

Setting The Table: Issues to Consider in Ontario's Evolving Electricity Sector



Ontario Sustainable
Energy Association
(OSEA)



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Outline of Presentation

- Shifting Foundations of Electricity Sector
- Ontario's Supply Need
- The many consultations of Ontario

Organization	Activity
IESO	MRP / MDAG
	TCA / DRWG
	ESAG
	Planning Process Evolution
OEB	Distribution regulatory framework
	Class B Rate Design
	IESO Revenue Requirement
Gov't	Bill 87
	Industrial Rate Consultation
	Fed Climate Change Action Plan

OSEA

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MANAGEMENT CONSULTING

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ENGINEERING & ECONOMIC

- Power System Planning
- Resource Need Justification
- Grid Connection Assessment
- Financial Modelling



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POLICY

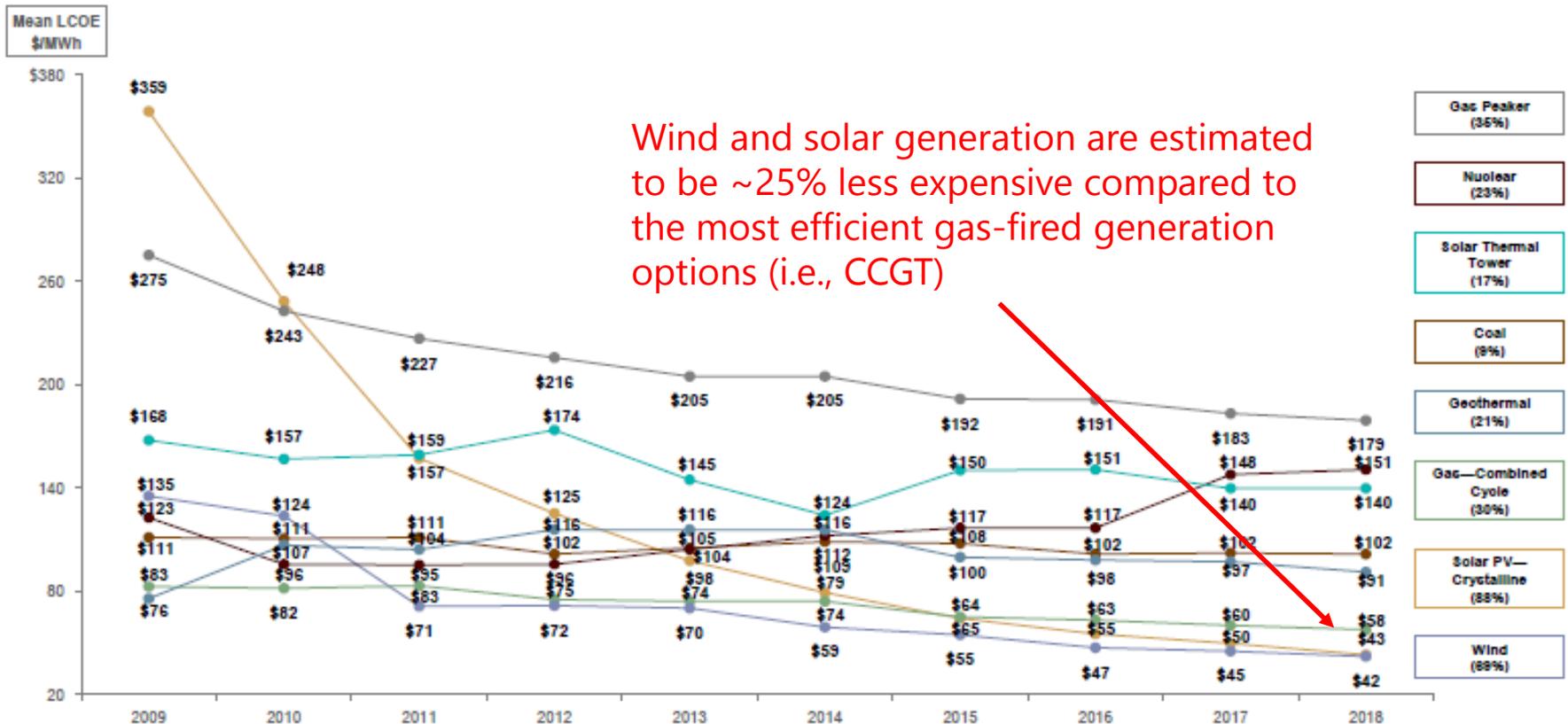
- Policy & Regulatory
- Augment Government Relations
- Market Design & Rule Development
- Consultation & Stakeholder Engagement Support

BUSINESS STRATEGISTS

- Business Development
- New Market Strategies
- Investment & Acquisition
- Asset Valuation & Due Diligence
- Feasibility Assessment

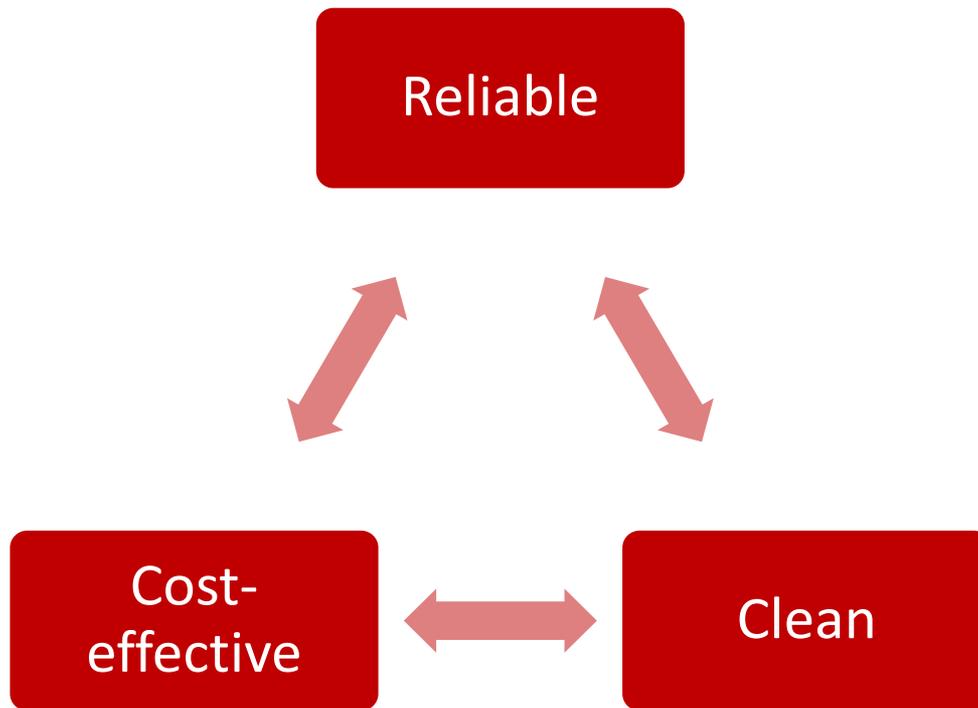
Renewable energy costs have fallen rapidly over past decade

Continued technological advances and declining costs of renewable generation means these resources are increasingly becoming cost-effective relative to other 'conventional' generation sources (e.g., gas-fired generation, etc.)



Evolving policy, supply mix and system needs

- There is broad consensus across Canada (and globally) that electricity systems should be reliable, cost-effective, and clean
- Climate change policies that support reducing GHG emissions within the electricity sector has been the primary policy driver for development of renewable generation



- Whereas recent policies (i.e., GHG reduction) have prompted renewable generation at the potential sacrifice of cost-effectiveness, falling renewable generation costs suggests that it is fast becoming the low-cost resource
- ***As a result, maintaining reliability standards with a supply mix composed of large amounts of variable renewable generation is becoming an important concern in electricity market design***

Disruption from Innovative and Emerging Technologies

Energy Storage

- Grid Connected
- Behind-the-meter C&I services
- Electric Vehicles

'Smart' Buildings and Appliances

- Connected home devices
- Market price responsive
- Automated business processes

Impact will be felt across
whole value chain of sector

Distributed Energy Resources

- Solar generation
- Biogas
- District energy

Big Data and Billing

- Virtual net metering
- Blockchain energy transactions
- Distributed energy resource management systems (DERMs)

- ***Innovative and emerging technologies are providing customization options for customers to meet their electricity need outside of the traditional delivery models***

Fundamental Questions are Challenging Electricity Sector Framework

- As electricity markets continue to evolve from a wide variety of rapidly changing influences, fundamental questions are pressing policy makers, system operators and asset owners to rethink the electricity regulatory framework
 - How can “loads” best participate in electricity markets?
 - What should be regulated and what should be unregulated?
 - How to plan a system for renewables, DERs and storage
 - Balancing the benefits of long-term commitments (e.g., renewables) with short-term demand volatility (e.g., electrification or DERs)
 - Setting market prices with a supply mix of mostly zero marginal resources (e.g., nuclear, hydroelectric, wind and solar)?
- ***Resolving these challenges will require significant effort and participation from multiple stakeholders***

Future Ontario supply need

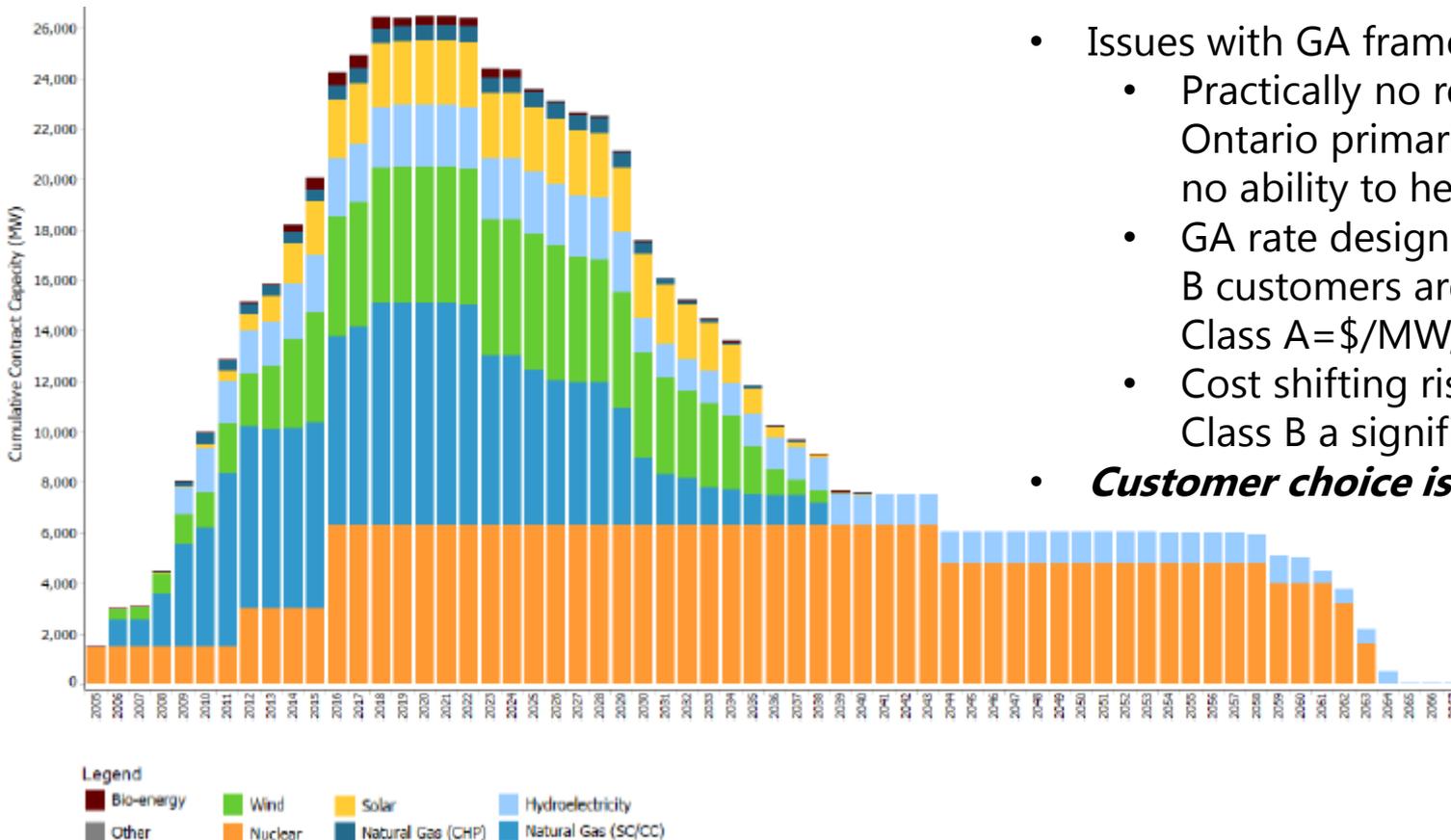
Supply need removing existing generation with expired contracts is 2020



- Based on the projected supply mix and reference demand, the IESO expects Ontario will require ~1,400 MW of resources by 2023
- A variety of factors are leading to relatively higher uncertainty of the resource requirement in Ontario
 - Policy changes (i.e., federal climate change, less CDM) may increase net demand and therefore the resource requirement
 - On the other hand, the IESO is re-assessing capacity availability during peak demand hours as part of the Market Renewal Program (MRP), higher availability of some resources (i.e., gas-fired generation) could decrease the resource requirement
- ***Changes proposed to the IESO-Administered Market (IAM) design through the Market Renewal Program (MRP) will drive new supply mix decisions***

Ontario's hybrid market

- Global Adjustment (GA) funds regulated (e.g., OPG) and contracted assets (i.e., with the IESO) and represents ~90% of wholesale electricity prices
- Supply is 'locked up' until the late 2020s; limited capabilities to reduce GA in near-term (See chart below that shows the IESO's cumulative contract capacity)



- Issues with GA framework
 - Practically no retail market in Ontario primarily because there is no ability to hedge GA costs;
 - GA rate design for Class A and Class B customers are vastly different (i.e., Class A=\$/MW, Class B (\$/MWh)
 - Cost shifting risk from Class A to Class B a significant issue
- ***Customer choice is limited***

Ontario: Land of Many Consultations

IESO

IAM Design

- MRP / Market Development Advisory Group (MDAG)
- Transitional Capacity Auction (TCA)/Demand Response Working Group (DRWG)
- Energy Storage Advisory Group (ESAG)
- Planning process evolution (Annual Planning Outlook, Reliability Outlook, Bulk Planning, IRRP)

OEB

Regulatory Framework

- Distribution regulatory framework (C&I Rate Design, Utility Remuneration & Responding to DERs)
- Regulated Price Plan Review (Class B)
- IESO Revenue Requirement Application

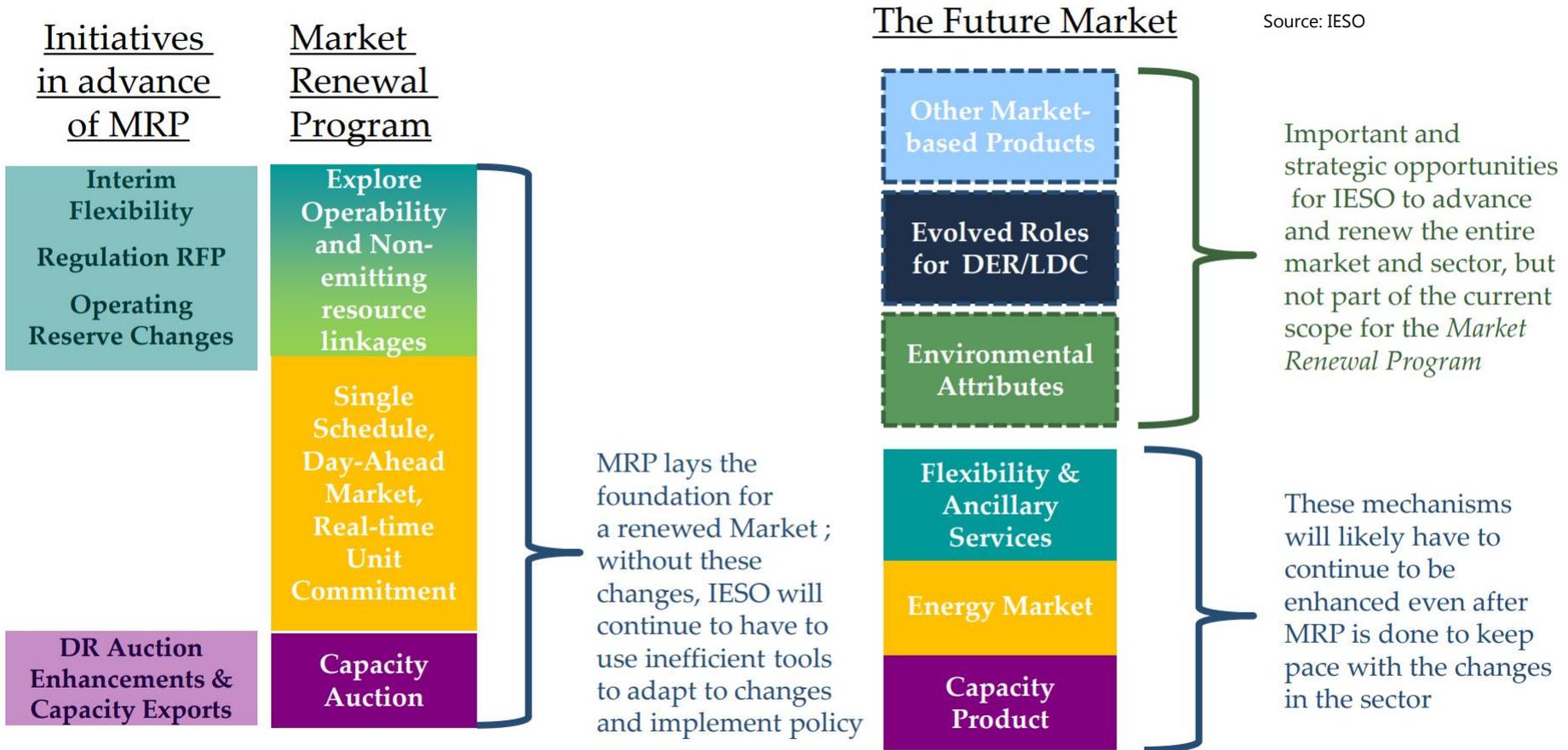
Gov't

Policy and Governance

- Consultation on Industrial Electricity Pricing
- Bill 87 (CDM & OEB modernization review panel report)
- Climate Change Action Plan (Feds)

Power Advisory's view is the above issues and consultations are highly intertwined with each other, and there is limited ability to defer the issues

IESO: Ontario Market Renewal Program (MRP)



The MRP is the most ambitious enhancements to Ontario’s wholesale electricity market design since market opened in 2002, addressing known issues with market design

IESO: Additional market design changes

TCA / DRWG

- IESO intends to transition to Incremental Capacity Auctions (ICAs) between 2020-2024
- Phase I allows existing generation with expired contracts to participate
- Significant opposition from Demand Response (DR) participants who feel short-changed on other market changes that would enhance their service (e.g., energy value)

ESAG

- FERC Order 841 is requiring ISOs in US jurisdictions to amend their market design to energy storage resources
- Partially due to Order 841, IESO is developing a roadmap to address barriers for energy storage including market rules changes and tool upgrades

MDAG

- MDAG is looking at next evolution of IESO market design (i.e., MRP 2.0)
- The governance issues was an initial driver for the MDAG; however not on the agenda at this time

In addition to the significant resource requirement of MRP, the above engagements are challenging the IESO's ability to address known issues in the Ontario electricity market; a roadmap is needed to prioritize and set out clear objectives

IESO: Evolving planning processes

Reliability Outlook (18-60 Months)

- Quarterly report assessing potential adverse conditions that might impact outage plans

Annual Planning Outlook (1-year)

- Identify long-term requirements (10-20 years) to inform investments and asset management decisions

Bulk Planning (3-years)

- Ensure reliability and service quality
- Enable economic efficiency
- Support sector policy and decision making

Regional Planning/IRRP (5-years)

- Ensure reliable supply to ON's 21 planning regions; considers conservation, generation, transmission and distribution solutions

A new planning approach based on transparency and openness is needed if the changes contemplated under the MRP are to be successful

OEB: Evolution of regulator oversight and business models

Distribution Regulatory Framework

- Cost allocation: which customers pay for what investments
- Rate design: how are customers charged for system costs (EB-2015-0043)
- Utility remuneration: how network owners receive revenue and returns for efficient operation and investment in their networks (EB-2018-0287)
- Compensation to DERs: how DERs should be measured and compensated for services they provide to network operators (EB-2018-0288 covers part of this)

Pricing Frameworks Examination

- Class B price design framework for GA examination
- OEB report finds GA prices corresponding to electric demand yields positive economic benefits

IESO Revenue Requirement

- IESO has filed their revenue requirement including costs for MRP
- First opportunity for customers to indirectly challenge MRP benefits case and understand the costs of market design evolution

While the OEB is pursuing multiple regulatory framework changes, they are being challenged to evolve faster by many stakeholders

Provincial Government: Legislative Changes

Consultation on Industrial Electricity Prices

- Seeking input on “electricity rate design, existing tax-based incentives, reducing system costs and regulatory and delivery costs”
- **Power Advisory believes that the ongoing industrial rate consultation will focus on the Class A and cost shifting risks to different customer classes**

CDM Consolidation

- Removes responsibility of delivering CDM from LDCs and centralizes delivery at IESO
- However; IESO has no delivery capability and will need to contract for services
- Less CDM will increase Ontario’s supply need

Ontario Energy Regulator

- OEB Modernization Review Panel final report on recommendations to strengthen public trust and confidence in Ontario’s energy regulatory system
- 8 core recommendations that will significantly overhaul the OEB (to the OER)
- Gov’t has tabled new legislation (Bill 87) that implements many of the recommendations

The Ford government has moved quickly to meet campaign objective of lower electricity rates, many of the changes will have profound impacts on the electricity sector for the next decade

Federal: Climate Change Action Plan

- As of 2019, Canada has implemented a national carbon emission pricing scheme through a carbon tax; however, many provinces (ON, SK, AB) are contending the rights of the federal government to enact the tax
- The Conservatives, the official opposition party, are not supportive of carbon taxation
- The provinces' challenge to the federal climate change plan has removed regulatory certainty, increasing the risk for investments
- ***The Ford government action (i.e., cancellation of renewable contracts, termination of the cap-and-trade scheme) demonstrates the potential sovereign risk all economic sectors are facing in the near-future***
 - ***Note that the Saskatchewan Court of Appeals ruled that the Federally imposed carbon tax is constitutional***

Key Issues to Consider

- Globally, the electricity sector is undergoing a significant pivot influenced by falling cost of renewable generation, innovative and emerging technologies, and growing desire for customer choice
- The plethora of consultations in Ontario offers an opportunity for change, but on the other hand stakeholder engagement fatigue presents a risk
- The consultations and their issues are intertwined with one and another, therefore stakeholders must take a holistic view of their need and prioritize participation to maximize the benefits of Ontario's electricity sector evolution
- Ultimately, the customer must see benefit from any change and the growing optionality presents opportunities for service providers and network operators, if developed correctly

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