



# **Possibility of Capacity Markets in Ontario**

**Young Professionals in Energy – Toronto  
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# Our Discussion

- IESO has initiated a stakeholder engagement regarding potential development and implementation of an IESO-Administered Capacity Market (i.e., Capacity Auction)
  - ✓ See <http://www.ieso.ca/Pages/Participate/Stakeholder-Engagement/Capacity-Auction.aspx>
  
- This presentation is organized into the following sections
  - ✓ IESO stakeholder engagement plan and potential timelines
  - ✓ Objectives of Capacity Markets and experience in North America
  - ✓ Potential for a Capacity Market in Ontario and issues to address
  - ✓ Related issues, alternate options, and potential next steps



# **IESO Stakeholder Engagement Plan and Potential Timelines**

# IESO Stakeholder Engagement Plan and Potential Timelines

- IESO has hosted three Capacity Market Information Sessions (April, August and October) to discuss the potential development and implementation of a made-in-Ontario designed Capacity Market
  - ✓ Scope and timelines for stakeholder engagement
  - ✓ IESO plans to launch a Capacity Market Working Group(s), or similar, likely in January
  
- August 13 session provided attendees with an overview of Capacity Market principles and perspectives from other jurisdictions
  - ✓ Why Capacity Markets exist
  - ✓ Scope of Capacity Markets in other jurisdictions (e.g., PJM, NYISO, ISO NE)
  - ✓ IESO plans for additional and technical Capacity Market consultations
  
- October 1 session provided attendees with a draft Stakeholder Engagement Plan and proposed high-level design elements for potential development of a Capacity Market

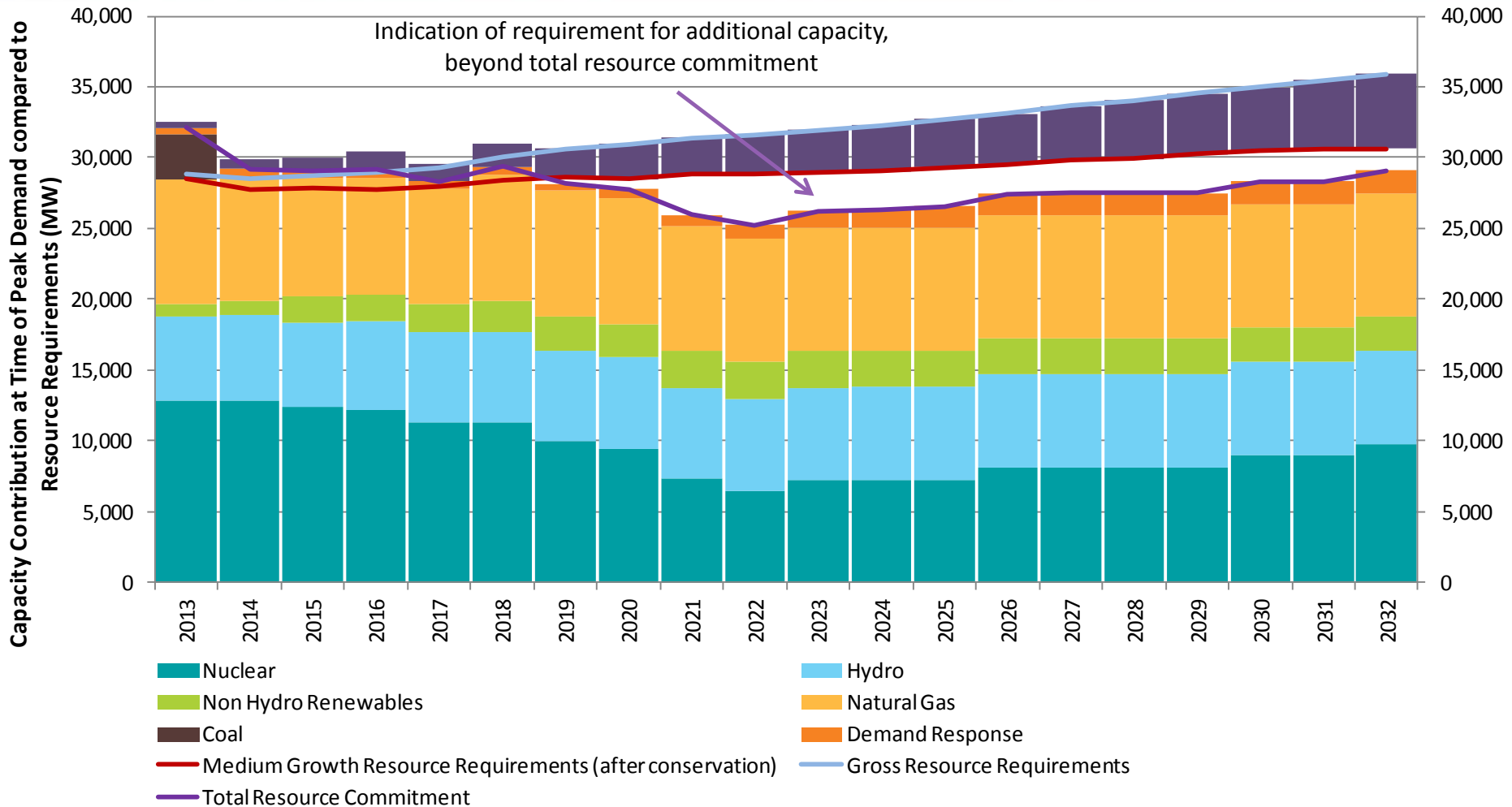
# IESO Stakeholder Engagement – History, Plans and Timelines

Date	Item	Comments
1998-1999	Market Design Committee	Previous initiative by Ontario Government to explore development of a Capacity Market, among other markets (e.g., energy, ancillary services, etc.)
2003-2005	Market Evolution Program	Previous IESO initiative to explore development of a Capacity Market, among other markets (e.g., Day-Ahead Market, etc.)
April 8, 2014	Information Session	Open session, provided overview of principles for a Capacity Market and perspectives from other jurisdictions
August 13, 2014	Information Session	Open session, introduced formal stakeholder engagement scope and timelines
October 1, 2014	Information Session	Open session, introduced draft Stakeholder Engagement Plan and proposed high-level design elements
Week of December 8, 2014	Information Session	Finalization of Stakeholder Engagement Plan and response to stakeholder comments on high-level design elements

# Potential Timelines for Capacity Market Auction to Address Power System Needs

- IESO has general plans to
  - ✓ Address supply needs around 2019/2020 and thereafter
  - ✓ Administer first Capacity Market auction in 2016/17 timeframe to meet needs
  - ✓ Approve changes to the Market Rules in 2015/16
  - ✓ Detailed Capacity Market Design 2015
  - ✓ High-Level Capacity Market Design late 2014/early 2015
  
- IESO has tentative plans to meet post 2019/2020 power system needs through a Capacity Market auction using a combination of existing and new resources
  - ✓ Generation
  - ✓ Demand-side
  - ✓ Imports
  - ✓ Other (e.g., storage, etc.)
  
- IESO likely to develop and evolve Capacity Market in stages post first auction

# Long-Term Energy Plan: Outlook of Resources to Meet Ontario's Requirements



➤ IESO planning to meet requirements through a Capacity Market

# Likely Key Points to be Worked Through in IESO's Capacity Market Stakeholder Engagement

- In Power Advisory's opinion, the following key points will form the scope of the IESO's Capacity Market stakeholder engagement, but not limited to
  - ✓ Scope of an explicit mechanism to ensure Ontario meets its future supply needs
  - ✓ Efficacy of existing Capacity Markets and lessons learned
  - ✓ Identifying differences in Ontario's electricity market policies, structure, design and rules when compared to other jurisdictions, and how these may drive, or not drive, development of a Capacity Market
  - ✓ Potentially needing the reconcile existing commercial arrangements of contracted resources and rate-regulated resources for potential participation in a Capacity Market, and what resources will participate in a Capacity Market
  - ✓ Design details regarding obligations Capacity Market participants will have within the wholesale market, and design details IESO will set for capacity obligations from different resources and participants, including auction design
  
- Above points are extremely complicated and technical, and will take time to work through stakeholder engagement





# **Objectives of Capacity Markets and Experience Throughout North America**

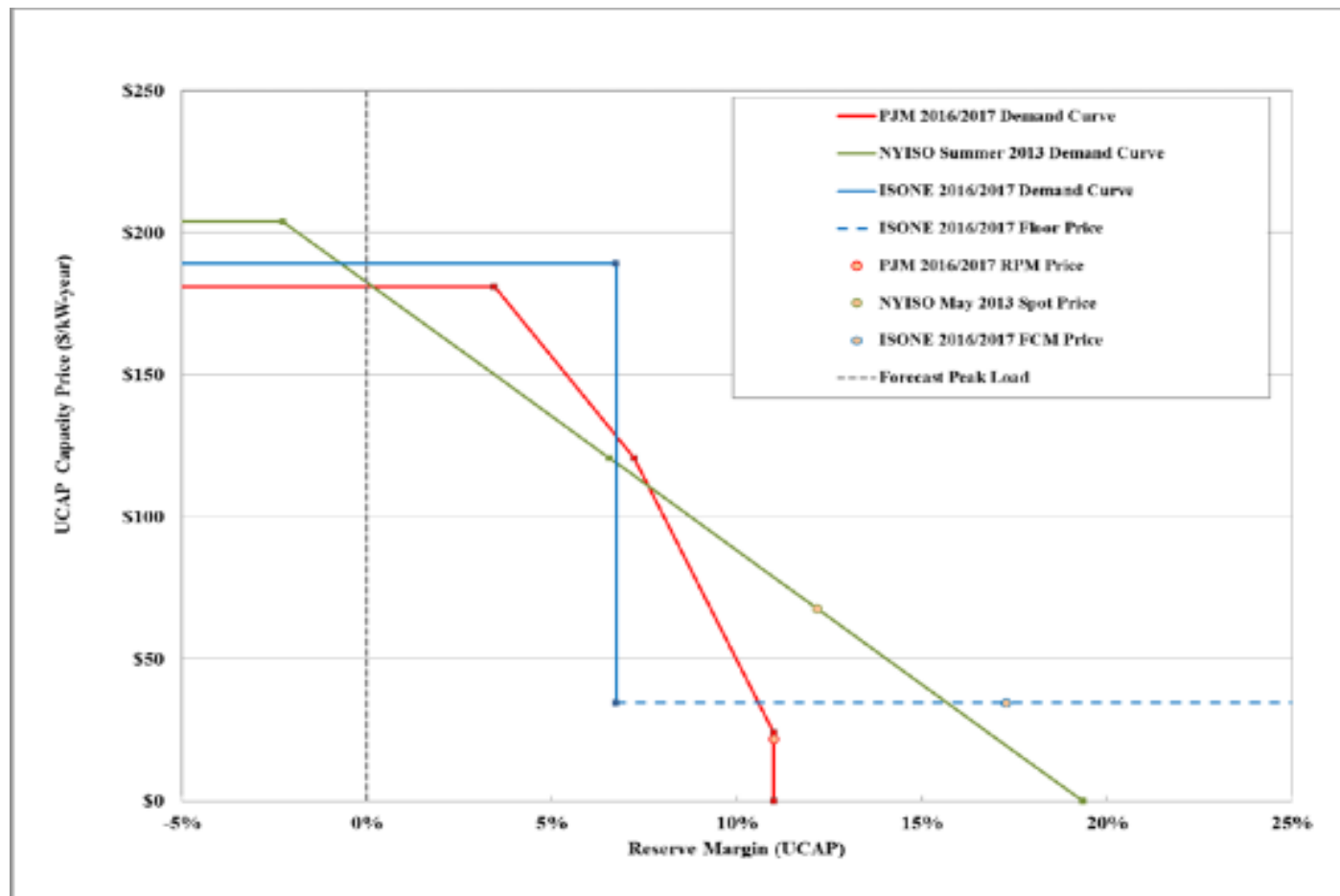
# Objectives of Capacity Markets and Experience in North America

- To maintain reliability, power systems must maintain sufficient capacity resources (e.g., generation, demand-response, imports, etc.) to meet peak demand requirements plus reserve margins (together referred to as a resource adequacy requirement (RAR))
- Under traditional U.S. utility regulation, RARs are met by Load-Serving Entities (LSEs) by holding portfolios of resources (i.e., own, bilateral contracts, etc.) to meet their power system's reliability needs
- Supplementing LSE obligations, Capacity Markets are mainly a U.S. electricity market restructuring construct administered by northeastern ISOs (NYISO, ISO NE, PJM), where these markets are auctions to provide participants with signals and commitments to maintain their resources and afford more lead-time and certainty for development/investment in new resources with the primary goal of meeting applicable RARs at just and reasonable prices while not unduly discriminating or preferentially selecting specific resources

# Basic Capacity Market Framework

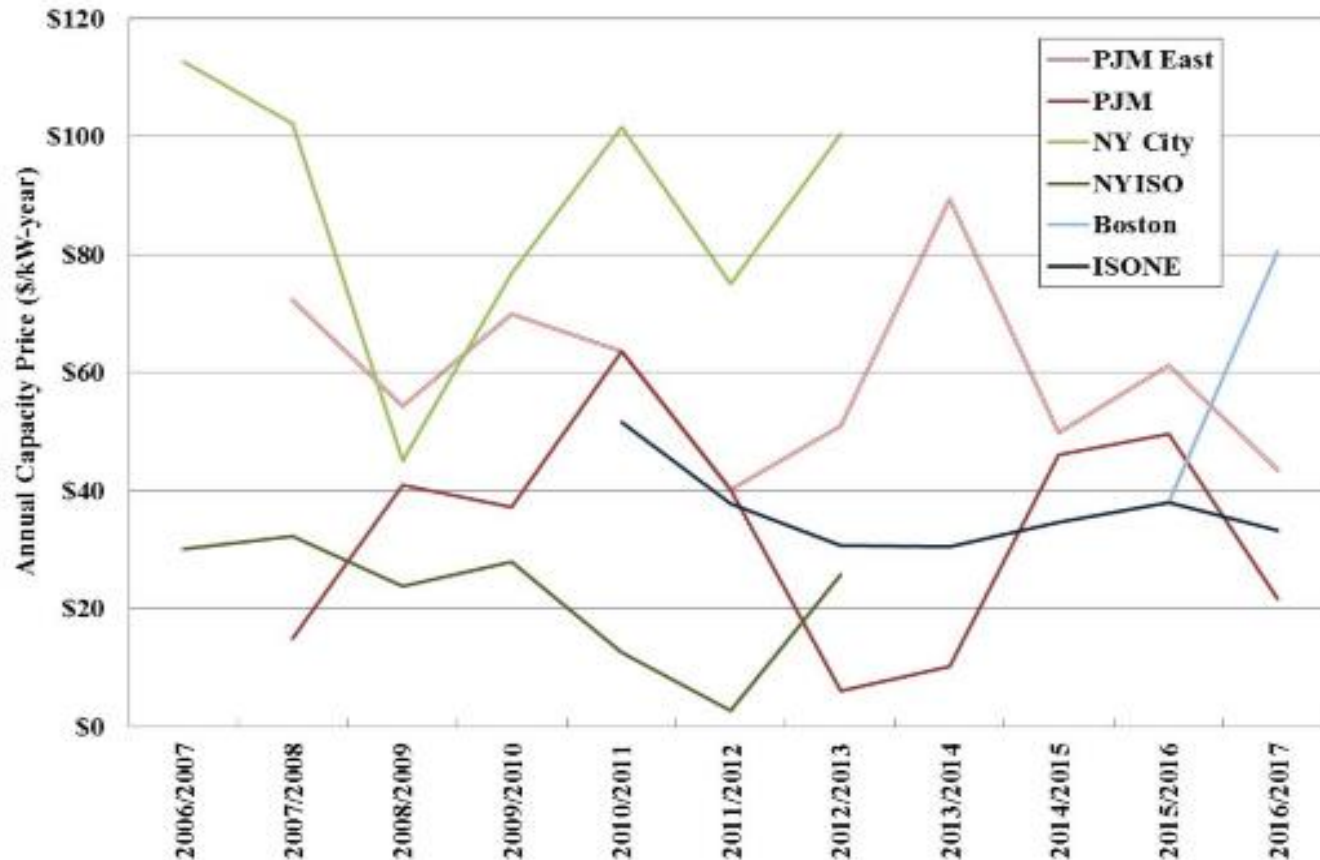
- ISO sets RAR (i.e., target level of capacity), including locational RARs as applicable to address local reliability needs (e.g., New York City)
- LSEs meet obligations to serve their customers by securing capacity and ISO centrally secures capacity not secured by LSEs, ensuring Control Area reliability will be met
- Qualified resources (e.g., generation, demand-response, imports, etc.) bid prices and quantities to provide rated capacity through auctions
- Clearing prices are set based on supply of bid capacity resources and demand (i.e., RAR), where administratively set Demand Curves used
- Capacity resources ‘must-bid’ into Day-Ahead Markets (DAMs) based on applicable Forward and Commitment Periods, to get paid
  - ✓ Forward and Commitment Periods evolving to multi-years (e.g., 3-years forward and 3-years of payments)

# Examples of Demand Curves and Administrative Capacity Price Ceilings



- Demand Curves administratively set capacity prices based on bid capacity supply and shape of Demand Curve

# Capacity Prices for Different Commitment Periods (2006 to 2017)



- Clearing capacity prices have been volatile, therefore can impact investment decisions

# Characteristics of Successful Capacity Markets

- Capacity Markets generally require the following to be successful
  1. Well-defined resource adequacy needs and drivers of that need
  2. Clear understanding why energy/ancillary services market design alone will not achieve resource adequacy targets without a capacity construct/mechanism
  3. Clearly-defined capacity products, consistent with needs
  4. Well-defined obligations, auctions, verifications and monitoring
  5. Efficient spot markets for energy/ancillary services, with liquid bilateral contracting
  6. Addressing applicable locational reliability challenges
  7. Participation from all resource types
  8. Carefully-designed forward obligations and commitment periods
  9. Staying power to reduce regulatory risk while improving designs and addressing deficiencies
  10. Capitalizing and building on experience from other markets
  
- Ontario's market structure and market design will provide challenges to meeting above requirements



# **Potential for a Capacity Market in Ontario and Issues to Address**

# How does Ontario ensure Capacity to meet its RAR?

- Since Ontario is a member of the Northeast Power Coordinating Council (NPCC) and NPCC is a member of the North American Electric Reliability Corporation (NERC), Ontario must meet reliability standards set by NERC
  - ✓ Power systems must maintain sufficient capacity resources (e.g., generation, demand-response, imports, etc.) to meet peak demand requirements plus reserve margins (i.e., RAR)
  
- Ontario does not have an explicit mechanism to meet its RAR
  - ✓ Ontario meets its RAR through a mixture of existing resources and Government policies (e.g., Long-Term Energy Plan) driving procurement activities the Minister of Energy directs the Ontario Power Authority (OPA) to undertake, supplemented by forecasts (e.g., IESO 18-month forecasts)
  
- Other jurisdictions meet their RARs through LSEs supplemented by contracting initiatives and/or Capacity Markets
  - ✓ Capacity Markets aim to ensure sufficient capacity exists to meet RARs for entire Control Areas



# Scorecard: Capacity Markets vs. Ontario Contracting Framework

	Capacity Market	ON Contracting Framework
Reliability: day-to-day and multi-year	√√	√
Explicit RAR Mechanism	√√	√
Administrative Pricing	√	√
Capacity Valuation/Price Signals	√√	√
Ability to Secure Resources	√	√√
Cost Effectiveness/Ratepayer Impact	√√	√
Diversity of Resources	√	√√
Supports Specific Government Policies (e.g., renewables)	√	√√
Financing New Investments	√	√√
Summary	13	13



## **Related Issues, Alternate Options and Potential Next Steps**

# Issues to be Considered and Discussed Going Forward

- Will a Capacity Market result in new and timely investment to meet Ontario's power system needs and policy objectives (i.e., existing and new resources)? What happens if Capacity Market auction(s) do not meet needs and objectives? Roll for multi-year contracting?
- Considering that many resources in Ontario are under multi-year contracts or rate-regulated, can a Capacity Market effectively value and price capacity? How can/should contracted and rate-regulated resources be effectively integrated into a Capacity Market?
- Can a Capacity Market effectively meet policy objectives (e.g., renewable generation, nuclear generation, etc.)?
- How might merging OPA into IESO impact future multi-year contracting through Request for Proposals, standard offer programs and/or sole source negotiations? Less contracting going forward?

# Options of Mechanisms to Procure Resources to meet Resource Adequacy Requirements

- Potential procurement mechanisms have specific pros and cons
  - ✓ Centralized Capacity Markets
    - Pros: clarity and transparency in accounting of capacity contributions across all resources; needed capacity not secured by LSEs will be secured by RTO/ISO; competition with competing bids; more accurate capacity pricing
    - Cons: very complicated and detailed; frequent market design changes; max/min capacity prices administratively set; challenges meeting some policy objectives (e.g., renewables); relatively short-term commitments challenging new resource development
  - ✓ Contracts
    - Pros: ability to address specific needs/objectives; relatively long-term commitments facilitates new resource development
    - Cons: lack of transparency, especially contract pricing; relatively long-term commitments may not be cost effective; potentially harder to integrate within wholesale market operations
  - ✓ Scarcity Pricing
    - Pros: best and most accurate pricing signals valuing capacity resources and power system needs; more efficient day-ahead and real-time operations
    - Cons: pricing volatility; potential for prolonged high-price periods; resource development and investments relatively much more risky; greater potential for Government intervention

# Additional Issues and References

- Centralized Capacity Markets are contentious
  - ✓ U.S. Federal Energy Regulatory Commission (FERC) held a technical conference in September 2013 to consider how Capacity Markets support procurement and retention of resources to meet power system RARs (see FERC's staff report at <http://www.ferc.gov/CalendarFiles/20130826142258-Staff%20Paper.pdf>)
  
- In addition to exploring potential development of a Capacity Market, IESO may be making future changes to the wholesale electricity market that would trigger additional re-openers to OPA Contracts
  - ✓ See Market Development Planning Project considerations at <http://www.theimo.com/Documents/consult/sac/sac-20140326-Market-Development-Planning-Project.pdf>
  - ✓ Any Capacity Market must work in conjunction and integrated with the IESO wholesale energy and ancillary services markets