

Non Emitting Resource Subcommittee

February 16th, 2018

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Today's Purpose and Expectations

- Provide stakeholders with information on the Technical Conference and receive feedback on the proposed format
- Interactive session to identify barriers to participation in Ontario
- Present the scope of the modelling exercise and receive stakeholder input on this item of the work-plan

Agenda

09:00 am – Introduction

09:15 am – Technical Conference

09:45 am – Barriers to participation in Ontario

12:00 pm – Break for lunch

12:30 pm – Barriers to participation in Ontario (con't)

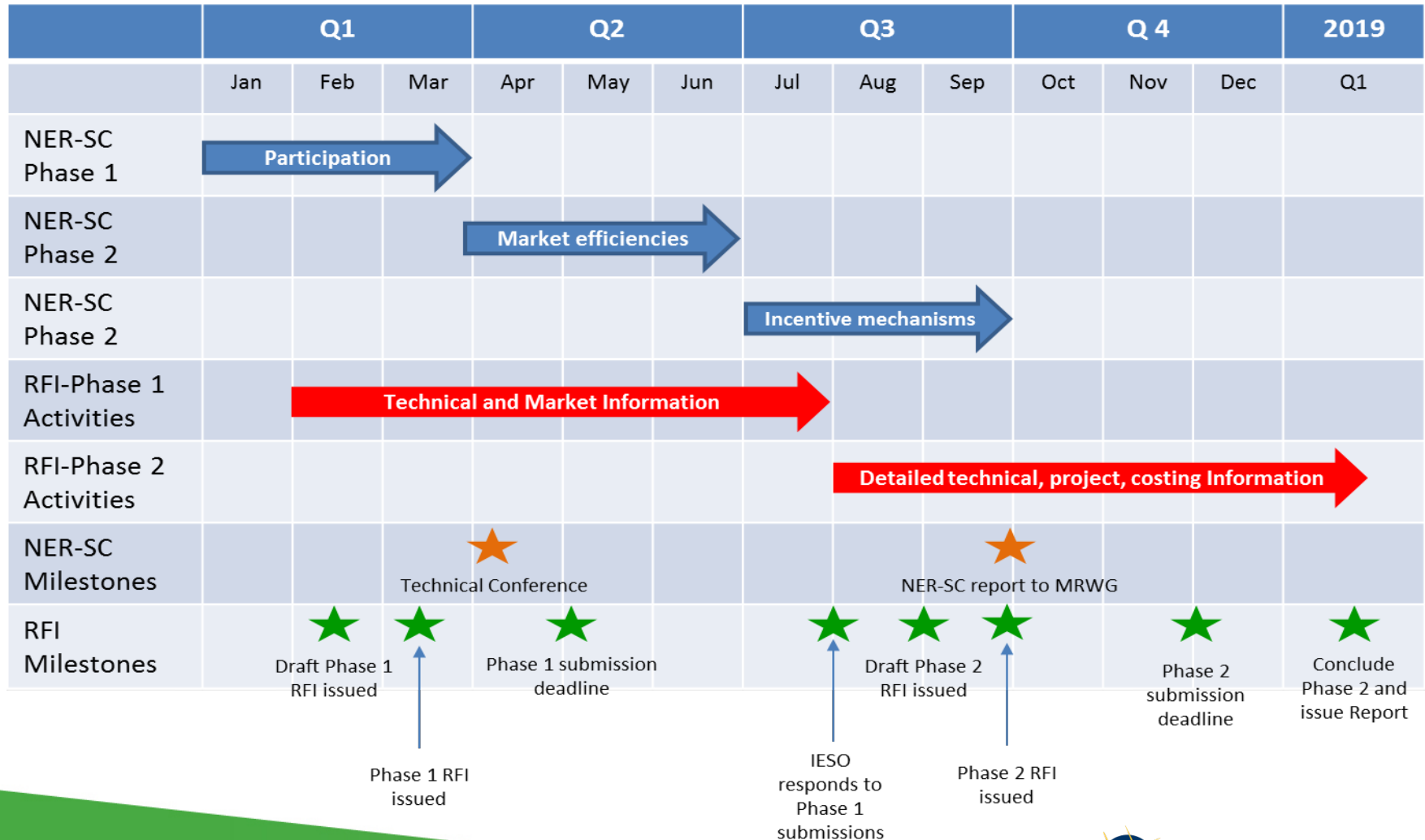
1:30 pm – Scoping of the modelling exercise

2:00 pm – Wrap up NERSC meeting

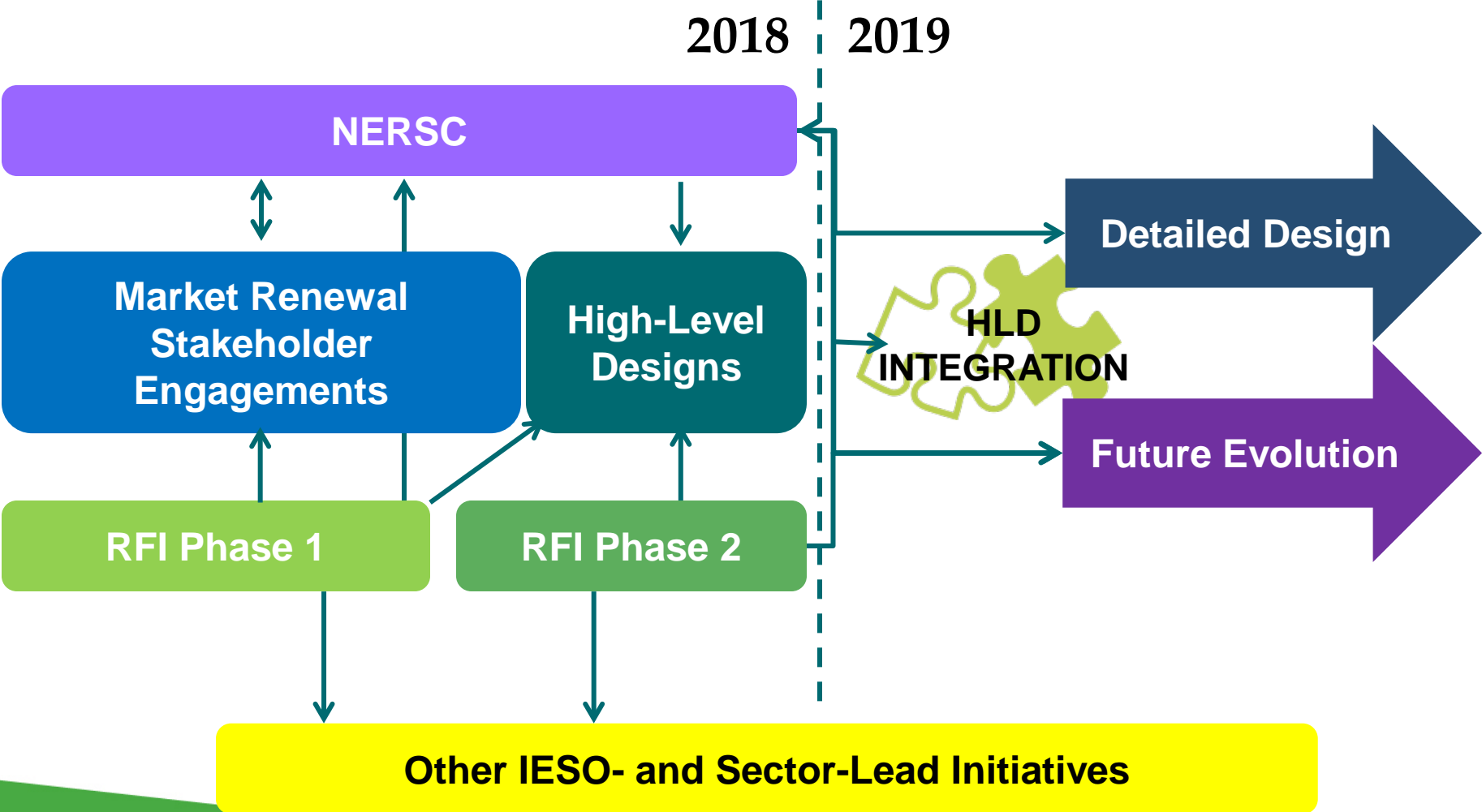
2:30 pm – RFI Webinar

3:30 pm – End of session

NERSC and RFI Timelines



NERSC, RFI and the Big Picture



Technical Conference

Overview

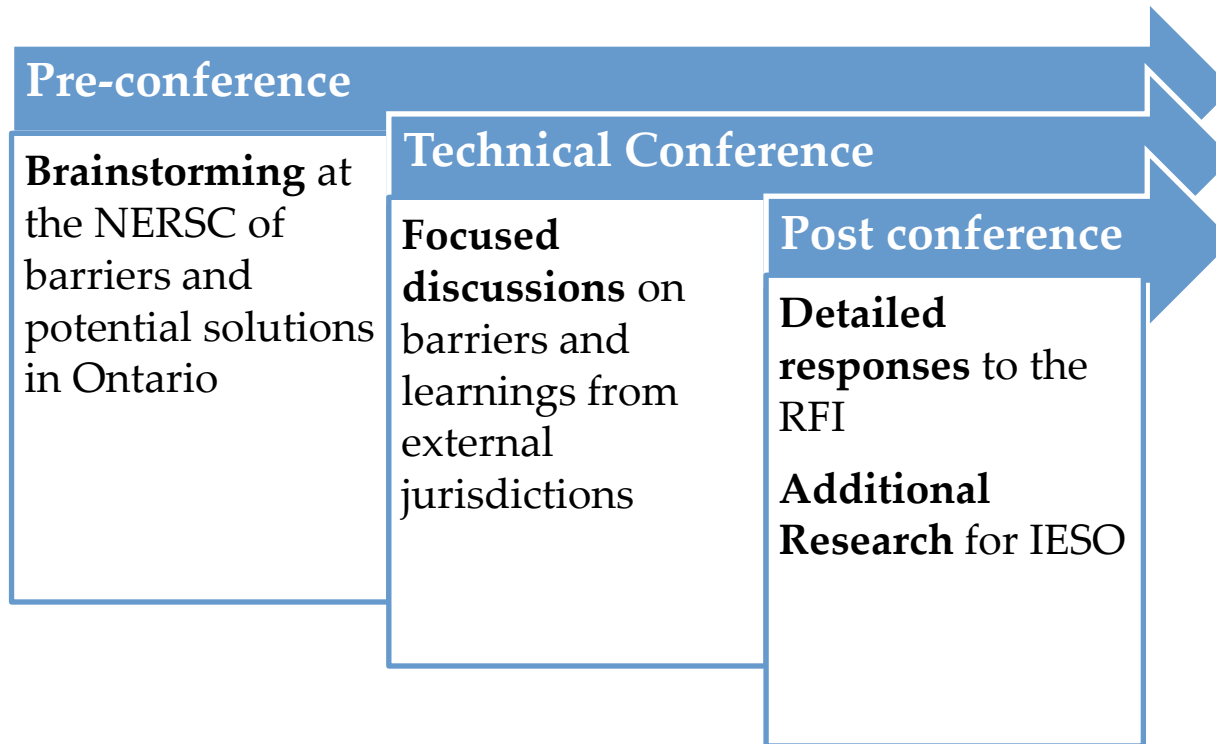
The focus for this session is:

1. To discuss the purpose of the Technical Conference
2. To present the IESO's proposed approach to the day (including logistics)
3. To hear NERSC feedback on how to get the most out of the day

Why a Technical Conference?

- A venue for stakeholders to:
 - Provide information on technical capabilities, key barriers, and the value that their resource can provide
 - Engage in dialogue with the IESO on these topics
 - Consider learnings from other jurisdictions on these topics
- Builds on key takeaways from today's barriers session
- Brings discussion to a broader audience
- Enables fulsome responses to the RFI

How does the Technical Conference fit in?



Outcomes for the NERSC

1. Help complete Participation phase of the work plan
2. Set the stage for the Market Efficiencies phase
3. Provide input for Market Renewal and potential future market evolution

Proposed format for the day

1. Focus on stakeholder presentations and discussion

- Stakeholder presentations on resource value and key barriers
- Facilitated discussion with IESO experts on barriers and potential solutions
- External perspectives on stakeholder presentations
- Questions from the audience

2. Learning from other jurisdictions

- Case studies on challenges and opportunities with integrating NERs in other jurisdictions

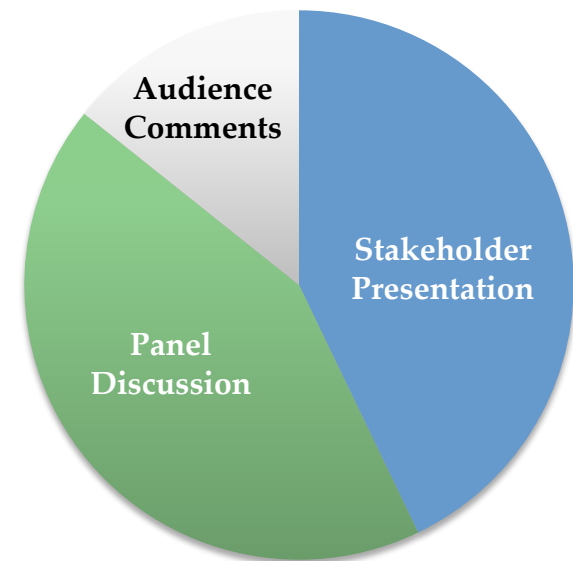
3. Tying it together

- How does the day fit into the bigger picture
- How will we build on the information from the day

Stakeholder Presentations

- IESO will work with stakeholders to develop presentations and discussion topics for the day
- Have identified potential presenters from hydro, wind, DR, and DER communities
- *What other resource types should be included (e.g., storage, solar)?*
- *How can we get the most out of the panel discussions and audience comments?*

1-hour allotted for each presentation



Proposed Agenda

Morning Session		Afternoon Session	
08:30 am	Welcome	12:00 pm	Lunch Panel: External Perspectives
08:45 am	Introduction and Vision for the Future Market	1:00 pm	Stakeholder Presentation 3
09:15 am	Stakeholder Presentation 1	2:00 pm	- <i>Coffee break</i> -
10:15 am	- <i>Coffee break</i> -	2:15 pm	Stakeholder Presentation 4
10:30 am	Stakeholder Presentation 2	3:15 pm	Stakeholder Presentation 5
11:30 am	- <i>Break for lunch</i> -	4:15 pm	Closing remarks

Logistics

- The conference will have a formal registration process which will be communicated over the coming weeks



When will it take place?

- April 5th
- 8:30 am – 4:30 pm



Where will it take place?

- Downtown Toronto (TBC)
- Modest fee to be charged



Who is expected to participate?

- Participants of the NERSC and other non-emitting resources
- Potential respondents to the IESO's non emitting resource RFI
- Government and other interested stakeholders
- Anticipating 150 attendees

QUESTIONS & COMMENTS



Modelling Exercise

Overview

The focus for this session is:

1. To discuss the purpose of the modelling exercise
2. To discuss, at a high level, the approach and timelines for the modelling exercise
3. To receive NERSC input on the types of scenarios that should be considered in the exercise

Purpose of Modelling Exercise

- To create a shared vision of how Ontario's future markets will work together
- Specifically, to explore:

(1) Revenue Streams

What are the revenue opportunities for NERs (new, existing, retrofitted) ?

(2) Market Outcomes

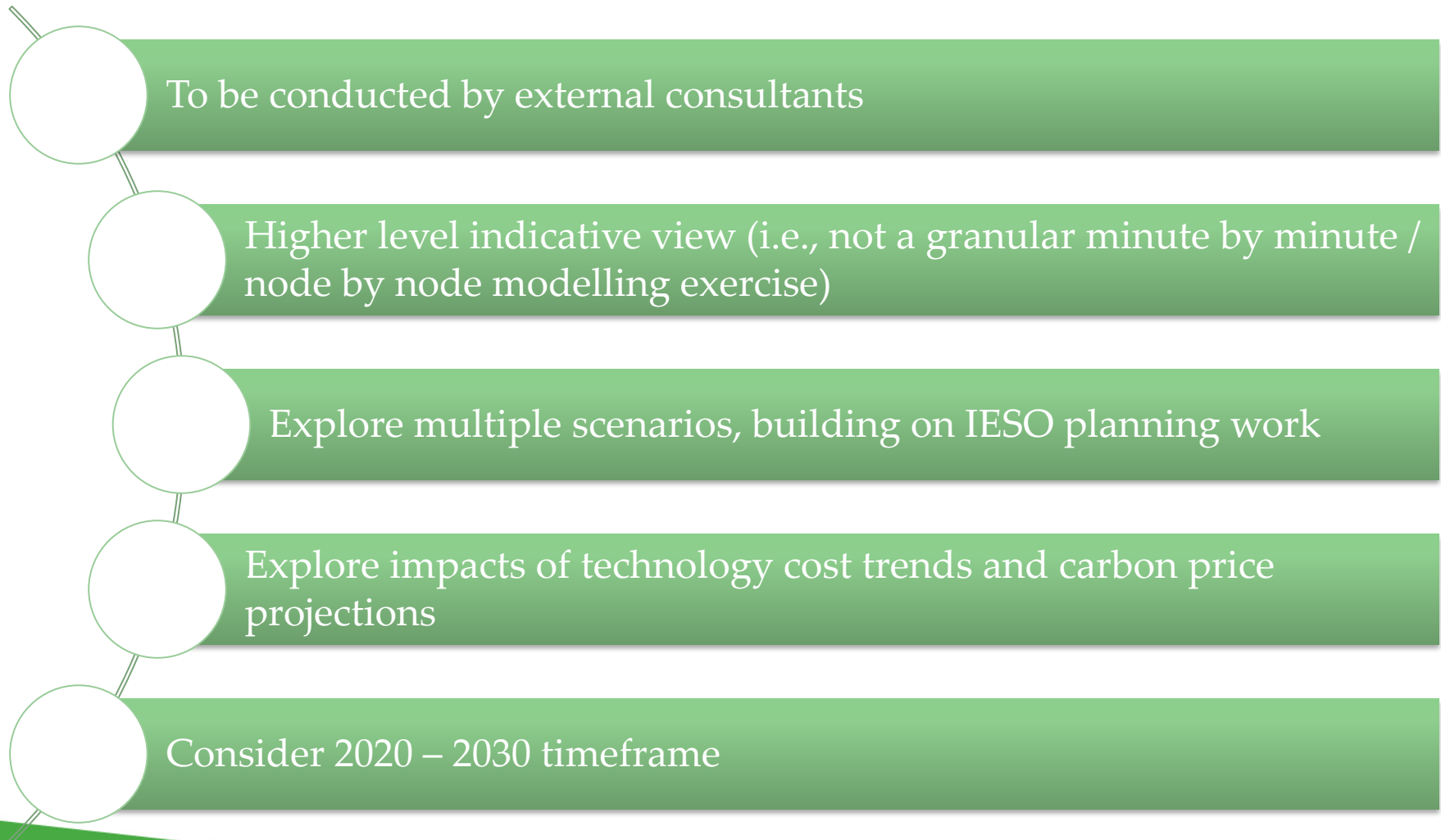
How might market prices, supply mix, and emissions be impacted?



(3) Reliability Impacts

Are there potential challenges for system reliability?

Approach



Addressing Phase 2 Scope of Work

- ✓ *What are the market impacts of integrating higher levels of non-emitting generation with very low marginal costs?*
- ✓ *What reliability challenges will need to be managed in markets with a high penetration of intermittent resources?*
- ✓ *What are the market efficiency impacts of sustained negative pricing?*
 - What options are available to mitigate or address market inefficiencies from sustained negative pricing?*
 - What approaches are being considered in other jurisdictions to manage these challenges and what lessons can Ontario learn from other jurisdictions?*
- ✓ *What impact do environmental regulations have on the wider market?*
- ✓ *Are today's wholesale market designs adequate to operate resources effectively to meet flexibility needs and not?*

Modelling can help to address many of the questions in the *market efficiencies* phase

Target Timelines

Date	Focus
Feb 16 NERSC	Initiate scoping discussion
March	One-on-one meetings Refine scope Begin modelling exercise
April 5	Technical Conference
April 24 NERSC	Review <i>Participation</i> phase Begin negative pricing discussion Update on modelling
May 29 NERSC	Initial findings of modelling exercise
June 26 NERSC	Integrate NERSC feedback and finalize modelling exercise

Modelling Scenarios

- IESO believes that more than one scenario will need to be explored to create a useful vision for the future
- Most effective approach is likely to build on existing work
 - E.g., planning scenarios from Ontario Planning Outlook, LTEP
 - Future scenarios developed for Market Renewal Benefits Case
- NERSC feedback is sought on what types of scenarios would be most insightful
 - Want to focus on small set of most relevant potential futures

Scenarios from the OPO (2016)

- For NERSC consideration, the Ontario Planning Outlook included a range of demand scenarios:

Low Demand Outlook

- Explores the implications of lower electricity demand

Flat Demand Outlook

- Long-term demand that roughly matches the level of demand that exists today

Increasing Demand Outlook

- Increased demand driven by a moderate pick up in electrification associated with policy choices on climate change

High Demand Outlook

- High demand driven by a high pick up in electrification associated with policy choices on climate change

Scenarios from the Benefits Case

- For NERSC consideration, to support development of the Benefits Case the Market Renewal Working Group identified a number of potential futures



Current Trends

- Maintaining current policies
- Moderate increase in electrification



Deep Decarbonisation

- Ambitious reduction of fossil fuels across all sectors
- The grid incorporates new clean/flexible resources



Distributed Grid

- Customers become “Prosumers” and can help to decarbonise the system
- Technologies such as DER’s become more economical

Questions on Scenarios

- What demand scenarios would be most helpful to explore?
- How should technology costs and carbon prices be accounted for?
- How can we best account for potential policy impacts?
- What else should be considered in developing modelling scenarios?

QUESTIONS & COMMENTS



Summary

- Re-cap
 - Stakeholders were presented with an outline for the April 5th Technical Conference. Formal invites will be sent out shortly
 - The subcommittee split into resource specific groups to discuss the barriers to participation in Ontario
 - A range of existing future market scenarios were presented to stakeholders on the modelling exercise

- Next Steps
 - The IESO will finalise the Technical Conference agenda; and
 - Hone in on the range of scenarios to be explored in the modelling exercise