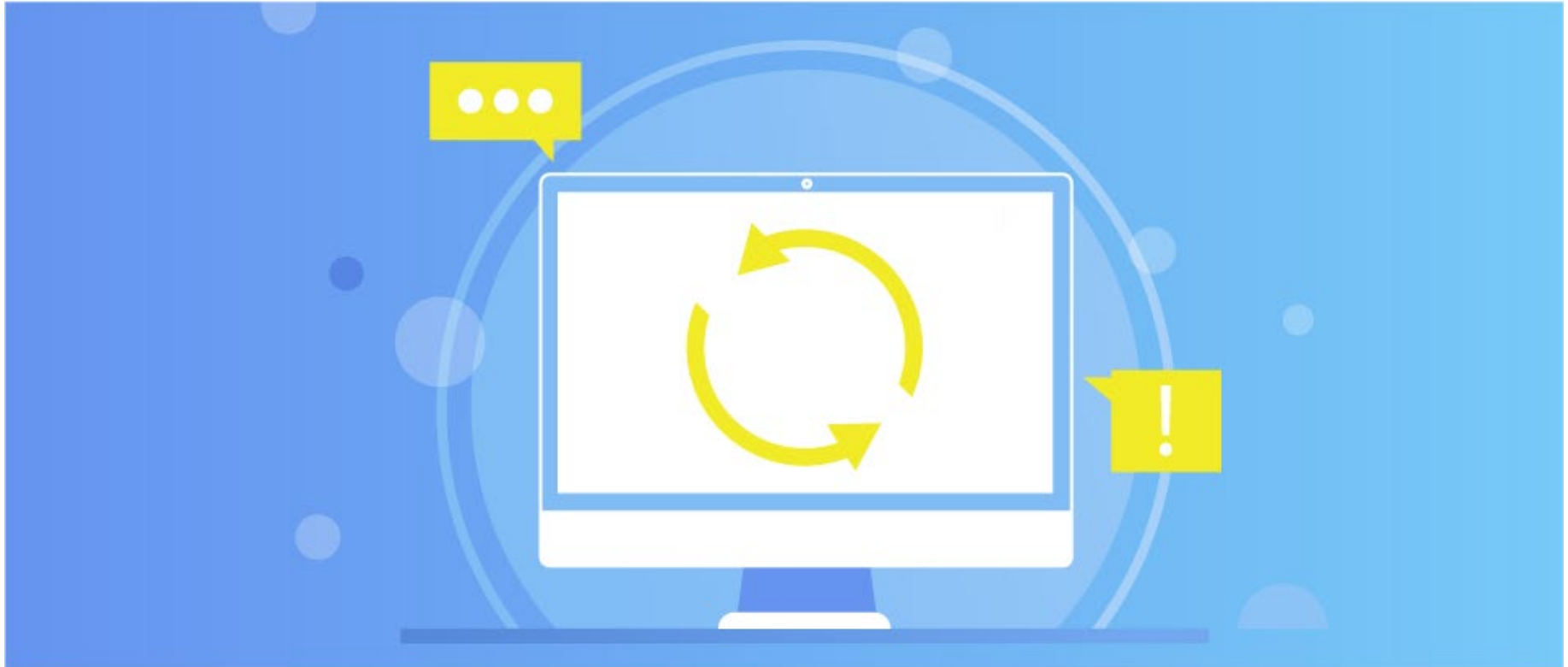
- Continue with ISO rules development
- Continue with the project initiation phase for ES long-term implementation
- ESILF Workshop 4 held on November 9; summary and presentation of this and previous sessions can be found on the AESO website: <https://www.aeso.ca/grid/grid-related-initiatives/energy-storage/energy-storage-industry-learning-forum/>
- Next progress update session planned for late February or early March in 2022

Interrelated Initiatives Update

- The AESO filed its Bulk and Regional Rate Design and Modernized DOS Rate Design Application with the Alberta Utilities Commission on October 15, 2021; the application can be found here:
<https://www.aeso.ca/rules-standards-and-tariff/tariff/current-applications/>
- This application sets forth the AESO's position regarding energy storage and the modernization of Rate DOS. For more information regarding this application, please refer to Alberta Utilities Commission Proceeding 26911.

Questions?

- If you have questions related to this update, please email EnergyStorage@aeso.ca with the subject *ES Q4 Update* by January 31, 2022



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Thank You