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OEB/IESO Joint Study of DER Incentives

Justin Malecki
Senior Advisor, Strategic Policy, OEB

Andrew Brinn
Advisor, Strategic Policy, OEB

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OEB/IESO Joint Study of DER Incentives

- Incentives affecting Distributed Energy Resources (DERs) is a cross-cutting issue in the purview of both the OEB and IESO
- Stakeholders have expressed the desire for collaboration between the OEB and IESO to improve the efficiency and alignment of incentives that affect DERs
- Getting incentives right helps send better signals for investing in and operating DERs, which may facilitate the broader electrification and decarbonization of Ontario
- In this context, the OEB and IESO have commissioned the Joint Study of DER Incentives ("the Study")
- The Study is being prepared by The Brattle Group, which focuses on complex economic, regulatory, and financial questions

Study Objectives

Better understand how financial incentives function collectively to ensure they are not working at cross purposes and are achieving the most efficient outcomes

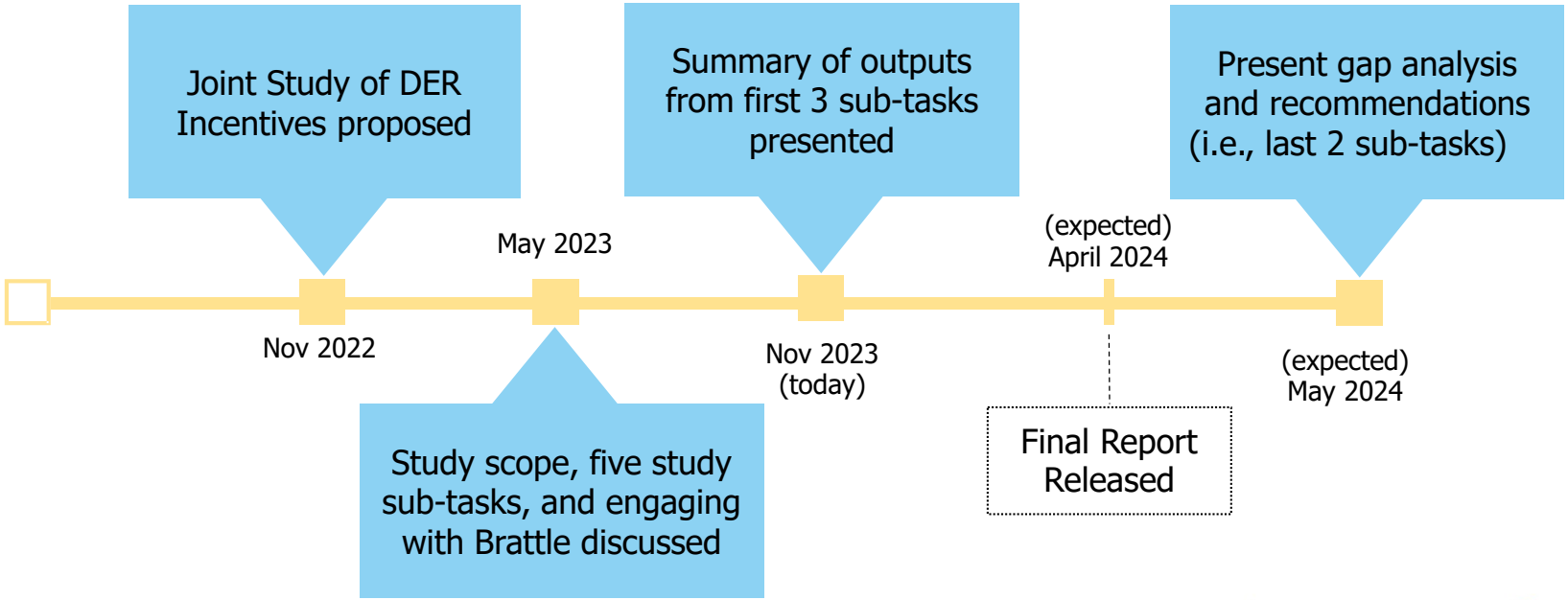
Undertake an assessment of Ontario incentive mechanisms and identify their strengths and weaknesses

Develop recommendations for improving the efficiency and effectiveness of financial incentives in Ontario that are available to DERs

Study Sub-Tasks and Sequence

- ☑ 1. Categorization of DER Incentive Mechanisms in Ontario
- ☑ 2. Overview of DER Incentives in other jurisdictions
- ☑ 3. Development of an Analytical Methodology for DER incentives
- ☐ 4. Gap analysis for Ontario DER incentives
- ☐ 5. Recommendations and developing the study report

Study in Past / Future Meetings



DER Incentives in Ontario & J-Scan

- Categorization of DER incentive mechanisms in Ontario (slide 7): DER incentives in Ontario from the recent past, present, and near future were organized into three categories
  - Price-Based Mechanisms
  - Procurements and Wholesale Market Mechanisms
  - Programmatic Mechanisms

- Overview of DER Incentives in Other Jurisdictions (slides 8 - 10): Brattle conducted a jurisdictional scan beyond Ontario, and included DER incentives in New York, Hawaii, California, PJM territory, and Australia

- Preliminary insights (slides 11): Based on the above findings, Brattle gathered preliminary insights for making use of the three categories of DER incentives

Categorization of DER Incentive Mechanisms in Ontario

Price-Based Mechanisms

- Industrial Conservation Initiative
- HOEP Pricing
- Market-Clearing Prices
- Ontario Zonal Pricing (post MRP)
- Interruptible Rate Pilot
- Net Metering
- Distribution Charges
- Regulated Price Plans
- Transmission Charges
- IESO Uplifts

Procurement and Wholesale Market Mechanisms

- Expedited, Medium and Long-Term Resource Acquisitions and Contracts (≥ 1 MW)*
- Capacity Auction
  - Dispatchable Load (DL)
  - Dispatchable Generation
  - Storage
  - Hourly Demand Response (HDR)
- Ancillary Services
- Feed-in-Tariff Program

Programmatic Mechanisms

- CDM programs
- Income-Eligible and Indigenous Energy Projects
- Demonstration Projects (e.g., OEB/IESO Joint Targeted Call)
- Transmission Non-Wires Alternatives
- Distribution Non-Wires Alternatives
- Residential Demand Response (i.e. Peak Perks)

*currently not eligible for DERs, but participation pathway is suitable

DER Incentives in Other Jurisdictions [1/3]

Category	Practice	Jurisdictions	Challenges
Price-Based Mechanisms	Distributed generation tariff based on avoided cost	New York State (Value of Distributed Energy Resources), Hawaii (Smart DER Tariff)	Computing avoided costs
	Time-of-use tariffs with low midday rates for regions with high distributed solar adoption	Hawaii, Australia (Solar Sponge Rate), California (San Diego Gas & Electric 3-Period Rate)	Acceptance by rooftop solar advocates
	Time- and location-specific rates that reflect local distribution system constraints	New York State (export only, Commercial System Relief Program), Australia (South Australia Power Commercial and Industrial Time-of-Use Rates)	Customer acceptance

DER Incentives in Other Jurisdictions [2/3]

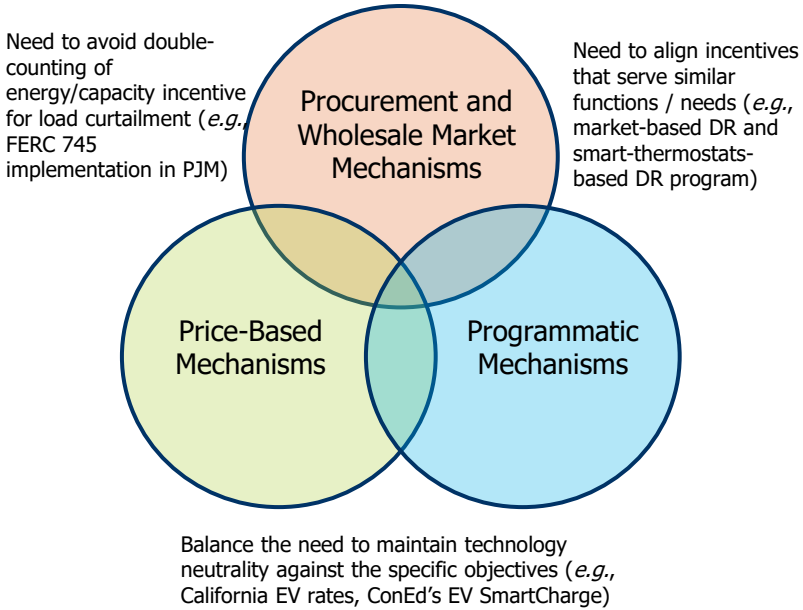
Category	Practice	Jurisdictions	Challenges
Procurement & Wholesale Market Mechanisms	DER participation in wholesale capacity market	California, New York State, PJM	Accurately assigning value
	DER participation in energy / ancillary services markets	California, New York State, PJM	Low participation; customer acceptance

DER Incentives in Other Jurisdictions [3/3]

Category	Practice	Jurisdictions	Challenges
Programmatic Mechanisms	Utility-operated demand-side management focused on local system constraints	New York State, Hawaii	Identifying opportunities and achieving reliable load reductions
	Rebates for off-peak electric vehicle charging	New York State (ConEd SmartCharge), California (Sacramento Municipal Utility Districted implemented via 3-period rate)	Technology neutrality concerns; more dynamic rates needed for higher adoption
All of the above	Integrated DER strategy across bulk power system and distribution systems	California (DER Action Plan), Australia OpEN (Open Energy Network Project, Energy Demand and Generation Exchange)	Coordination across regulatory bodies overseeing wholesale and retail markets

Preliminary Insights on Mechanism Overlap

- Coordination between regulatory bodies and system planners is needed to incentivize the efficient deployment of DERs (*e.g.*, California DER Action Plan and Australia OpEN)
- Jurisdictions have experienced challenges keeping incentives consistent where different types of mechanisms overlap
- Where rates alone are too rigid to provide efficient price signals, procurement and wholesale energy market mechanisms and programmatic mechanisms can be particularly useful to supplement the price signals



Methodology for Evaluating DER Incentives

- Objective is to develop a methodology for evaluating the design of DER incentive mechanisms and assessing economically efficient *adoption* and *utilization* of DERs
- DER incentives should be assessed based on four guiding principles, which should be balanced against one another

1. Economic Efficiency*	2. Comparable Compensation Across Value Streams	3. Simple & Accessible	4. Predictable & Acceptable Payoff
Mechanism should encourage optimal DER adoption and participation	Mechanism should provide comparable compensation for the same value stream(s) offered by participating resources	Mechanism should be sufficiently simple and accessible to participants	Payoff from the mechanism should be predictable and acceptable for participants

*__economic efficiency__ means that resources are deployed and operated in a way that maximizes system value (or minimizes system costs)

Principle 1 [1/3]

An Incentive mechanism should advance economic efficiency

- The resources in a system should be allocated/deployed in a way that maximizes value in that system (value streams are described on the next slide)
- An economically efficient level of adoption and participation of DERs should be encouraged vis-à-vis incentive mechanisms
  - i.e., under-compensation would lead to under-deployment and under-utilization, while over-compensation would lead to over-deployment and over-utilization, both distorting economic efficiency

Principle 1 [2/3]

A system of incentive mechanisms should identify and compensate each value stream to provide an economically efficient signal

Value Stream	Description
Energy and Losses	Reduced energy required from wholesale generators, achieved either through distributed generation or reduced consumption
Ancillary Services	Provision of ancillary services, including regulation and reserves
Generation Capacity	Reduced generation capacity required from wholesale generators, achieved either by producing firm power or curtailment during peak hours
Transmission and Distribution Deferral	Reduced requirement for upgraded transmission or distribution capacity, achieved either by producing firm power or curtailment during peak hours
Avoided Emissions	Reduced emissions from wholesale generators, achieved either by producing clean power or reducing consumption (particularly during high-marginal emissions hours)

Principle 1 [3/3]

DER technologies (and how they are setup) have attributes that influence their value

Attribute	Description
Visibility	• The extent to which a resource is visible to the system operator for planning and operational purposes
Availability	• The extent to which a resource is available to provide grid services over the course of a season, a year, or during certain extreme events • Duration of service provision should also influence the value
Flexibility	• Different resources can respond to dispatch signals on different time frames • Resources that can respond more quickly and/or with less notice are more valuable

Principle 2

An incentive mechanism should provide comparable value, irrespective of resource or mechanism type

- Though different incentive mechanisms target different DERs and customer types to ensure maximum participation from these resources, it is important to ensure that different mechanisms provide comparable compensation for the same value stream(s) offered by participating resources

- e.g., an EV smart charging program should provide comparable compensation per unit of capacity reduction as a smart thermostat DR program, assuming their capacity attributes (such as availability and flexibility) are also comparable

Principle 3

An incentive mechanism (or suite of mechanisms) should be sufficiently simple and accessible to induce participation

- Most incentive mechanisms involve eligibility and participation requirements (some of these requirements may relate to ensuring system reliability)
- It's important to assess participation complexity relative to the (1) types of services being sought, (2) value level of those services, and (3) administrative capacity of participants
- e.g., A smart thermostat program targeting residential customers should involve relatively simple requirements to encourage broad participation
- e.g., Industrial demand response in a capacity auction can have higher requirements governing eligibility, measurement and verification, and telemetry etc. without materially affecting customer uptake and participation

Principle 4

An incentive mechanism should result in a predictable and acceptable payoff

- Incentive mechanism should be transparent, reasonably stable, and provide some level of revenue / payoff certainty aligning with participant expectations
- This goal must be balanced against the principle of economic efficiency (i.e. the remuneration should not exceed the value just to increase the payoff)
- This does not mean that financial incentives remain unchanged over time, as it is natural to expect the values in the value stack to evolve as market conditions / grid needs change

Feedback Questions [1/2]

- What's your perspective on the current state of DER incentives in Ontario?
- What are the biggest challenges Ontario faces when aligning DER incentives?
- Which mechanisms (slide 7) hold the most promise for the practical and economically efficient deployment and operation of DERs?
- Do you see any unnecessary / inefficient overlap in Ontario's existing DER incentives (slide 10)?
- Which principles are most critical for the success of the DER incentives (slide 12-18)?
- Where are the most significant gaps in "value stacking" with DER in Ontario (slide 14)?
- Are there any specific DER technologies or applications that present unique challenges that may require more tailored incentives?

Feedback Questions [2/2]

Please use the feedback form found on the IESO DER Roadmap webpage to provide feedback and send to engagement@ieso.ca by **Dec 18, 2023** with the subject line "OEB-IESO Joint Engagement feedback"

Next Steps

- Collect stakeholder feedback from today's webinar
- Brattle to continue study tasks, developing recommendations and drafting final study report, with OEB and IESO staff input
- Present Final Report and engage stakeholders on results and next steps, targeting April / May 2024

Thank You

IESO

ieso.ca

1.888.448.7777

customer.relations@ieso.ca

engagement@ieso.ca

@IESO_Tweets

linkedin.com/company/IESO

OEB

oeb.ca

1.877.632.2727

publicinformation@oeb.ca

Industryrelations@oeb.ca

@OntEnergyBoard

linkedin.com/company/ontario-energy-board

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