Toronto
Local Advisory Committee Meeting #4

February 15, 2017

ieso
Connecting Today.
Powering Tomorrow.

AGENDA

- Recap of previous LAC Meeting and Members' Meeting
- Review of Toronto IRRP Implementation & Regional Planning Process
- Mapping of LAC Priorities
- Input to Toronto Hydro's Demand Outlook
- Public Questions
- Next Steps

LAC Meeting Ground Rules

- As per the LAC Terms of Reference:
  - *Each member of the Local Advisory Committee shall conduct himself or herself honestly, fairly, ethically and with integrity*

- One speaker at a time
- All feedback is valued
- Everyone is treated with respect

RECAP:
NOVEMBER 2016 LAC MEETING & MEMBERS' MEETING

November 2016 LAC Meeting

- Presentation on the Ontario Planning Outlook – the IESO's advice to the Minister of Energy on the development of the next Long-Term Energy Plan
  - Information shared on how to provide individual feedback to the Ministry of Energy

- Presentation and discussion on Distributed Energy Resources and their role in regional planning

Members' Meeting

- Key Themes:
  - Better define the scope of topics to be considered
  - Determine the priorities for the LAC
  - Define the type of feedback being sought
  - Change the LAC meeting format to enable more dynamic participation; adopt best practices
  - Pick 1 or 2 topics per meeting and explore the topic in greater depth
  - Provide greater context for topics
  - Provide better feedback loops

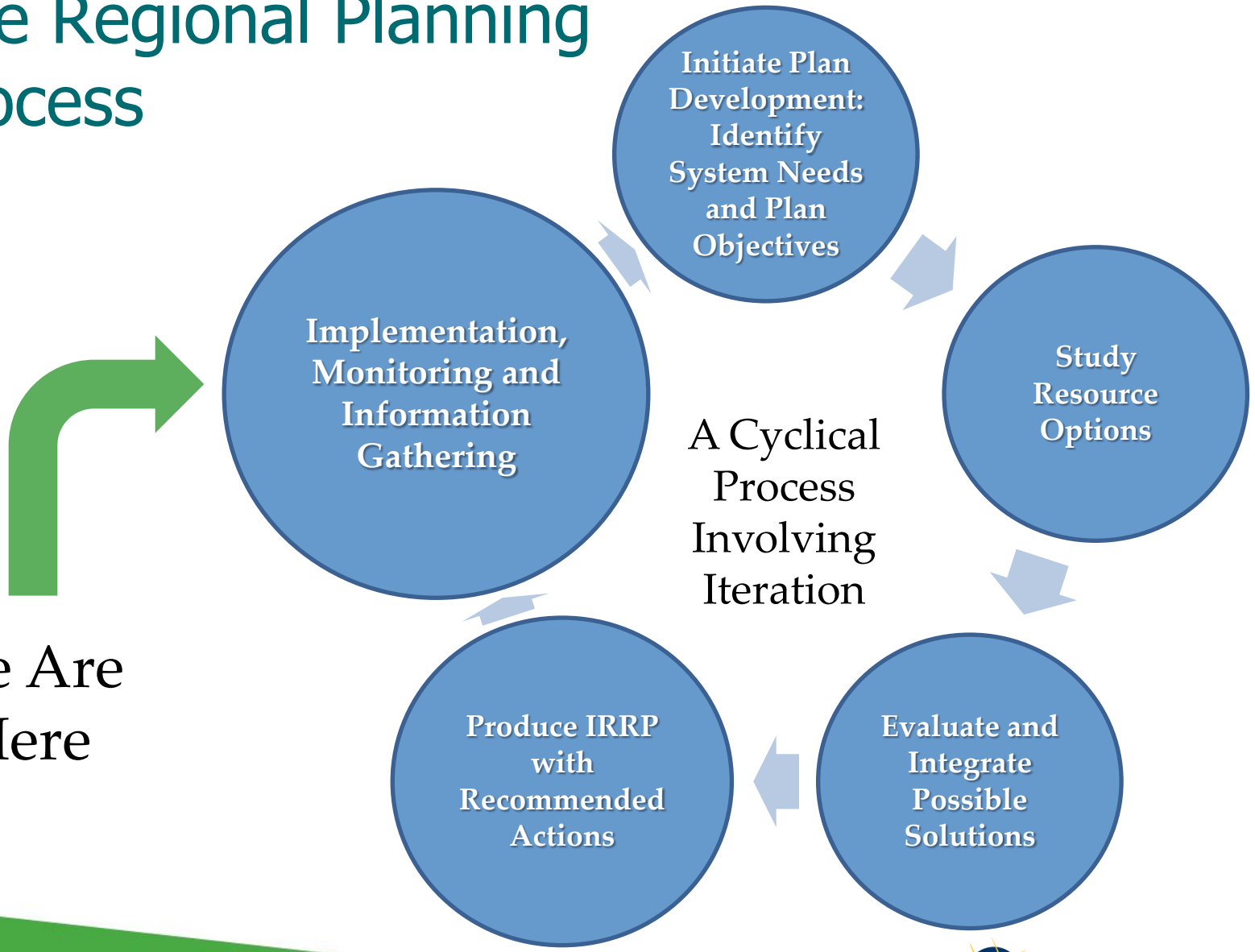
- LAC member feedback has been used to help shape the content and format for today's meeting – your continued feedback is welcomed

TORONTO IRRP: IMPLEMENTATION UPDATE & WHERE WE ARE IN THE PLANNING PROCESS

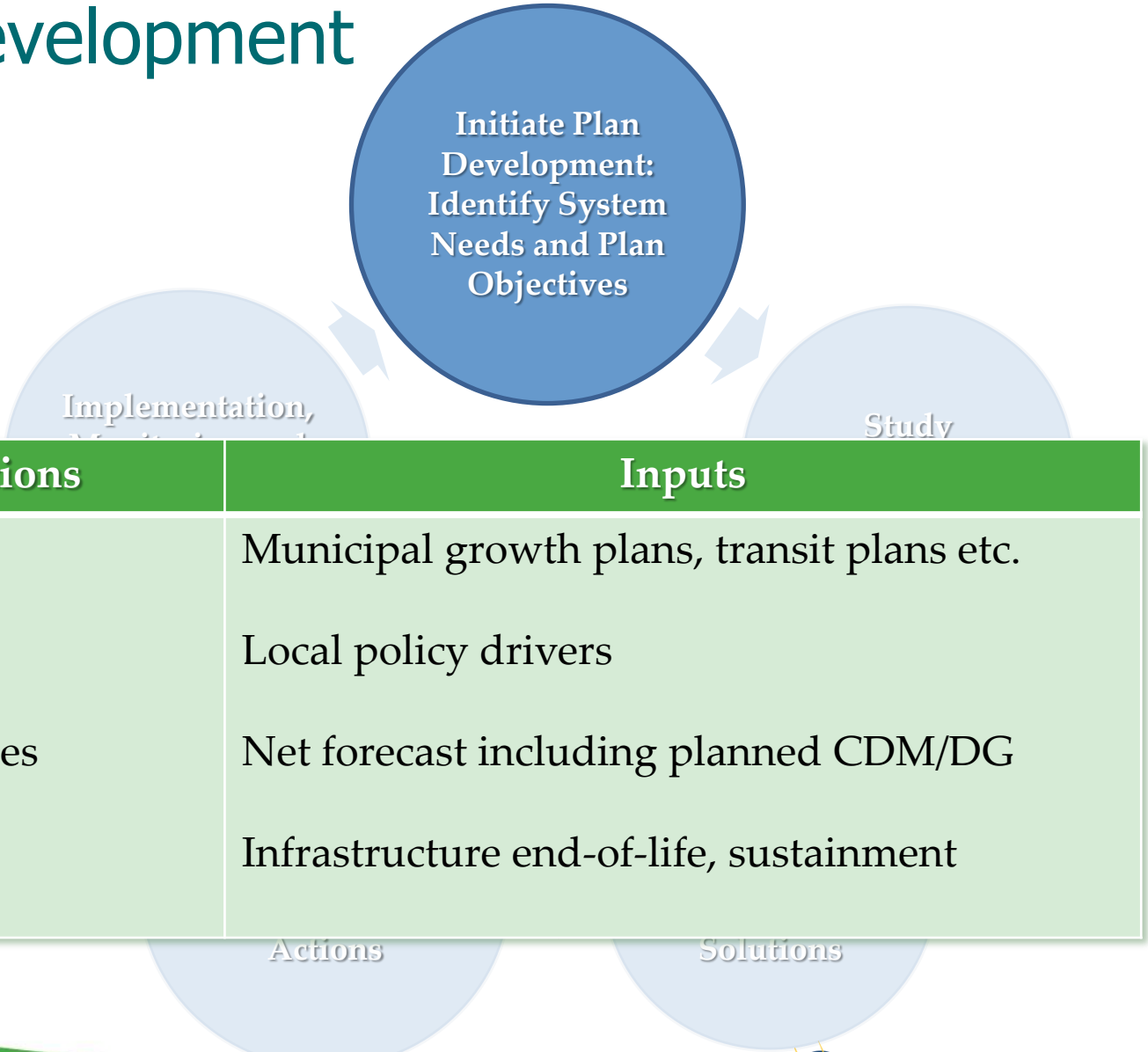
2015 IRRP Implementation Update

- Plan update published
  - Lakeshore West train electrification / transmission reinforcement
- Near-term projects in various stages of implementation
- Resilience study for vulnerable load customers kicking off

The Regional Planning Process

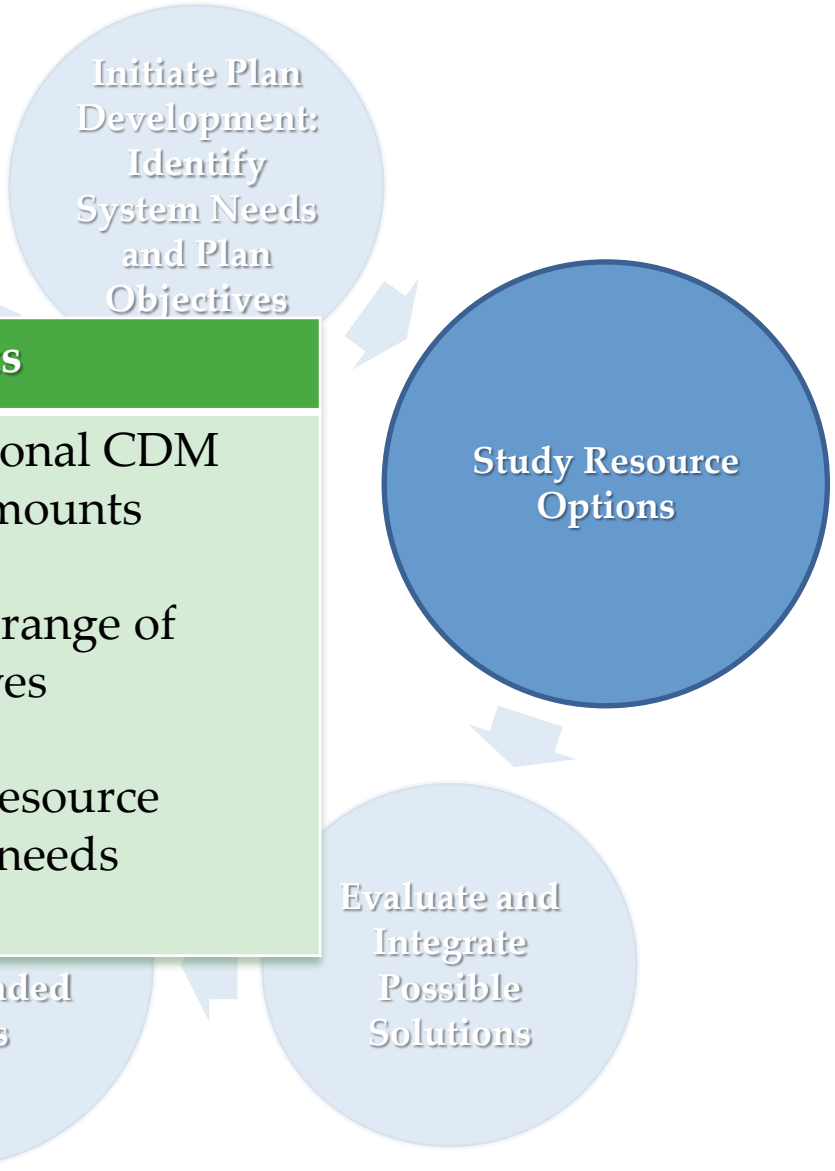


Initiating Development of the Plan



Considerations	Inputs
Demand outlook	Municipal growth plans, transit plans etc.
CDM/DG/DERs	Local policy drivers
Local plans, policies	Net forecast including planned CDM/DG
	Infrastructure end-of-life, sustainment

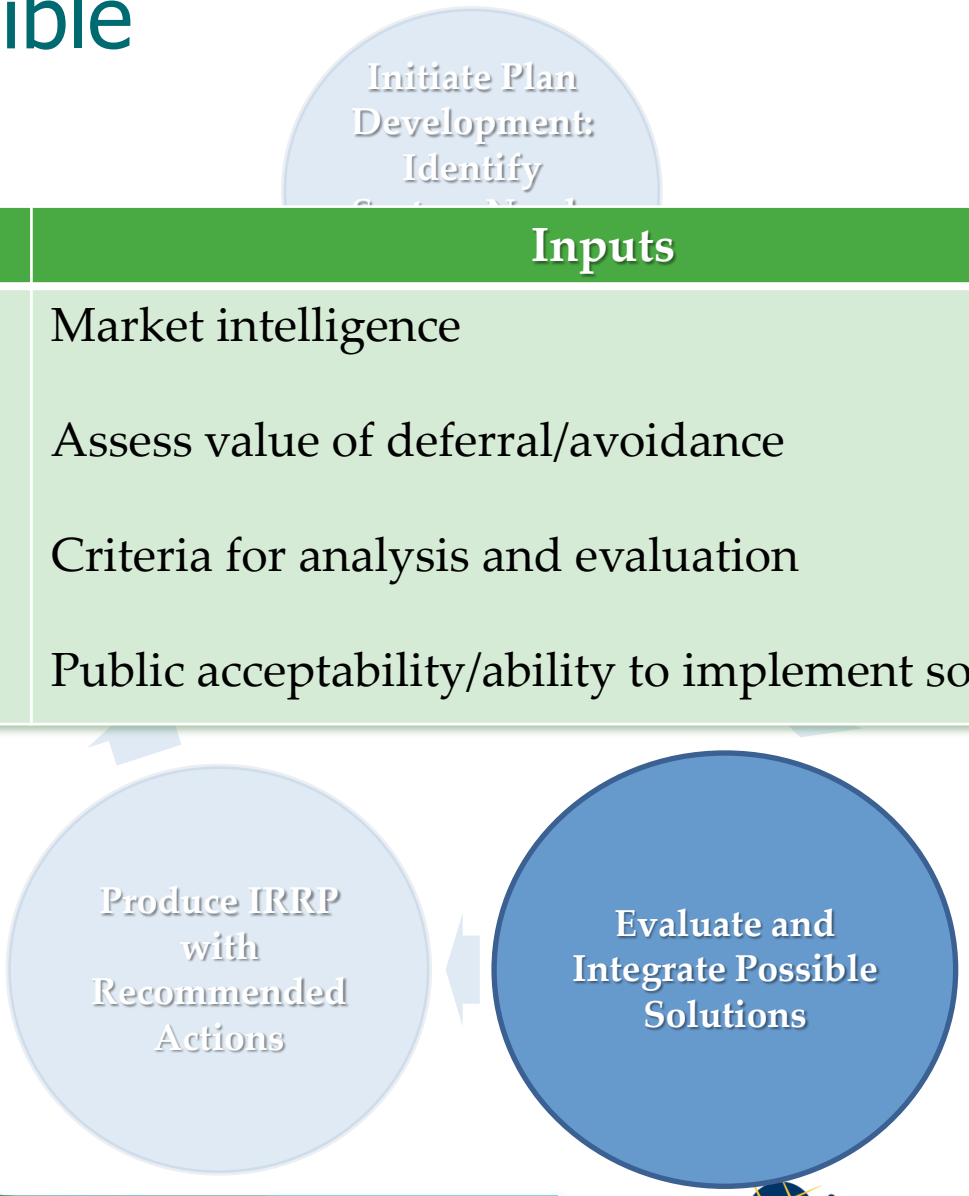
Exploring Options



Considerations	Inputs
Incremental CDM/DER options Wires and non-wires resource alternatives	Potential for additional CDM beyond planned amounts Assessment of full range of potential alternatives Characteristics of resource options relative to needs

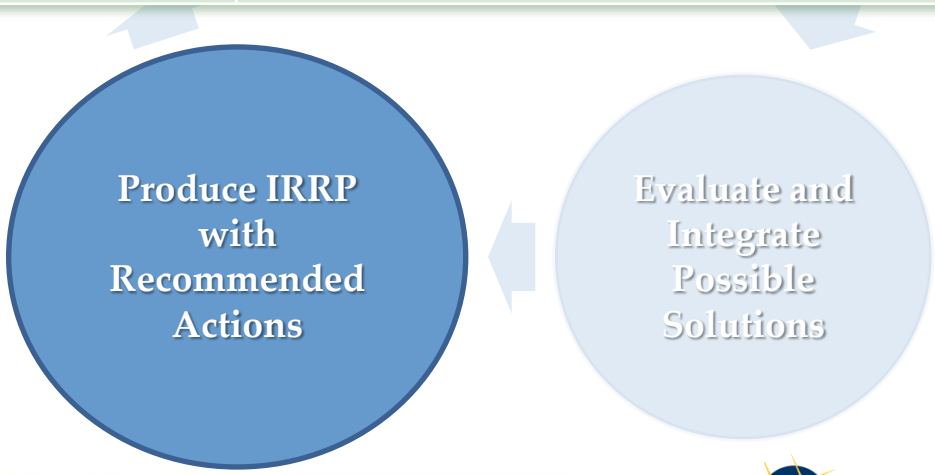
Evaluating Possible Solutions

Considerations	Inputs
Costs and benefits	Market intelligence
Avoidable costs	Assess value of deferral/avoidance
Comparison of options	Criteria for analysis and evaluation
	Public acceptability/ability to implement solutions



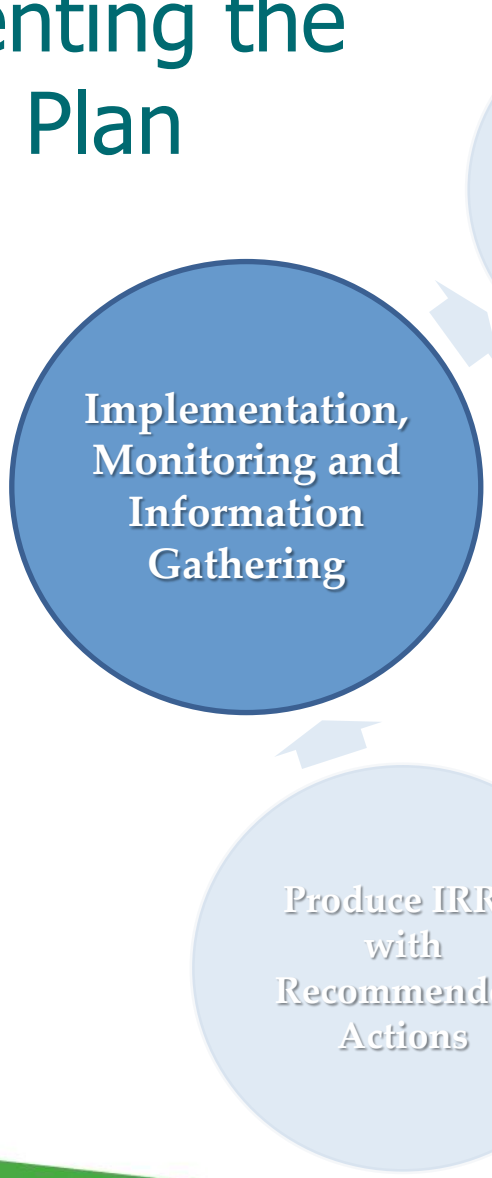
Producing the Plan

Considerations	Inputs
Draft recommendations to address needs Near-Term detail - actions Maintain long-term options - direction	Test for alignment between plan outcomes and local objectives Broad engagement within the community



ieso
Connecting Today.
Powering Tomorrow.

Implementing the Regional Plan



Considerations
Changes in demand, growth, key assumptions CDM performance validation
Inputs
Various project approvals, implementation progress Continue engagement with key stakeholders Track demand, monitor for changes

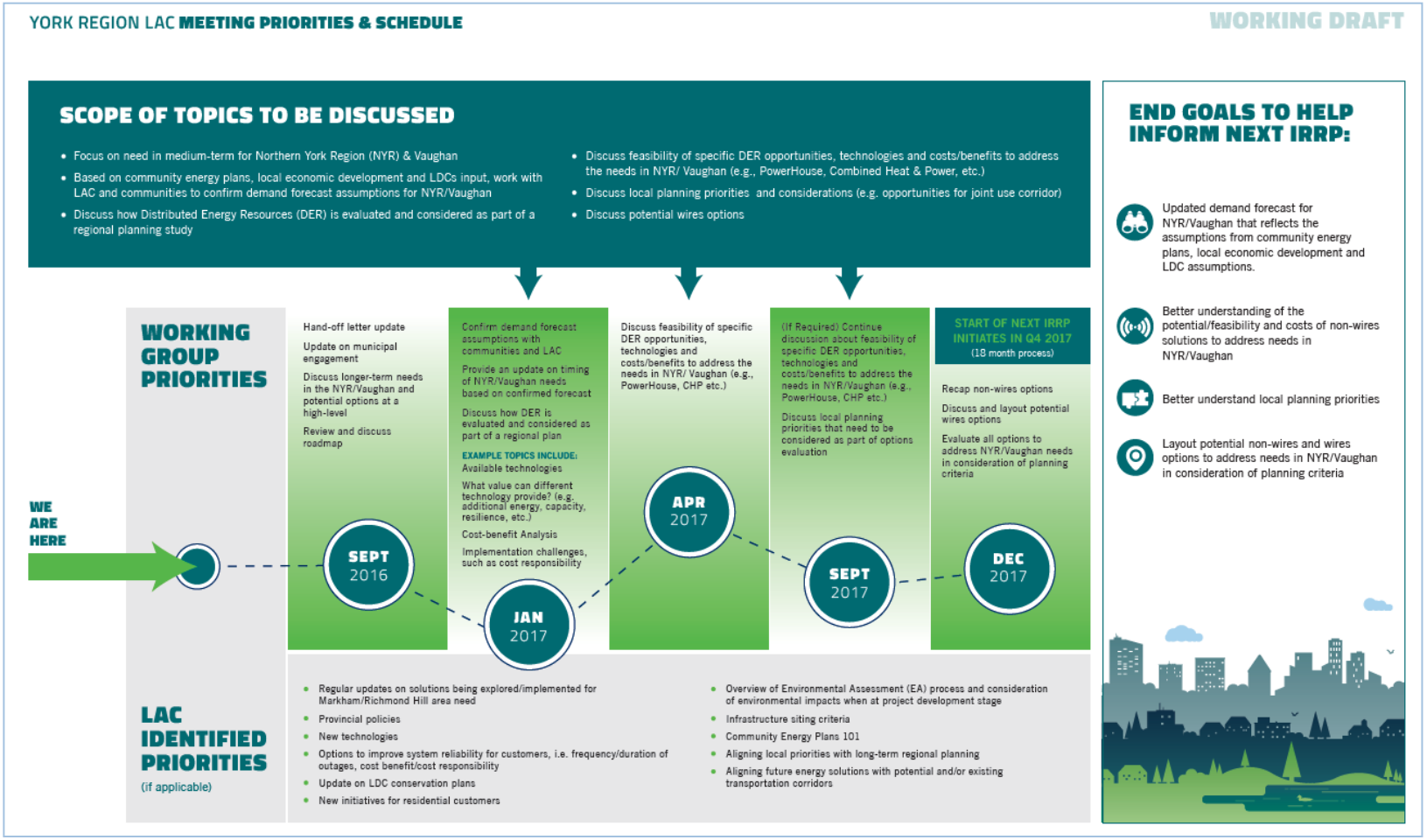
MAPPING OF LAC PRIORITIES

LAC Road Map

- At the LAC members' meeting, two foundational themes emerged:
  - Better define the scope of topics to be considered
  - Determine the priorities for the LAC

- A LAC "Road Map" will be jointly developed to define and identify the:
  - Scope of the topics to be discussed
  - Priorities for our meetings
  - Timing of the discussions
  - Desired outcomes for the LAC

LAC Road Map - Sample



Identified LAC Member Priorities

Planning Objectives	**Reliability & Resiliency**	**Local Opportunities & Innovation**	**Environmental**
• City development and transportation plans • Sound power system plan • Net zero planning • More detail on near and long term plans • Meeting growth needs (e.g. transit electrification, new condos) • Cost and impact on electricity rates	• Reliability / reliability of supply • Resilience / extreme weather resilience • Grid supply availability and consistency	• Understanding conservation and DE opportunities • Smart grid planning • Role of innovation • Barriers to change • Marketplace trends (solar, storage,...) and impacts • Potential/reality of embedded sources and desirability • Best practices from other jurisdictions	• Low Carbon Future • Not harmful to the environment • Environmentally sensible

Small Group Discussion – LAC Road Map

- Small group discussion:
  - All LAC and Working Group members have been assigned a table in the adjoining room to jointly discuss the LAC scope, priorities, timing and desired outcomes
  - Each member will receive a template Toronto LAC Road Map document to provide input
  - The small group discussions will run until 6:50pm
  - At that time, a representative from each table will provide a one-minute recap of the table discussion

Small Group Discussion – LAC Road Map (cont'd)

- Members of the public are also invited to participate and provide input on the development of the LAC road map
- Members from the IESO and Toronto Hydro will be at each table to guide this discussion

- Following the brainstorming session:
  - The IESO and Toronto Hydro will consolidate the information and send a draft to the LAC members in three-weeks time
  - Members can provide additional feedback at that time
  - The Road Map will be used to guide the development of the agenda for future meetings
  - The document will be brought forward for review at each LAC meeting

SMALL GROUP DISCUSSION: TORONTO LAC ROAD MAP

BREAK

TORONTO HYDRO DEMAND OUTLOOK

Regional Planning and Demand Outlooks

Toronto Local Advisory Committee Meeting
February 15, 2017

Angelo Boschetti
Supervisor, Engineering

TORONTO HYDRO®

® A registered trademark of Toronto Hydro Corporation used under licence. "Toronto Hydro" means Toronto Hydro-Electric System Limited.

Purpose

- In Regional Planning, it is the Local Distribution Company that produces the demand outlooks used for analysis by the Working Group
- It has been five years since Toronto Hydro has produced its long range peak demand outlook
- Toronto Hydro will be calculating a new long range peak demand outlook this year
- Toronto Hydro is seeking your advice regarding the preparation of the demand outlook:
  - Inputs
  - Scenarios
  - Any other related input

Demand Outlook

A peak demand outlook is an outlook of peak demand over a period of time and over an area given a set of assumptions and forecast data

An example of a recent peak demand outlook is contained within the Ontario Planning Outlook:

http://www.ieso.ca/Pages/Ontario's-Power-System/Ontario-Planning-Outlook/default.aspx

The last long range peak demand outlook for the Toronto IRRP may be found in the report:

http://www.ieso.ca/Documents/Regional-Planning/Metro_Toronto/2015-Central-Toronto-IRRP-Report-Appendices.pdf

Annual Net Summer Peak Demand Across Demand Outlooks

The four demand Outlooks span a net summer peak demand between 22,586 MW and 28,532 MW by 2035

From Slide 6 Module 2: Demand Outlook, August 2016,
Ontario Power Outlook, IESO

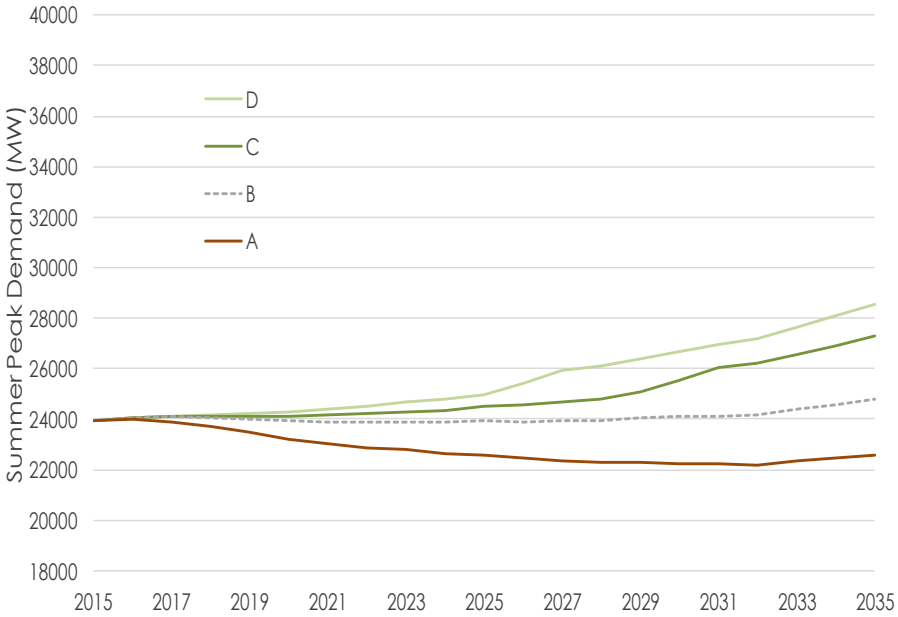
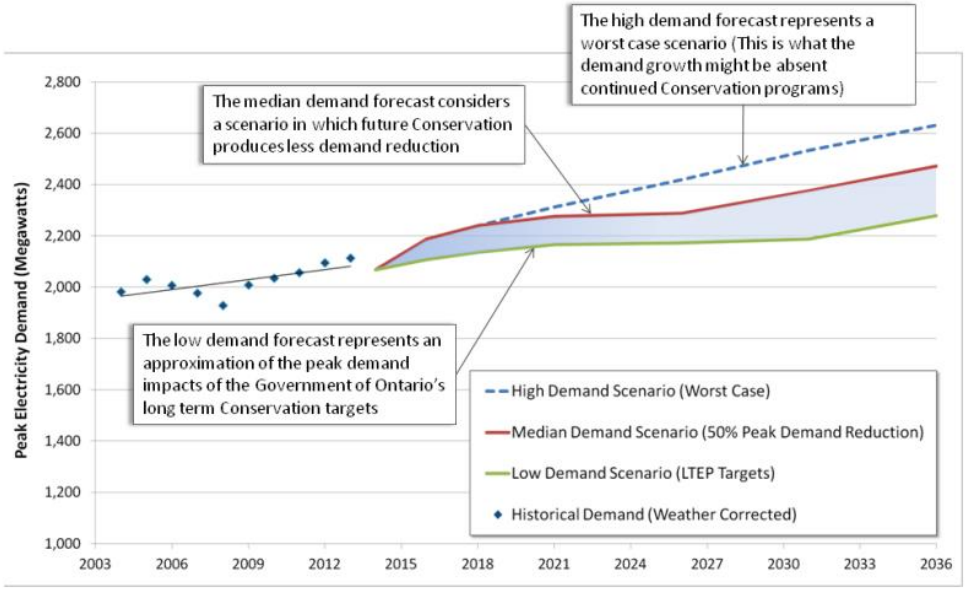


Figure 5-4: Electricity Peak Demand Forecast for Central Toronto (115 kV System)

Electricity Peak Demand Forecast for Central Toronto

From page 40 of Integrated Regional Resource Plan for Central Toronto, April 2015, IESO



Demand Outlook Approach

Historical Peak Demand Contribution by Driver

- Toronto Hydro Historical Peak Demand
- Weather data
- Calendar data
- Toronto Economic drivers

Peak Demand by Area over Time (Gross)

- Weather forecast data
- Toronto Economic driver forecasts

Adjustments for factors not covered in Gross Peak Demand

- Conservation & Demand Management
- Distributed Energy Resources
- Other

Spatial Peak Demand Outlook (Net)

	Year 1	*…*	*Year 20*	*Year 25*
TS bus 1 .				
TS bus n-1				
TS bus n				

Net spatial and temporal representation of demand outlook

Inputs

- What advice do you have regarding:
  - Economic assumptions
  - Weather assumptions
  - Conservation assumptions
  - Distributed energy resources assumptions
  - Climate Change Action Plan electrification assumptions
    - Transportation electrification
    - Heating electrification

Inputs

- Toronto Hydro is seeking information/advice on the following as per the LAC Terms of Reference:
  - Municipal or community energy plans
  - Priorities such as local energy self-sufficiency
  - Growth plans and plan implementation
- How would these be captured in the Demand Outlook?

Scenarios

- Scenarios = results of combinations of assumptions
- The Ontario Power Outlook contains four “scenarios”
- What combination of assumptions (scenarios) do you suggest?

Questions and Feedback

Disclaimer

The information in these materials is based on information currently available to Toronto Hydro Corporation and its affiliates (together hereinafter referred to as “Toronto Hydro”), and is provided for information purposes only. Toronto Hydro does not warrant the accuracy, reliability, completeness or timeliness of the information and undertakes no obligation to revise or update these materials. Toronto Hydro (including its directors, officers, employees, agents and subcontractors) hereby waives any and all liability for damages of whatever kind and nature which may occur or be suffered as a result of the use of these materials or reliance on the information therein. These materials may also contain forward-looking information within the meaning of applicable securities laws in Canada ("Forward-Looking Information"). The purpose of the Forward-Looking Information is to provide Toronto Hydro’s expectations about future results of operations, performance, business prospects and opportunities and may not be appropriate for other purposes. All Forward-Looking Information is given pursuant to the "safe harbour" provisions of applicable Canadian securities legislation. The words "anticipates", "believes", "budgets", "could", "estimates", "expects", "forecasts", "intends", "may", "might", "plans", "projects", "schedule", "should", "will", "would" and similar expressions are often intended to identify Forward-Looking Information, although not all Forward-Looking Information contains these identifying words. The Forward-Looking Information reflects the current beliefs of, and is based on information currently available to, Toronto Hydro’s management. The Forward-Looking Information in these materials includes, but is not limited to, statements regarding Toronto Hydro’s future results of operations, performance, business prospects and opportunities. The statements that make up the Forward-Looking Information are based on assumptions that include, but are not limited to, the future course of the economy and financial markets, the receipt of applicable regulatory approvals and requested rate orders, the receipt of favourable judgments, the level of interest rates, Toronto Hydro’s ability to borrow, and the fair market value of Toronto Hydro’s investments. The Forward-Looking Information is subject to risks, uncertainties and other factors that could cause actual results to differ materially from historical results or results anticipated by the Forward-Looking Information. The factors which could cause results or events to differ from current expectations include, but are not limited to, the timing and amount of future cash flows generated by Toronto Hydro's investments, market liquidity and the quality of the underlying assets and financial instruments, the timing and extent of changes in prevailing interest rates, inflation levels, legislative, judicial and regulatory developments that could affect revenues, and the results of borrowing efforts. Toronto Hydro cautions that this list of factors is not exclusive. All Forward-Looking Information in these materials is qualified in its entirety by the above cautionary statements and, except as required by law, Toronto Hydro undertakes no obligation to revise or update any Forward-Looking Information as a result of new information, future events or otherwise after the date hereof.

PUBLIC QUESTIONS

CLOSING REMARKS