Connection Process Streamlining Industry Information Session

May 19, 2022

Welcome

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- **Recording of session**

- **Using Zoom**

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Using Zoom – Asking Questions

- Two ways to ask questions if you are accessing the webinar using your computer or smartphone

  - Click "Raise Hand" and the host will be notified that you would like to ask a question. The host will unmute your microphone, you in turn will need to unmute your microphone and then you can ask your question. Your name will appear on the screen, but your camera will remain turned off.

  - Click "Lower Hand" to lower it if needed.

  - You can also ask questions by tapping the "Q&A" button and typing them in. You're able to up-vote questions that have been already asked.

- If you are accessing the webinar via conference call

  - If you would like to ask a question during the Q&A portion, on your phone's dial pad, hit *9 and the host will see that you have raised your hand. The host will unmute your microphone, you in turn will need to unmute your microphone by hitting *6 and then you can ask your question. Your number will appear on the screen.

AESO Stakeholder Engagement Framework

OUR ENGAGEMENT PRINCIPLES

Inclusive and Accessible

Strategic and Coordinated

Transparent and Timely

Customized and Meaningful

Today's Objectives

The purpose of this session is to update stakeholders on the current state of the AESO's Connection Process, and to kick off the Connection Process Streamlining initiative. The AESO will share our plans to engage with stakeholders on the Connection Process, with the objective of improving efficiency and reducing red tape. A facilitated Q&A will be available to respond to stakeholder questions.

Specific session objectives include:

- Update on the changing landscape of the projects being managed in the Connection Process

- Review current state challenges and impacts

- Share plans for the Connection Process Streamlining initiative

- Prepare stakeholders for the next engagement session

Agenda

1. Introductions
2. Connection Process – Changing Landscape
3. Connection Project Impacts
4. Q&A Session
5. Connection Process – Streamlining Initiative
6. Q&A Session

Connection Process –
The Changing Landscape

Connection Process History

- Built and launched in 2010, at a time of "high" volume and a need for quick and efficient access to the grid

  - Stage and gate process

  - Target and maximum timelines

  - Accommodates policy and regulatory processes

- The first two years were a transitory period

  - Existing projects were converted to the new process

  - Dormant projects were cancelled as they hit the new stage maximums

  - The Contract and BTF process types were introduced

- By 2012 the project list and process had stabilized into a status quo
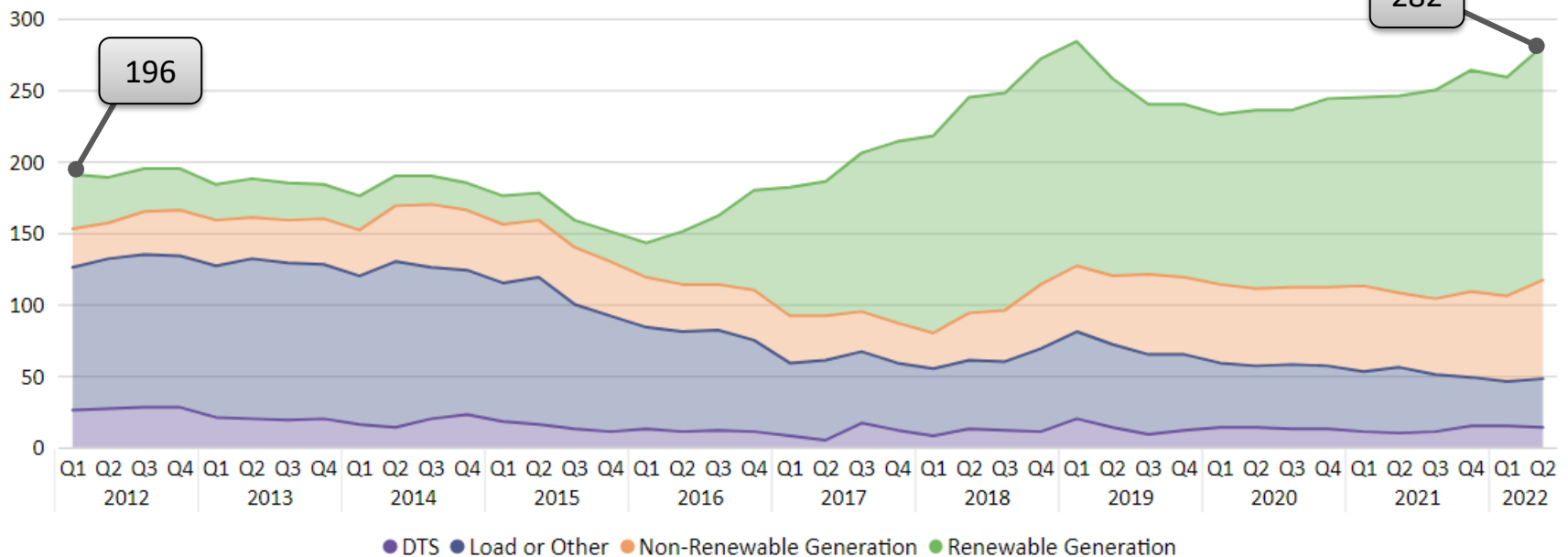
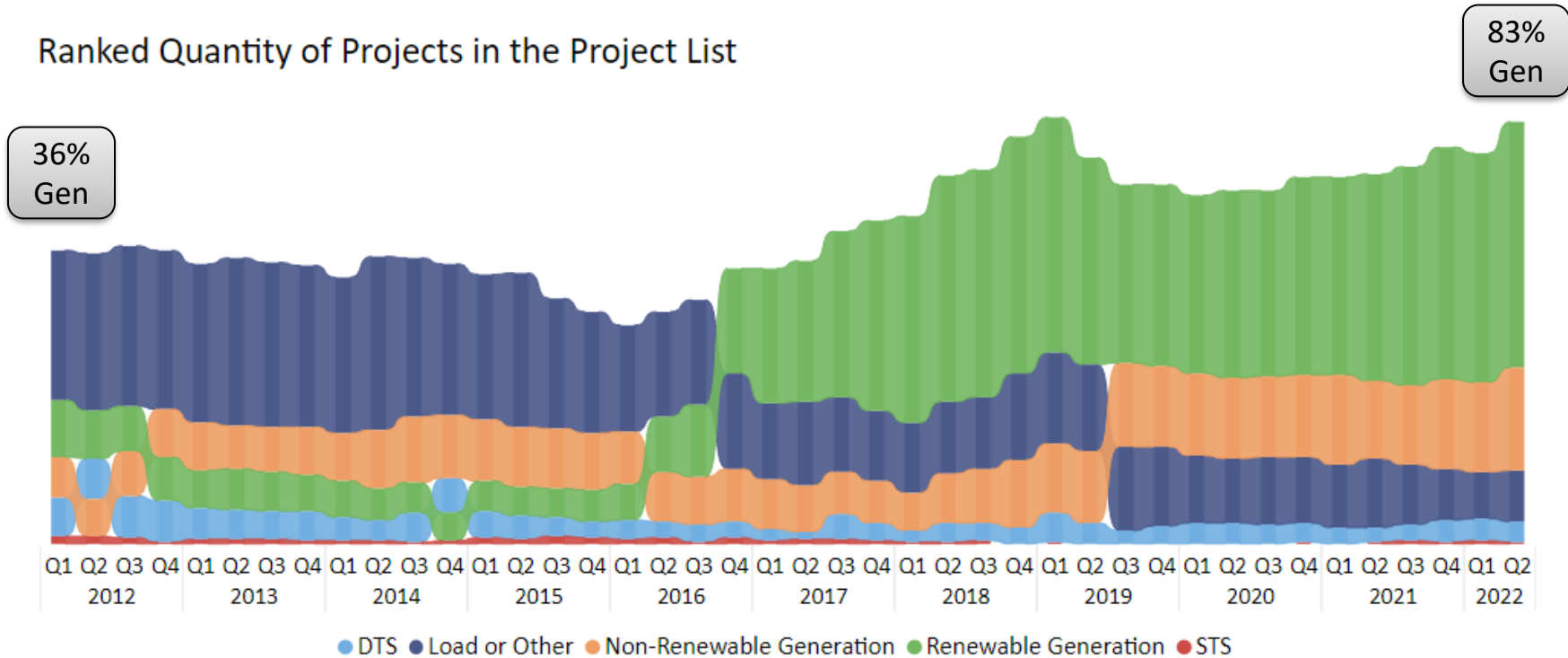| 196 Projects	36% Gen Projects	10,000 MW Generation
	64% Load Projects	

The Project List Has Grown

Projects in the Project List

- After a period of relative stability, the Renewable Electricity Program resulted in a steep increase in generation applications from 2016 - 2018

- The cancellation of REP saw a number of project cancellations and a slowdown in new applications in 2019

- The volume of applications has since started to increase again, and the number of projects in the projects list continues to grow

The Project List Makeup Has Changed

Ranked Quantity of Projects in the Project List

36% Gen

83% Gen

Legend: ● DTS ● Load or Other ● Non-Renewable Generation ● Renewable Generation ● STS

X-axis: Q1–Q4 for years 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, and Q1–Q2 2022

- The type of applications the AESO has received has changed:
  - Up to 2015 mostly new loads, breaker additions and transformer additions
  - 2016 onwards mostly new generation which are significantly more complex

- The process needs have changed from load-driven to generation-driven

# Generation MW Is At A Record High

Generation MW in the Project List
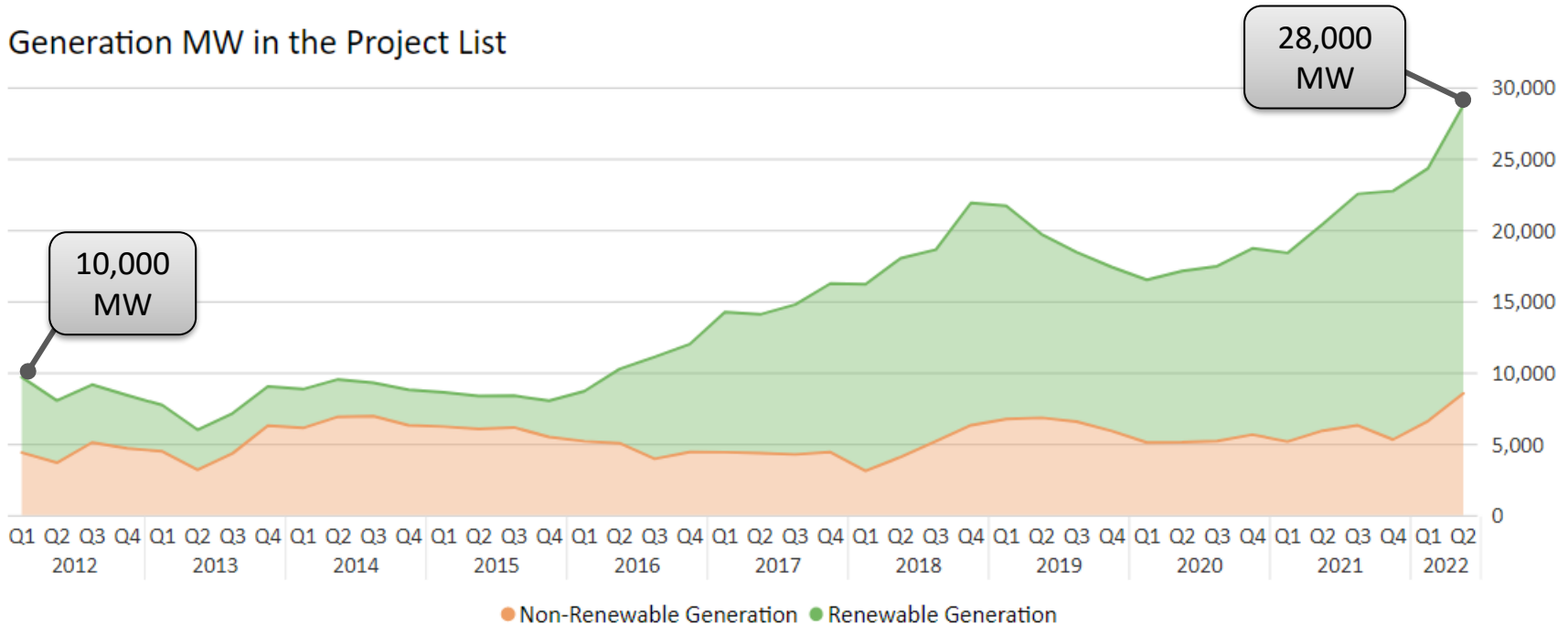
- Generation capacity on the project list has increased in line with applications since 2016 to a record high

- The rate of growth has increased significantly since 2020 and this trend is expected to continue

Individual Generator Size Is Increasing

Ratio of Transmission Connected Generator Applications by Size

Legend: 0-199 MW, 200-299 MW, 300-399 MW, 400-499 MW, 500 MW or more
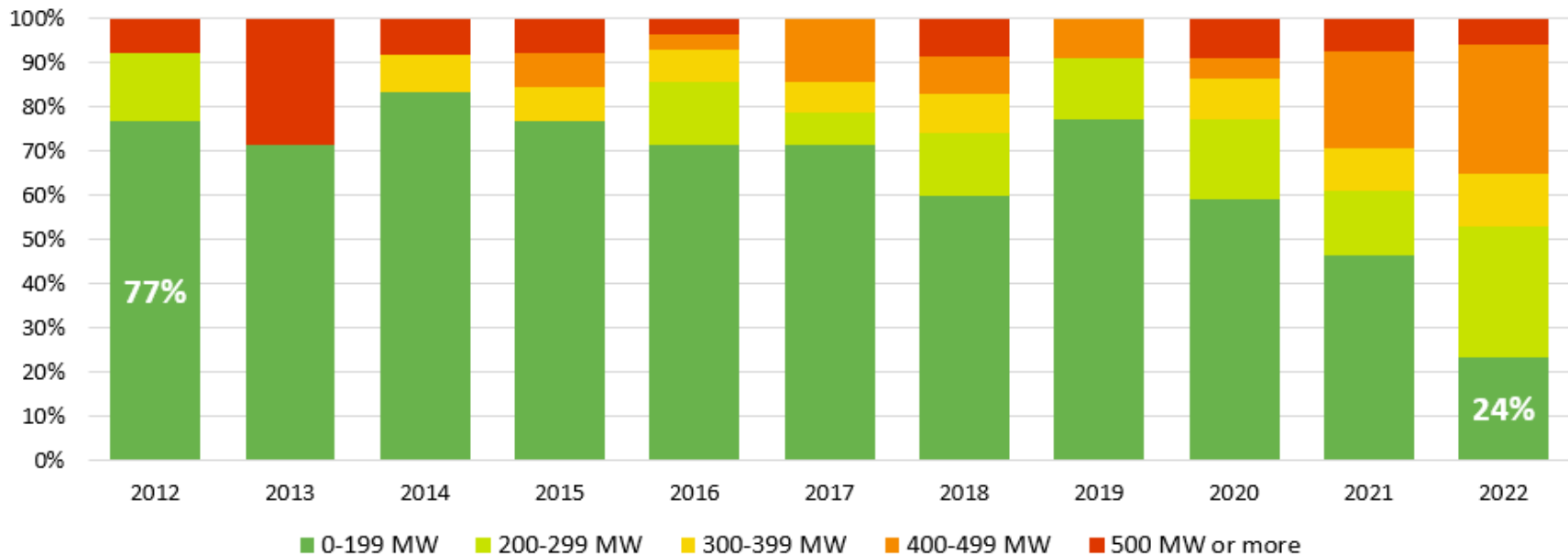
- In addition to more generator applications, a greater ratio of the applications for Connection Projects are larger-size generators and storage facilities

- Large projects are more difficult to study and integrate into the system, and have a greater impact on the surrounding system and other projects

New Project Types Have Materialized
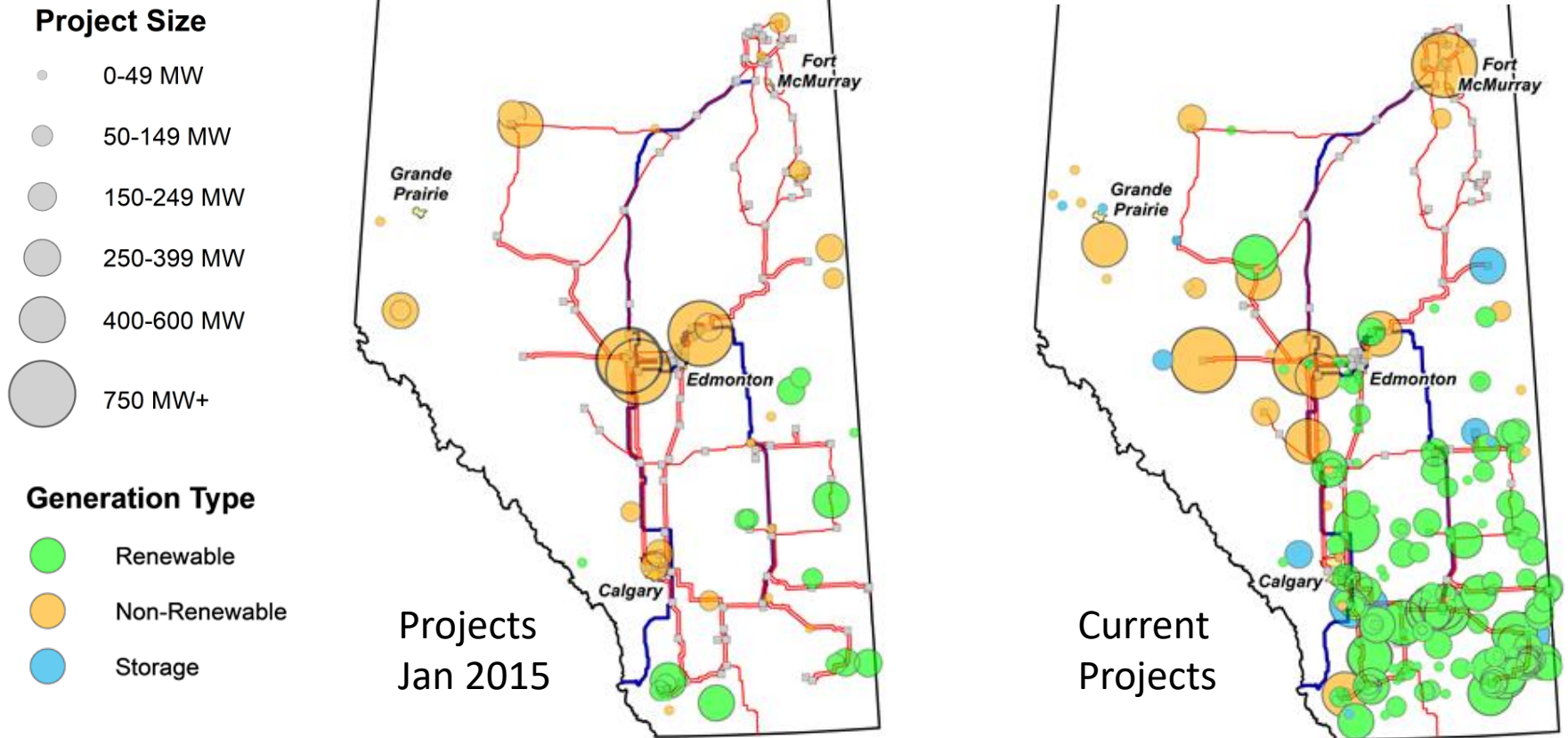
DER Projects in the Project List
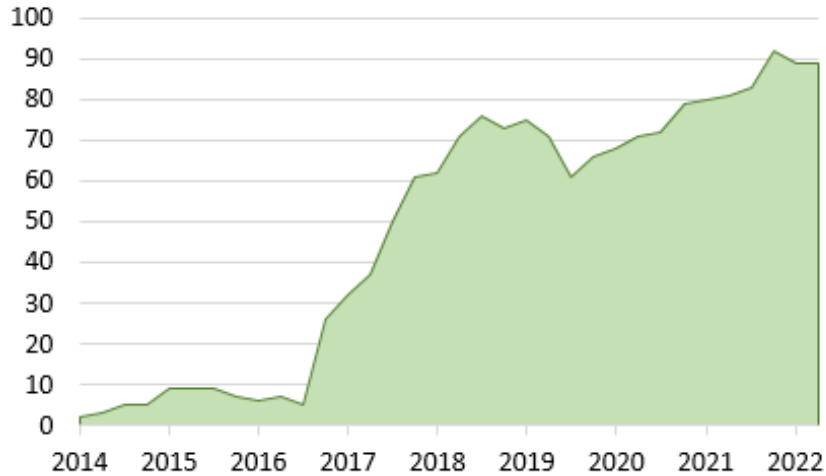
Storage Projects in the Project List

Entirely Storage   Includes Storage
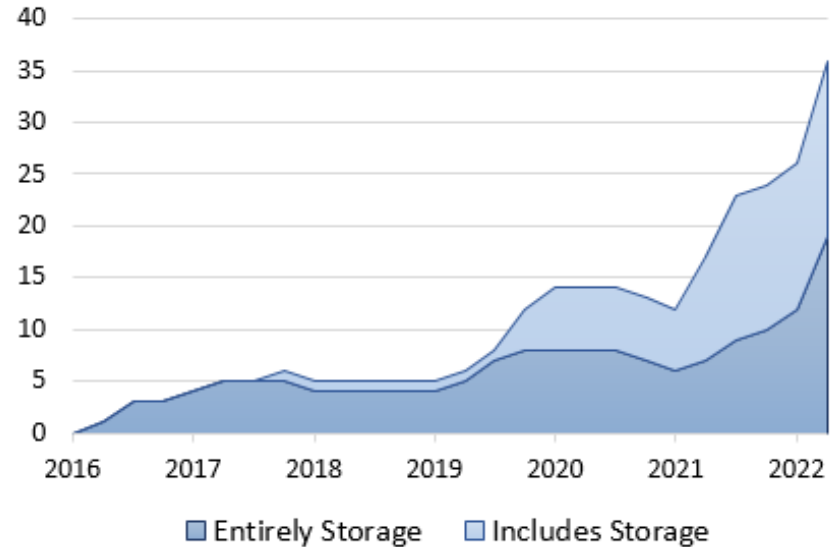
- Project types that previously did not exist or only existed in small numbers have seen increased volumes:

    – DER projects rose sharply with the introduction of REP, and continue to increase

    – Energy storage projects have increased dramatically of the last year

    – SASRs for other new technologies or applications such as carbon capture and coal to gas repowering, hydrogen are being submitted more frequently

- New projects types present new study and integration complexities

System Complexity Is Increasing

Project Size

- 0-49 MW
- 50-149 MW
- 150-249 MW
- 250-399 MW
- 400-600 MW
- 750 MW+

Generation Type

- Renewable
- Non-Renewable
- Storage

Projects Jan 2015

Current Projects

- Increase in generation projects in resource rich areas adds more complexity in studying and processing applications, with increased congestion, RAS, and coordination with system planning required for orderly development

Project Changes Are Increasing

- The number of Project Change Proposals (PCPs) submitted has increased as the volume of projects continues to grow

- The rate of PCPs submitted per project is also increasing; 2x the rate from 2018 and 4x the rate from 2015

- PCPs cause study rework, and impact surrounding projects

Customer Project Change Proposal Totals and Per Project Rate

Legend: Total PCPs Submitted — PCP Rate (PCP/Project)
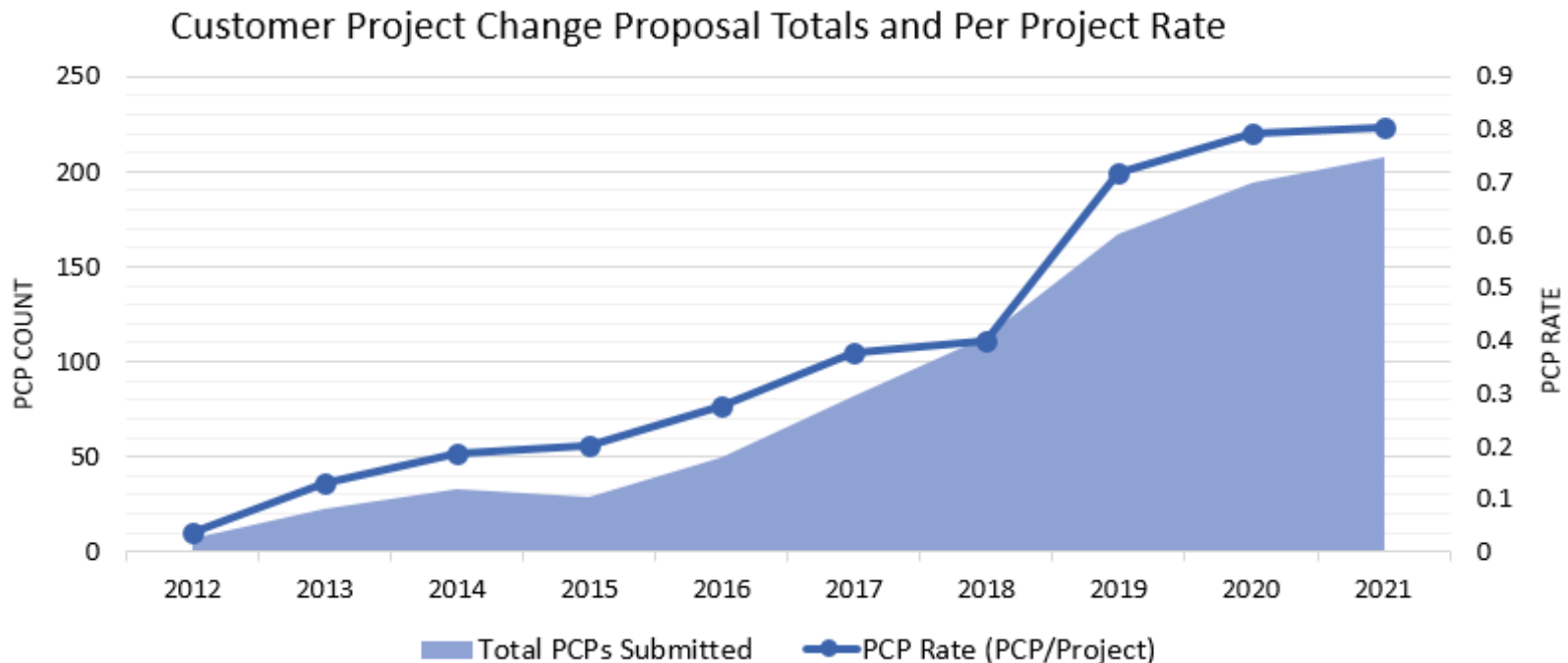
Project Uncertainty Remains

Project Cancellations
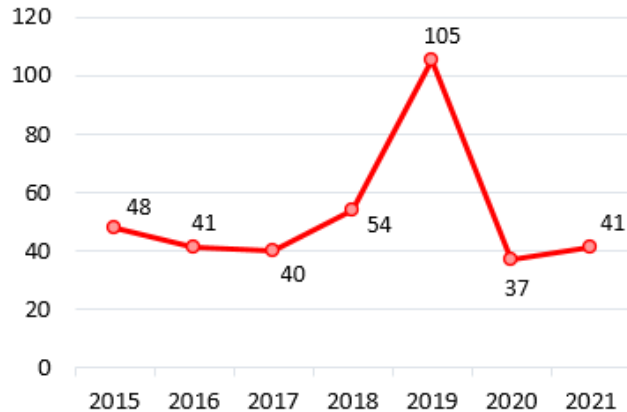
- Project cancellations have returned to normal levels after the end of REP, but remain high

- Cancelled projects represent wasted effort and can impact other projects causing rework

Projects Going On Hold
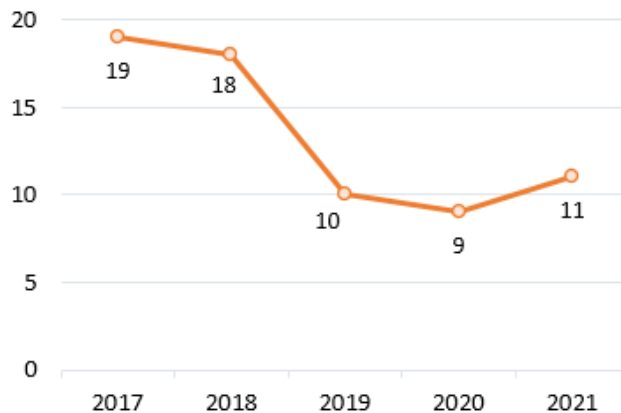
- Projects going on hold have decreased, but a high number remain on hold (currently 29)

- Projects have remained on hold longer than intended, leading to cancellations or significant rework when reactivating

Summary Of Changes

- The AESO is experiencing higher volumes of projects than ever before

- Projects have shifted from being load-dominant to being generation-dominant, while the Connection Process has remained unchanged

- Projects are becoming bigger, and new project types with unique challenges are applying in greater numbers

- The system is becoming increasingly complex to integrate projects into

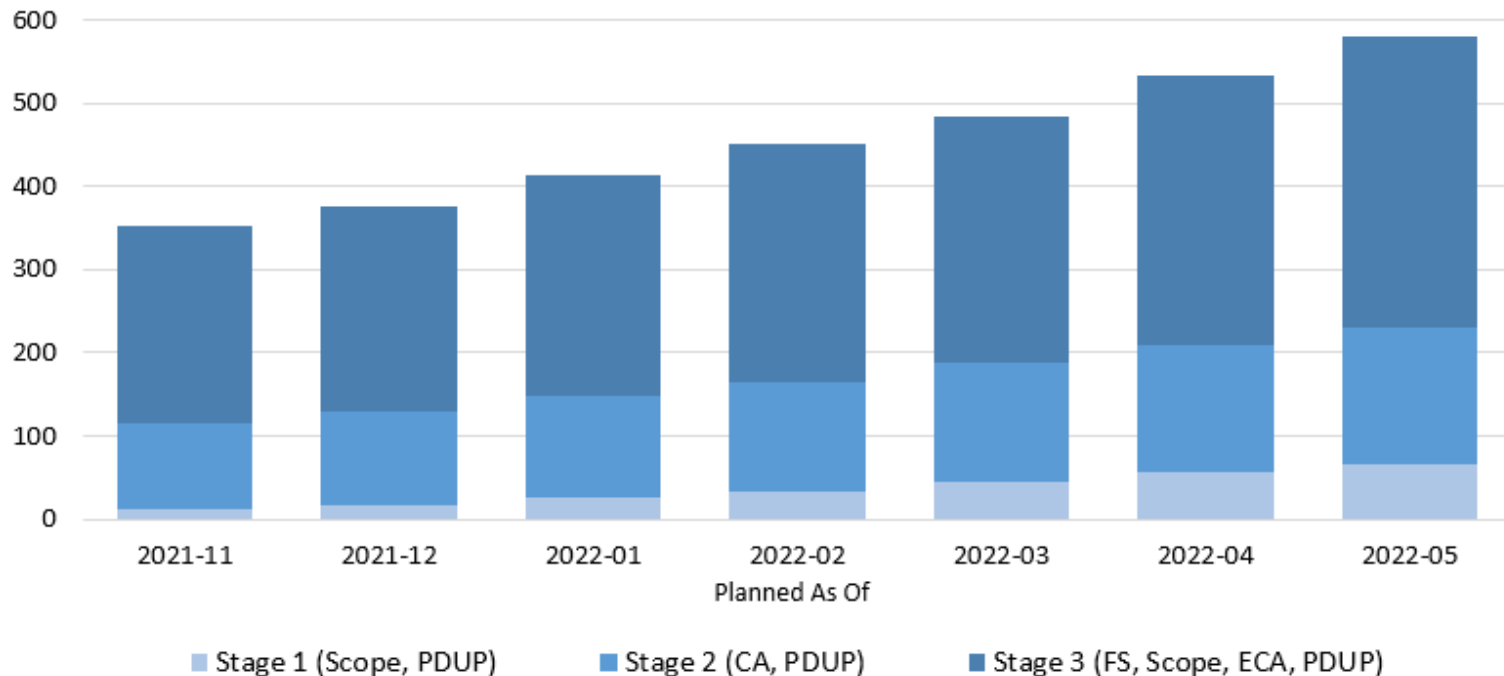- Project changes are increasing, and project uncertainty remains high

Projects have become more complex, requiring longer durations and more effort per project to manage, while simultaneously dealing with an overall increase in volume.

Connection Project Impacts

Resource Imbalance And Backlog

- The growing effort requirements from the increase in project complexity and volume has created a resource imbalance

- Project requirements are outpacing AESO resources, and the backlog of AESO deliverables continues to grow resulting in longer execution times

Volume of Planned Major AESO Deliverables

Legend: Stage 1 (Scope, PDUP) · Stage 2 (CA, PDUP) · Stage 3 (FS, Scope, ECA, PDUP)

X-axis (Planned As Of): 2021-11, 2021-12, 2022-01, 2022-02, 2022-03, 2022-04, 2022-05

Increasing Project Timelines
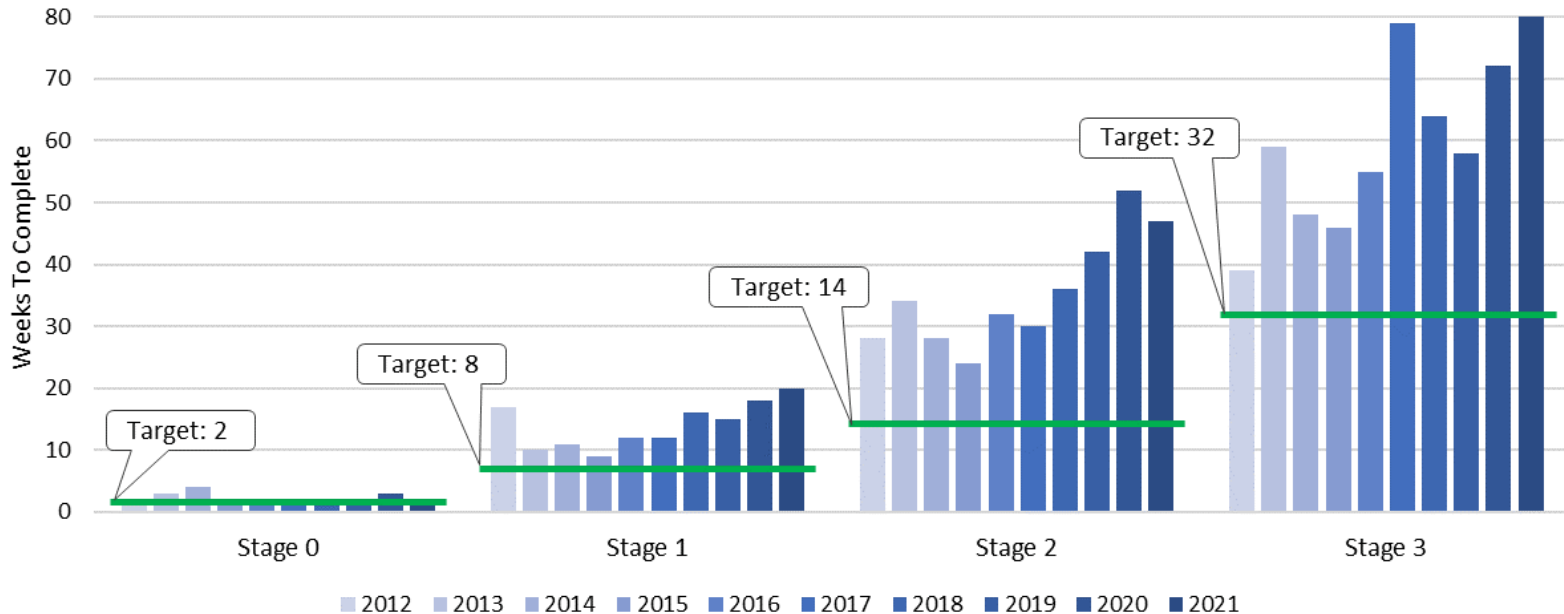
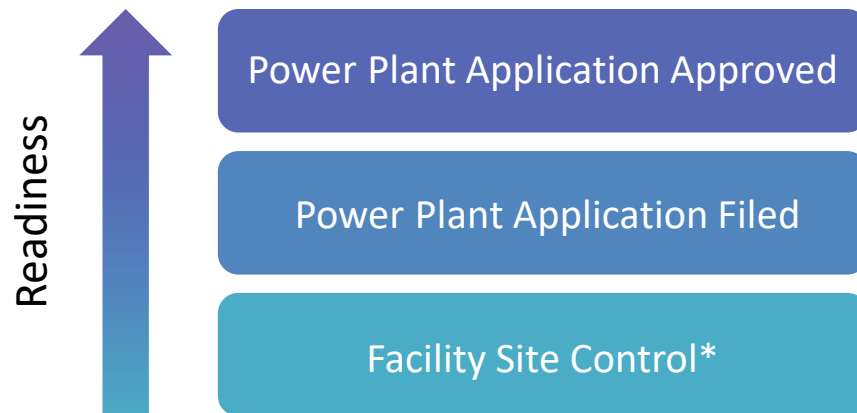- 2013 - 2015 was a period of timeline reductions, however timelines have generally been increasing since 2016

- Increasing durations are caused both by the increase in volume and the increase in complexity of projects

- The frequency and duration of project delays is expected to continue to increase as are the average stage timelines

Need For Resource Allocation

- AESO Resources are allocated across all projects and deliverables

- When scheduled project work exceeds resource capacity, the AESO must decide which items will have resources assigned, and which will need to be pushed out
  - Happening more and more as the backlog builds
  - Customers are seeing delayed and rescheduled deliverables

- When allocating resources, consideration is given to many factors, including:
  - Float in the project schedule and critical path
  - Coordination between projects
  - The current process stage
  - Planned in-service date
  - Project risks and considerations
  - Project certainty
  - Recent project change proposal impacts

Scheduled Work

Capacity

How You Can Help
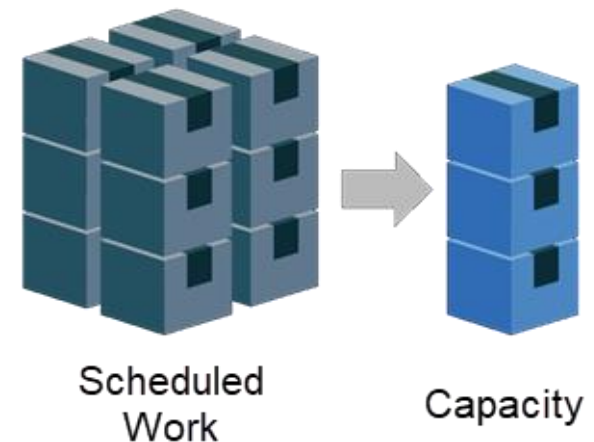
- Markets Participants may help with resource allocation by advancing certain activities that are under their control

- A market participant's "readiness" can be assessed by meeting factors related to the state of their facility

- Notify your Project Manager when a factor has been met, and it will be considered in any resource allocation that may need to occur

  – Note that while resources are more likely to be allocated to a project with higher readiness, there are many considerations that go into the analysis

Readiness →

Power Plant Application Approved

Power Plant Application Filed

Facility Site Control*

*Site control is defined as:

– title or option/agreement that provides right to acquire title; and/or

– a lease or an option/agreement to lease

![aeso logo]

Changing Landscape & Project Impacts Q&A Session

Connection Process – Streamlining Initiative

Connection Process Streamlining

Challenge

The growing effort requirements from the increase in project complexity and volume has created a resource imbalance where project timelines are increasing and are expected to continue to increase.
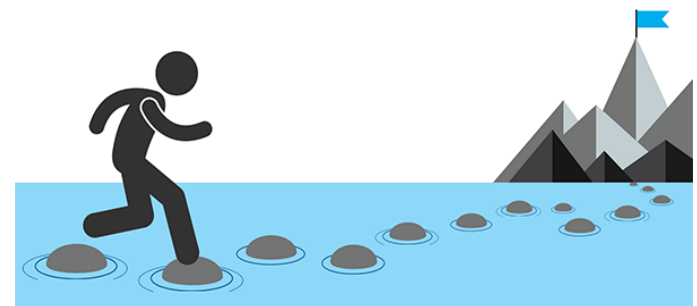
Objective

Streamline the Connection Process to drive efficiencies both internally and externally, minimize nonessential work, and focus resource efforts.

Streamlining Goals

- Critical to analyze the process and implement improvements to better manage increasing volumes and complexities

- Primary goals:

  – Provide greater efficiency and schedule certainty for customers

  – Reduce red tape in the connection process

  – Optimize project change management

  – Minimize rework and duplicate work between projects

  – Optimize AESO effort and associated processes to align project execution with available resource capacity

Streamlining Approach

- Facilitate a stakeholder session to present initial concepts and solicit feedback and industry ideas (June)

    - Stakeholders will be asked to bring their own ideas

- AESO will build out concepts and work through details over summer (July-Sep)

- Facilitate fall session to propose a final set of initiatives and collect feedback (Oct/Nov)

- Finalize details and implementation plan by year end (Dec)

Streamlining Timeline

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May — Streamlining Kickoff Stakeholder Session

Engagement Preparation

June — Streamlining Initial Concepts Stakeholder Session

Initiative Selection and Build Out

Oct/Nov — Streamlining Final Initiatives Stakeholder Session

- Multiple sessions may be required depending on initiative quantity and timing build out

Initiative Finalization

January — Streamlining Implementation Start

- Timing and duration of implementation will depend on the specific initiatives selected
- Additional rollout and update sessions may be held throughout 2023 as needed

Initiative Implementation

June Engagement Session

- June Session
  - World Café format
  - Participants unable to attend in person will be able to provide input via a matrix that the AESO will provide

Areas For Exploration

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- Some *potential* areas for exploration in June are included below, but are not limited to:

| Market Participant challenges and opportunities | Readiness of projects to enter the process and associated certainty | Volume and complexity of SASR applications |

| Process rework and inefficiencies | Minimizing unnecessary connection process steps (red tape) |

Potential Enhancements

- Please come to the June session with your recommendations for streamlining the connection process

- In advance of a June session, the AESO is evaluating enhancements to the connection process, including, but not limited to:

Cluster studies

- Studying all projects received in a specific area of the province at one time

Strengthening application requirements

- Potentially requiring site control or application fees

Project inclusion criteria move

- Moving project inclusion earlier in the connection process

Connection Process Streamlining Q&A Session

Thank you

Contact the AESO

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Website: **www.aeso.ca**

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