



LEGISLATION AND REGULATIONS COMMITTEE:
MINISTRY APPROVAL FORM

LRC Tracking #: DLEG-877
EVista Tracking #: SUB-DL-2017-01690

Ministry of Energy

An Act to Amend the Ontario Energy Board Act, 1998

Draft Legislation

Profile at a Glance

Priority: Key to Commitment

Public Interest: Moderate

Key Stakeholder Interest: High

New Costs/Burdens: Yes for stakeholders; No for Government

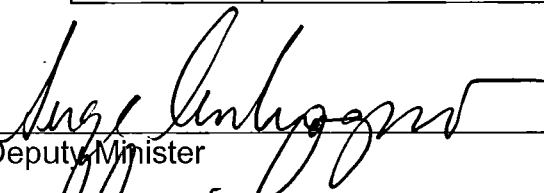
New Savings/Opportunities: Yes for stakeholders; No for Government

Proposed Items for Review

1. Amending *Ontario Energy Board Act*, 1998

Approvals required prior to LRC

	Committee and date	Cabinet Date
Policy	N/A	July 26, 2017
TB/MBC	N/A	N/A


Deputy Minister

September 13/17
Date


Minister

September 13/17
Date

s. 1 Proposal and Context

The Ministry of Energy is proposing to amend the *Ontario Energy Board Act, 1998* (OEBA) to expand its regulation-making authority to be able to implement updates to Ontario's net metering framework committed to in the 2017 Long-Term Energy Plan (LTEP).

The 2017 LTEP net metering updates are summarized as follows:

- Allow for Third-Party Ownership (TPO) and operation of net-metered generation; and
- Provide flexibility for electricity distributors to pursue Virtual Net Metering (VNM) demonstration projects.

Proposed amendments to the net metering legislative framework would enable the Ministry to proceed with making the appropriate amendments to the net metering regulation (O. Reg. 541/05: Net Metering) required to implement the 2017 LTEP net metering updates.

The updates are intended to support customer choice in generating clean, renewable energy, help reduce demand on the electricity system and enable innovative technologies and customer-utility relationships.

Under the current net metering framework, the customer is required to own or operate the renewable energy generation facility that generates electricity for the customer's own use in order to be eligible to enter into a net metering arrangement with their LDC. The proposed amendments would allow the customer to enter into an agreement with third party owners for the sale of renewable electricity generated on the customer's property and receive credits on their electricity bill for any surplus electricity that is conveyed into the distribution system.

Enabling TPO arrangements would address barriers to net metering participation related to the high upfront capital cost requirements of installing a renewable generation system by providing more flexible contracting options for industry and consumers.

**s. 2 Approach and
Intended Outcomes**

Proposed Legislative Changes

The Ministry of Energy is proposing amendments to Section 88 of the OEBA that would provide the authority to make regulations requiring electricity distributors to offer net metering to customers on request under prescribed circumstances and in the prescribed manner. The changes would expand the scope of regulation-making authority to include:

- Requiring distributors to offer net metering to a customer, where the customer has entered into an agreement with a third party for electricity purchased from a renewable energy generation facility owned and operated by the third party; and
- Prescribing circumstances where the distributor can enter into net metering agreements with customers and generators for purposes of pursuing a VNM demonstration project.

These amendments are required to expand regulation-making authority to achieve the policy objectives of enabling TPO and providing flexibility for VNM demonstration projects, as set out in the 2017 LTEP.

Intended Outcomes

- Enabling regulation of TPO arrangements under the net metering regulation would provide clarity and certainty for distributors, industry and customers on the treatment of TPO models and allow for the types of net metering arrangements that stakeholders have identified as important to facilitate greater uptake of net metering in the market.
- TPO models will also form the basis of VNM models and support future potential aggregation of net metering systems for participation in distributed energy resources markets.
- The amendments in respect of VNM demonstration projects and planned subsequent regulatory changes are required to provide clarity and certainty for distributors, industry and customers interested in pursuing innovative projects outside the existing scope of the net metering regulation, if they wish to. The changes would not require distributors to offer VNM. The Ministry intends to propose a regulatory requirement that distributors and proponents wishing to pursue VNM demonstration projects must do so as part of the innovative, renewable distributed generation deployment program to be included in the 2017 LTEP. This

would help ensure that demonstration projects are designed and deployed in a manner that will help to inform potential future policy decisions by the government.

Evidence to Support Approach

The Ministry considered the following evidence in its formulation of policy recommendations and decision to use legislative and regulatory tools to enable TPO arrangements and VNM demonstration projects:

- Input from stakeholder and Indigenous engagement: the Ministry undertook engagement activities on TPO and VNM in early 2017 (January through March), which included a webinar, questionnaire and targeted meetings. (Details can be found in the Stakeholder Consultations section)
- Input from the Net Metering Advisory Working Group: Since July 2015, the Ministry has been working closely with an Advisory Working Group comprised of industry, LDCs and electricity sector agency representatives to help inform policy development.
- Research on experience in other jurisdictions: The Ministry examined experience from U.S. states where TPO models and VNM are prevalent. Challenges experienced in these jurisdictions informed a measured approach for Ontario that manages the risks of system and ratepayer impacts, as well as the need to incorporate consumer protection measures. (Further details on other jurisdictions can be found in the Other Jurisdictions and Harmonization section.)
- Internal modelling and analysis: The Ministry performed business case financial modelling and uptake projection modelling for the net metering policy scenarios under consideration, as well as system impact modelling for anticipated levels of net metering capacity over the Ontario Power Outlook period (2018-2035). (Results of Ministry analysis can be found in the Impact Assessment and Cost section.)
- Experience from FIT and microFIT programs: The Ministry drew upon experience gained from the FIT and microFIT programs to inform technical and economic limitations of integrating net-metered distributed generation capacity into the Ontario electricity system.

s. 3 Direction and Urgency

The 2017 Long-Term Energy Plan (2017 LTEP) provides policy direction related to the proposed legislative amendments and to subsequent regulatory changes to enable TPO and VNM demonstration projects.

The updates outlined in the 2017 LTEP for net metering are in alignment with the 2013 LTEP commitment to “examine the evolution of the microFIT program to a net metering program” and further directions regarding a transition from the FIT and microFIT programs to net metering, and they will support initiatives under the Government’s 2016-2020 Climate Change Action Plan.

Cabinet approved policy proposals in the 2017 LTEP on July 26, 2017. The proposed legislative amendments do not vary from the Cabinet policy minute (CAB-17129), Section E. (viii), which provided direction for expanding and enhancing the net metering framework, including enabling TPO and allowing VNM demonstration projects.

The Minute also included direction for the Ministry to work with the Independent Electricity System Operator (IESO) to support the deployment of near-term VNM demonstration projects, as part of the innovative, renewable distributed generation deployment program included in the 2017 LTEP.

Previous direction on updating Ontario’s net metering framework was received in the 2013 Long-Term Energy Plan (2013 LTEP), in which the government committed to examining the potential to transition microFIT from a generation purchasing program to net metering and identified that the transition offered the opportunity to expand and enhance the existing net metering framework.

Further to the 2013 LTEP, the Minister’s 2016 Mandate letter provided direction on the transition from the FIT and microFIT programs to net metering by implementing an updated and streamlined net metering framework that could reduce load on the electricity system and enable innovative technologies and customer-utility relationships.

Timelines for the winding down of the FIT and microFIT programs were established in a April 5, 2016 Minister’s Direction to the IESO, which identified that the microFIT program would cease accepting applications by December 31, 2017, and in a December 16, 2016 Minister’s Direction to the IESO, which identified that the final FIT application period would be in 2016.

The transition to net metering represents a significant change in Ontario’s renewable energy sector. It is important for the proposed legislative amendments to be introduced in fall 2017, in order for the Ministry to move forward with

proposed regulatory amendments to enable TPO and VNM demonstration projects, pending passage of legislative amendments. The Ministry intends to present proposed regulatory changes for Cabinet consideration in early 2018 following the normal public posting and consultation processes being completed. This timeframe would provide stakeholders with adequate lead time for an intended in-force date for proposed regulatory changes of July 1, 2018.

The Ministry is targeting July 1, 2018 in order to avoid significant gaps in both market opportunities for Ontario's renewable energy sector and from a regulatory and oversight perspective. As Ontario's renewable energy businesses adapt their business models, and as distributors adjust their administrative systems and procedures, there is a need for certainty in the regulatory environment and for implementation lead time.

The OEB would also require sufficient lead time to consult with stakeholders and identify any changes required to its licensing requirements and codes to align with the proposed changes to the province's net metering framework.

Impact Assessment and Costs

Key Stakeholders Affected and Expected Impact

The proposed legislative amendments will expand the regulation-making authority to enable subsequent regulatory changes to implement the 2017 LTEP net metering updates. The legislation itself would not be expected to have any immediate impact on stakeholders. Regulations are required to fully articulate the Government's net metering requirements. The impacts outlined below are, therefore, in relation to planned regulatory changes that would be proposed, pending passage of legislation, to implement eligibility of TPO net metering arrangements and flexibility for distributors, industry and customers to pursue VNM demonstration projects.

<i>Stakeholder</i>	<i>Impact</i>
Electricity distributors	Electricity distributors are the primary stakeholder group that could be impacted by the proposed measures. Implementation of the changes is not expected to have a significant overall impact on distributors.
There are 69 local distribution companies (LDCs) operating in the province.	Distributors are responsible for administrative costs of delivering net metering to their customers. These include costs of administrative functions, such as processing applications, connection impact assessments, issuing connection agreements and ongoing billing requirements.
Due to consolidation, this	Administrative costs for distributors are recovered through

number may change over time.	rates as part of the OEB's rate application process. It is expected that the administrative costs of net metering will increase proportionally with the anticipated increase in uptake of net metering; however, those costs will be offset by a reduction in costs associated with the FIT and microFIT programs as they wind down at the end of 2017. Incremental compliance costs for distributors, associated with the proposed measures, are expected to be negligible relative to the expected increase of net metering uptake that would occur without these updates. The Ministry's rationale is as follows: • Introducing regulation for TPO will not materially change the utility-customer relationship or administrative requirements for distributors, as the net metering agreement will remain between the distributor and customer as before. • Providing flexibility for distributors, industry and customers to participate in VNM demonstration projects will have no cost impacts for distributors, because there will be no requirement to implement VNM demonstration projects imposed on distributors. Distributors will be given the option of implementing these projects. Distributors that do choose to implement VNM demonstration projects will do so through the proposed pilot program, to be delivered by the IESO, and will be eligible to receive funding to cover their costs. A common concern with net metering in other jurisdictions is the loss of revenue associated with net metering customers reducing their electricity consumption from the distributor and the charges distributors are able to collect to pay for the investments in infrastructure and costs of operating the distribution system. This concern has been addressed in Ontario with the OEB's decision to phase in fully fixed distribution rates for residential customers. The OEB is currently reviewing commercial and industrial rates with a similar view to protecting revenues essential to recovering investments in distribution infrastructure.
Ontario Energy Board (OEB)	The OEB plays a key role in the implementation of net metering policies, and the monitoring and enforcement of distributor compliance with the net metering regulation.

Independent energy regulator responsible for enforcing Ontario's net metering regulation	OEB costs associated with its oversight role for net metering are recovered through the rate base. The incremental impacts of the proposed measures on the OEB are in relation to activities the OEB must undertake as part of its mandate to ensure alignment of distributor license requirements and codes. This could include reviews of regulation and codes, consultations with stakeholders and other actions the OEB determines necessary to align with the proposed regulatory changes. The OEB would be required to expand its consumer protection oversight functions to including TPO net metering arrangements under the Energy Consumer Protection Act, 2010 (ECPA), as the sale of electricity by third party owners to customers would be considered a form of electricity retailing that would be subject to the ECPA. More detail on this process, and future regulatory amendments to support this process, are included in the Ratepayers portion of this section, below. It is anticipated that these costs would be further specified, along with mitigation measures, as part of its response to proposed regulatory reforms under the ECPA.
Independent Electricity System Operator (IESO) Manages Ontario's power system, including delivery of conservation programs	IESO would have no direct impacts as a result of the proposed measures. Net metering applies to distribution network connected customers only, and therefore, the IESO would have no direct costs in relation to the proposed measures. However, the IESO will see decreased costs as FIT and microFIT wind down and their administrative responsibilities are reduced. IESO will have indirect impacts to staffing and resources as they will be utilized, in cooperation with the Ministry of Energy, to develop the proposed pilot program for VNM demonstration projects.
Ratepayers	The change is expected to have a minimal overall impact on the entire ratepayer base and a positive impact (through the reduction of electricity bills) for those ratepayers participating in net metering. Existing net metering participants will not be affected by the proposed measures. Prospective and new participants will

	have a positive impact due to increased options for participation with the introduction of TPO arrangements. Some electricity consumers may have opportunities to participate in VNM as part of the demonstration projects that could be enabled from the proposed amendments. This could include homeowners or businesses, renters, or other consumers not able to host their own renewable generation systems, as well as municipalities, universities and other customer types with specific interest in VNM models. The impact of cost-shifting from net-metered customers, who are able to avoid transmission and Global Adjustment (GA) charges on electricity bills associated with reduced electricity consumption from the distributor, to non-net metering participants, who pay more of the GA as a result, is projected to be minimal. This issue has been largely addressed through the OEB decision to phase-in fixed distribution rates for residential customers. It is expected that a similar decision will be taken for commercial and industrial rate classes, pending OEB's finalization of their current review. (Cost shifting is discussed further in the <i>Costs and Benefits</i> section.) As net metering activity increases and with the introduction of TPO, there is increased risk of consumer protection issues arising. As with many consumer transactions, especially with new business models, there is a risk of dissatisfied customers if agreements are unclear and customers experience unfair marketing or sales practices. The Ministry of Energy is already engaged with the OEB on this risk, and expects to develop and propose regulatory amendments under the ECPA in the fall. These regulatory amendments would ensure TPO arrangements for the sale of renewable electricity to customers are subject to appropriate consumer protection measures under the ECPA. In addition to the proposed measures to apply ECPA provisions for TPO arrangements, the <i>Consumer Protection Act, 2002</i> (CPA) applies to existing customer-owned net metering transactions involving individuals (i.e. purchase or leasing for personal, family or household purposes). As net metering activity increases, experience will inform the degree to which enhancements to existing consumer
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	protection and regulatory oversight may be required.
Industry – renewable energy developers and service providers, electricity retailers, LDC unregulated affiliates, renewable energy manufacturers and component suppliers	Renewable energy industry proponents, including developers, LDC affiliates, electricity retailers and other businesses interested in owning and operating on-site net metering systems will be provided with greater flexibility in the product and service offerings they can market to prospective net metering customers. Industry stakeholders indicated that allowing TPO net metering models was an essential enhancement to the net metering framework to allow for greater participation of industry and a broader range of customers, potential cost savings through lower financing costs, and to enable innovative business models, including VNM. Flexibility for VNM demonstration projects would open up opportunities for industry to partner with LDCs on projects. Industry stakeholders indicated that VNM models could result in cost savings for net metering projects from economies of scale and savings on financing associated with security of being able to market too many customers. Indirectly, renewable energy manufacturers and suppliers will benefit from expanded market opportunities associated with increased demand for renewable energy systems used for net metering.
Indigenous communities and groups	Indigenous communities and groups represent a unique interest for designing net metering policy, particularly for shared or community net metering projects (i.e., VNM projects). Although remote electricity distributors are not under the purview of the OEB (e.g. Hydro One Remote Communities Inc.) and are, therefore, not subject to the net metering regulation, there would be potential opportunities for Indigenous communities and groups connected to the grid to participate in VNM demonstration projects and benefit from TPO arrangements. A common barrier in First Nation communities to integrating distributed generation is that residents do not own the homes and are therefore not incentivized to invest in renewable energy and efficiency. TPO could provide a solution to this structural barrier by eliminating or reducing upfront capital costs for residents or building owners.

	First Nation community buildings and on-reserve businesses have not benefitted from recent electricity rate reduction initiatives targeting on-reserve residential customers, and the net metering enhancements may offer new opportunities for First Nation bands and business owners to realize savings on their electricity bills through participation in renewable, net metered projects.
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Costs and Benefits of the Proposal

The proposed legislative amendments, if approved, and subsequent proposed regulatory amendments would have minimal net system impacts over time. System impacts include both costs and benefits for distribution, transmission and system-wide operations of Ontario's electricity system.

The Ministry conducted modelling and analysis on projected uptake of new net metering capacity over a 10 year period based on net metering business cases for a baseline scenario and the policy options considered. The uptake projections were then used to inform system impact modelling to estimate the effect on cost of supply and electricity rates over the Ontario Planning Outlook forecast period. The uptake modelling assumes availability of an incentive (such as is currently being developed by the Green Ontario Fund), which will be the largest factor in determining net metering business cases and uptake.

- System benefits
 - Increased net metering capacity lowers overall demand on the system, similar to energy efficiency measures, resulting in lower cost of service through deferred commodity costs (i.e., fuel and operations costs of avoided generation supply) and deferred capacity costs associated with avoiding the need to build new generation capacity (e.g., gas generation).
 - Analysis of the deferred system costs assumes an average of 50 MW per year of new net metering capacity in the form of solar PV embedded in Ontario's distribution systems. (Uptake modelling suggests that new net metering capacity coming online will not be linear; however, 50 MW per year corresponds with the average annual uptake over a 10 year period for a baseline scenario.)
 - Analysis suggests that, by 2035, net metering capacity could displace commodity costs equivalent to about \$0.30 per month on a residential bill and an additional \$0.30 in deferred capacity costs.

These deferred costs (i.e. savings) would apply to all residential bills (net metering participants and non-participants).

- System costs
 - At the projected levels of uptake of net metering, there are no technical system costs, such as increased costs of supply from the need for balancing resources or need for transmission or distribution system upgrades. Given the relatively low levels of distributed generation from net metering relative to overall supply, projected net metering capacity would only impact the system through the loss of revenue from net-metered customers that could then fall to non-participants (i.e., cost-shifting).
 - Analysis suggests that the effect on non-participant residential customer bills due to a reduction in demand from net-metered customers could be up to approximately \$0.80 per month by 2035. An equivalent savings would be realized by net-metered customers, who would be avoiding charges on their bills.
- Net impact of proposed measures
 - The net impact from savings to the cost of supply (\$0.60 per month) and cost-shifting from lower overall demand (\$0.80 per month) is projected to result in an increase to non-participant residential bills of approximately \$0.20 per month by 2022 and remain relatively stable out to 2035. This amount represents a corresponding savings for net-metering participants.
 - Implementing TPO and flexibility for VNM demonstration projects would have some incremental costs in relation to the baseline scenario described above, which include the regulatory updates that came into force July 1, 2017.
 - Ministry analysis suggests that the incremental increase in new net metering capacity for implementing the 2017 LTEP policies would be about 9% higher or an increase of about 87 MW over a 10 year period, relative to the baseline projections. Although net metering uptake is not expected to be linear as represented in modelling 50 MW per year of new capacity over the Ontario Planning Outlook period, for illustrative purposes, it can be assumed that the incremental impact on non-participant residential bills would be an increase of \$0.03 per month by 2022 and remain relatively stable out to 2035.

Other benefits

The proposed legislative amendments to the OEBA to facilitate implementation of a regulatory framework for TPO and flexibility for VNM demonstration projects would have the following benefits in Ontario:

- Eligibility of TPO arrangements:
 - Expands consumer choice: A TPO model would increase options available for consumers to participate in net metering without the upfront capital cost of purchasing and installing a system.
 - Enables innovation in renewable, distributed energy integration: Third parties would be able to offer smart energy and storage solutions that could provide greater value to the grid, including provision of grid services.
- Flexibility for VNM demonstration projects:
 - Removes barriers for distributors to pursue innovative demonstration projects: Distributors would be able to explore VNM arrangements under prescribed conditions (e.g. as part of the distributed generation deployment program proposed in the 2017 LTEP).
 - Informs future policy on VNM: Demonstration projects would test consumer interest, business cases and technical requirements, such as billing and settlement systems. They could also explore potential for enhanced value to distribution networks and the grid.
 - Demonstrates best practices: Demonstration projects would provide sector-wide learning that would benefit all distributors by reducing the risk of exploring new value streams and disseminating results.

Net metering offers the following benefits as a result of facilitating the move to greater renewables integration and offsetting customer loads:

- Direct and measurable GHG emissions reductions;
- Development and diversification of the renewable energy, energy storage and energy efficiency industries;
- Reducing energy costs for participating households and businesses, and;

- Increasing resilience to a changing climate, including facilitating a trend towards net-zero energy homes and buildings.

*Risk mitigation*System impacts

System impacts and the risk of unanticipated costs that could be passed on through rates will be highly related to the amount of net metered renewable generation capacity added to the grid over time (net metering uptake) and the ability to manage uptake in a way that maximizes value to the grid. The risk of high unanticipated levels of uptake that could drive system costs are low due to the challenging economics of distributed solar energy under net metering in Ontario at current capital costs and electricity rates.

However, as solar costs continue to decline and with the expected introduction of incentives through the Green Ontario Fund, the business case for customers to invest in renewable generation for net metering will improve, driving increased uptake. It is possible in the medium to long-term (5-10 years) to reach levels of distributed generation penetration that would change the costs and benefit assumptions used to estimate the impact of net metering over time.

CanSIA's Distributed Generation Task Force Recommendation Report, released in 2016 suggests that solar PV will reach grid parity in Ontario between 2022 and 2026. This is in line with other international forecasts for grid parity in other jurisdictions. In the near term, however, it is likely that most net metering projects will require incentives to be economic. As grid parity approaches, it is possible that grid defection (customers leaving their LDC and self-supplying all of their required energy) could increase. The Ministry's proposed amendments to the net metering framework would, however, help reduce this risk as customers are required to be connected to the grid in order to net meter.

The Ministry is taking a measured approach to net metering policy to mitigate the risk of unanticipated levels of net metering uptake and associated cost impacts. The Ministry will undertake regular monitoring and review of impacts of net metering and take steps to adjust regulation as may be needed. As part of the initial updates to the net metering program introduced earlier this year, the Ministry committed to undertaking a three-year cost-benefit evaluation of net metering in line with the LTEP cycle. The Ministry plans to continue to engage with the Advisory Working Group to support monitoring and planning the three-year evaluation.

The Distribution System Code provides mechanisms to protect distributors, including technical and financial limits on net metering. Technical contingencies in place for LDCs allow them to reject applications to connect generation based on equipment safety and reliability standards (e.g., 7% and 10% rules

determined by Hydro One). Technical limitations determine available connection capacity on any given feeder and vary with specific location.

The DSC also provides LDC discretion to allow additional connection of net metering capacity when net metering capacity reaches 1% of a distributor's peak load (based on a 3-year average). This limit is designed primarily to protect distributor revenues to recover costs of infrastructure investments. No distributors have come close to reaching the 1% limit to date. Distributors have also indicated that this limit is no longer required given the OEB's decision to phase in fixed distribution charges. At this time this limit remains in place.

Consumer protection and siting of net metering projects

Details of risks related to consumer protection issues and siting of net metering projects, as well as mitigation measures, are discussed in the next section, Implementation.

s. 5 Implementation

Subject to necessary approvals of the legislative amendments to the OEBA, the Ministry will post proposed regulatory amendments to O. Reg. 541/05 designed to implement a regulatory framework related to TPO and VNM demonstration projects on the Environmental Bill of Rights (EBR) Registry and the Regulatory Registry. These regulatory changes would require electricity distributors to enter into net metering arrangements with customers that do not own or operate renewable energy generation equipment, but have entered into an agreement with a third party owner related to the generation and sale of renewable electricity. The proposed change would functionally enable entities other than electricity customers to own or operate net metering systems in Ontario.

If approved, electricity distributors will be required to implement appropriate changes to their individual net metering programs. Oversight and enforcement of distributor implementation of the changes would be the responsibility of the OEB.

Proposed measures to provide flexibility for VNM demonstration projects would remove barriers for distributors to pursue or support VNM demonstration projects, but will require them to do so as part of the innovative, renewable distributed generation deployment program included in the 2017 LTEP. The Ministry will work with the IESO and the OEB on the design of the program and work to align its launch as closely as possible with the in effect date of regulatory changes.

Regulatory changes under existing regulation making authority under the ECPA to apply licensing requirements to TPO activities, or other approaches to enforce OEB codes of conduct, would also be coordinated with the timing of the regulatory changes. These requirements would be intended to provide consumer protections for customers signing power purchase agreements with third party owners. Any other customer/business arrangements (e.g. long term financing, leases, or cash purchases) would continue to be covered by the existing provisions of the Consumer Protection Act.

The following table outlines the timing of implementation milestones:

Timelines	Activities
Q4 2017 (pending LTEP release and introduction of proposed legislative amendments)	Proposed regulatory amendments to O. Reg. 541/05 and to O. Reg. 389/10 posted to the EBR and RR
Q4, 2017/Q1, 2018	Consider stakeholder feedback and finalize regulatory proposal
Q1, 2018	Seek LRC/Cabinet approval of regulatory amendments
Q1/Q2, 2018	IESO/ENERGY to develop distributed generation deployment program proposed in the 2017 LTEP
Q1/Q2, 2018	OEB to determine required code/licensing requirement changes to align with regulation
July 1, 2018	Regulatory amendments to come in force
Q3, 2018	IESO to begin accepting applications for VNM demonstration projects under the distributed generation deployment program
Beginning Q3/Q4, 2018	Monitoring and evaluation of implementation by distributors and OEB

Risks associated with implementation of the proposed measures and subsequent regulatory changes, as well as mitigation measures the Ministry plans to undertake, are described in the following table:

Implementation Risks	Description	Mitigation Measure
Lack of LDC preparedness for influx of TPO projects	LDCs will need to be prepared for a potential increase in the number of	If approved, regulatory amendments to be posted to e-laws and a decision notice to be posted on the Environmental Registry, in advance of the in-force date

	entities applying for net metering due to proposed regulatory changes.	(by Q1 2018), giving LDCs sufficient time to modify their application processes, if required, and to accommodate potentially greater volumes of net metering as well as Third-Party Owned net metering. The Ministry will also be engaging with its Net Metering Advisory Working Group to both take feedback on proposed regulatory amendments and to help ensure the intent of regulatory amendments is well understood.
Consumer Protection Issues	Potential participants may not be familiar with this new type of business model and would need appropriate disclosure to make informed decisions.	The Ministry has conducted regulatory due diligence to ensure that appropriate consumer protections can be enabled under existing legislative authority under the ECPA to support this new business model. The Ministry is working with the OEB to ensure that such transactions are captured by applicable instruments (regulatory changes, licensing requirements, Code of Conduct, etc.) to support strong protection for participating customers. Ministry and OEB will collaborate with LDCs to enhance consumer education and consistency of net metering information available to the public.
Ensuring Responsible Project Siting	Expanding eligibility to include TPO may risk enabling greater amounts of net metering deployment that are sited in areas prohibited under existing procurement programs.	The Ministry of Energy is working with the Ministry of Environment and Climate Change (MOECC) to include siting restrictions within program rules for Green Ontario Fund incentives for solar PV projects, which is expected to reduce the risk that projects will be built in inappropriate areas in the near-term. This represents a "business as usual" approach as the siting restrictions would be the same as restrictions adopted for

		the FIT and microFIT Programs. The Ministry is also working with the MOECC and OEB to explore longer-term options for the implementation of project siting restrictions.
High Levels of Deployment and Associated Cost Impacts	There is a risk that higher than anticipated levels of net metering deployment could occur resulting in greater impacts to ratepayers than estimated.	The Ministry has committed to review the net metering regulatory framework every 3 years, consistent with the LTEP process, and revise the regulation as required, which will provide the opportunity to consider options to limit uptake as may be appropriate. Regulatory changes could also be considered in the interim to respond to any unforeseen issues that may result.

s. 6 **Delivery and Results Tracking**

Tracking Mechanisms

As a condition of license, under the OEB Distribution System Code and the OEB's Reporting and Record-Keeping Requirements, electricity distributors must report on net metering capacity and facilities annually. The OEB may choose to revise these reporting requirements based on the updated regulation (e.g. frequency of reporting or type of information collected).

Electricity distributors are required to report their performance annually through a "performance scorecard" overseen by the OEB. The scorecard includes traditional metrics for assessing electricity distributor services, such as frequency of power outages, financial performance and costs per customer. It also includes metrics on the Connection of Renewable Energy Generation, including assessments and connections completed on-time.

The Ministry will be able to track results of VNM demonstration projects through the innovative, renewable distributed generation deployment program included in the 2017 LTEP. Participation in this program will be prescribed in regulation as a requirement for any entity seeking to develop a VNM demonstration project. Participation in the program will require the entity to provide the IESO and the Ministry with all relevant project data. The provision of this data will allow the Ministry to evaluate how these projects meet program and policy objectives.

It is expected that the process for monitoring and evaluation will be facilitated through the Ministry's engagement with sector participants through the Ministry's Net Metering Advisory Working Group. The Advisory Working Group was established in 2015 to inform initial updates to the net metering framework and continued in its advisory role throughout formulation of the current 2017 LTEP policies. Pending Cabinet approval and release of the 2017 LTEP, the Ministry will re-engage the member organizations to renew the Advisory Working Group's mandate over the next 3-year period to assist in the monitoring and evaluation of net metering in Ontario.

Measuring Performance

The Ministry will monitor and evaluate performance based on several indicators that will inform how the proposed changes and net metering in general meet objectives. Objectives and indicators will be developed further, in consultation with the Advisory Working Group leading up to implementation of the 2017 LTEP net metering updates, based on the following:

Policy Objectives	Performance Indicators
Manage the uptake and costs of net metering to minimize impacts to ratepayers	• LDC reporting of net metering capacity and facilities • LDC input through Advisory Working Group on any implementation issues, administrative and other costs • Analysis conducted by the IESO on system impacts • Anticipated data obtained from the Green Ontario Fund from incentive delivery
Encourage efficient and effective integration of DG into distribution systems	• LDC reporting on connection of renewable generation • OEB reporting on adoption of TPO models and adherence to any requirements placed on TPOs • Project data obtained from the IESO on VNM and other innovative DG demonstration projects • Results of regional planning, LDC or OEB initiatives examining integration issues
Ensure consumer protection and fair practices in the marketplace related to net metering	• LDC reporting on observations of levels of consumer awareness and effectiveness of consumer education efforts • OEB reporting on complaints and such reporting as may be required of TPOs under the ECPA or other mechanism • Coordination with Ministry of Consumer and Government Services (MGCS) on complaints or reports under the Consumer Protection Act (CPA).

Contribute to the reduction in greenhouse gas emissions and the Province's goals under the CCAP	In collaboration with the IESO and MOECC, track GHG reductions associated with net metering uptake
Encourage increased customer choice	- OEB or LDC reporting of adoption of TPO model - Data obtained from IESO on VNM demonstration projects on consumer interest and benefit - Monitor trends in DG technology and adoption in the marketplace

Adjusting Policy if Required

If the objectives outlined above are not being met, the Ministry will have the ability to re-calibrate implementation to achieve those objectives by:

- Proposing changes to O. Reg. 541/05 or other regulation as required to adjust requirements for distributors as appropriate;
- Working with MOECC to make adjustments to Green Ontario Fund incentives as required;
- Issuing guidelines or consumer education materials as required; and
- Working with the OEB to refine consumer protection regulations or code requirements.

s.7 Stakeholder Consultations

Stakeholder engagement on the proposed legislative amendments and net metering policy actions under the 2017 LTEP leveraged previous consultation and engagement on regulatory updates approved in February 2017, which came into effect July 1, 2017. During consultations for those regulatory updates, the Ministry of Energy undertook the following activities:

- Established the Net Metering Advisory Working Group in July 2015 comprised of representation from the renewable energy industry, electricity distributor and agency representatives to help guide program development and to provide input on implementation considerations.

- Consulted stakeholders from August to October 2015, through a background webinar, in-person sessions and a request for written submissions.
- Received feedback on its proposed regulatory amendments through the EBR and Regulatory Registry in August 2016.

The overarching theme of stakeholder feedback on the regulatory updates that came into force July 1, 2017 was that the program should be simple, predictable and transparent. This feedback related primarily to compensation for excess generation sent to the electricity grid. Feedback also related to the need to further examine TPO and VNM in subsequent consultation processes.

The Ministry conducted additional stakeholder and Indigenous engagement related to the current proposed legislative amendments and key policy considerations for TPO and VNM in early 2017 (from January to March 2017), which included the following activities:

- Engagement with the Advisory Working Group between December 2016 and March 2017
- A public webinar held on January 12, 2017 to introduce the key concepts, engagement process and to request feedback through questionnaire.
 - Approximately 450 registered for the webinar, including individuals from industry (270), LDCs (63), municipalities (18), government (26), Indigenous groups (6), co-ops (7).
- A stakeholder questionnaire to capture written feedback on key policy concepts and questions.
 - 54 submissions were received from LDCs, municipalities, industry associations and renewable energy companies.
- Targeted meetings with key stakeholders on specific topics and technical aspects of TPO and VNM.
- Indigenous engagement included targeted meeting with several First Nations active in the renewable energy sector, a meeting with Hydro One Remote Communities Inc. and a meeting with the IESO's Aboriginal Energy Working Group.

Outcomes of the Ministry's stakeholder and Indigenous engagement informed policy options and recommendations approved under the 2017 LTEP process, and are summarized as follows:

- Third-Party Ownership (TPO):
 - The Solar PV industry strongly supports TPO, citing it as critical to continued activity in Ontario's renewables sector.
 - The business models, target markets and project configurations the sector is contemplating would largely be enabled by eligibility of TPO in Ontario's net metering framework.
 - LDCs, and in particular LDC affiliates, support TPO, subject to appropriate consumer protection measures and clearly defined relationships between LDCs, customers and TPOs.
- Virtual Net Metering (VNM) Demonstration Projects:
 - There was support from municipalities for a restricted VNM (e.g. municipalities, universities, etc.).
 - Flexibility for VNM demonstration projects was suggested by some LDCs and industry proponents as an alternative to implementing a regulatory requirement for VNM.
 - LDCs were supportive in principle of VNM, depending on scoping and implementation (e.g. preference to not settle across different LDCs) but had concerns about billing and administrative burden of being required to accommodate large complex VNM projects.
 - A permissive VNM policy was supported by a segment of the renewable sector and project proponents interested in pursuing large projects (up to 10MW) that could be marketed as community net metering to large numbers of customers.
 - LDC affiliates were supportive of VNM but indicated TPO as the more important enhancement to net metering to provide net metering services to customers and reduce lost revenue risks.

The Ministry has also been engaged with other ministries on consumer protection and siting issues, including MGCS and MOECC, as well as continued engagement with the OEB on implementation considerations.

Other Jurisdictions and Harmonization

Comparison with other Key Jurisdictions

Although all other Canadian provinces have net metering frameworks in place, uptake in those jurisdictions has been relatively low. Nova Scotia and Alberta allow for a limited VNM for aggregation of loads by a single customer, but these models have only limited adoption.

The key jurisdiction that has enabled TPO and VNM is the United States (US). 45 states and Washington D.C. have regulatory requirements for some or all electricity utilities to offer net metering. Of those states, 26 states and

Washington D.C. allow for TPO. Fourteen states and Washington D.C. allow for community net metering, virtual net metering being the method employed by 9 of the 14 states.

TPO in the U.S

There are broadly four different models employed to allow for third-party ownership in the United States:

- Parties enter into a Power Purchase Agreement subject to regulation as defined by the state's regulatory body.
- Third-party system owners are exempt from regulation as a public utility.
- Third-party system owners are exempt from regulation if the system does not generate more than a defined percentage of the customer's average annual consumption, above this threshold the customer is subject to regulation.
- Power purchase agreements are prohibited and third-party ownership agreements are regulated as public utilities.

Seventeen states and Washington D.C. use the Power Purchase Agreements model, with four states exempting third-party systems from regulation, four states using the threshold model and only one regulating third party systems as a public utility.

VNM in the U.S.

The three most common policies in the United States to enable virtual net metering are:

- Utilities own and operate a project that multiple residential customers can opt in to purchase renewable electricity from the shared facility.
- Commercial and/or residential entities jointly invest in a renewable generator, participants receive a credit on their electricity bill which is proportional to their contribution and the electricity generated at the shared facility.
- A non-profit model where donors contribute to the cost of a renewable installation owned by a nonprofit organization. The donors do not receive any reduction in their energy costs as a result of the participation in the investment, but instead support the nonprofit to help lower its electricity bills.

Consumer Protection

Due to the prevalence of US jurisdictions exempting TPO models from regulation, most US states have experienced consumer protection issues. The US Solar Energy Industry Association has developed voluntary codes of conduct and disclosure terms, which some jurisdictions have adopted. However, consumer protection issues remain a concern in certain jurisdictions.

The California Public Utilities Commission has undertaken with their utilities a process to explore consumer protection measures, including but not limited to development of budgets to implement consumer protection, measurement and evaluation, and marketing and outreach.

Harmonization with other Key Jurisdictions

The proposed amendments would ensure that Ontario's net metering regulatory framework is comparable to other key US jurisdictions in regards to TPO business models. The Ministry's proposed approach to consumer protection differs from U.S. jurisdictions in that it plans to take a regulatory approach using the existing ECPA framework to provide greater oversight of TPO arrangements rather than exempt TPO arrangements from regulatory requirements that would apply to electricity retailers.

Other aspects of the Ontario net metering context differ from most U.S. jurisdictions, including Ontario's proportion of fixed charges for electricity customers, which addresses the major cost-shifting concern.

Introducing TPO in Ontario would largely harmonize the business models that could be used with those in other key jurisdictions. The proposed changes to Ontario's net metering framework will harmonize to some degree the regulatory environment for businesses that operate in Ontario and the U.S. Some solar companies specializing in TPO and VNM business models, which are not active in Ontario now, may seek to enter into the marketplace.

s. 9 Communications

See Appendix D, Communications Plan

*Key Communication Opportunities*2017 Long Term Energy Plan

- Pending Cabinet approval, the release of the 2017 Long Term Energy Plan (LTEP) provides the best opportunity to communicate Ontario's plan to propose changes to the net metering regulation to stakeholders.

- Press releases, website copy, and the LTEP itself provide ample room to communicate messages surrounding the expansion of customer choice/access to net metering, as well as the associated cost savings when compared to the FIT and microFIT programs.
- Current estimates for LTEP release is early October 2017.

Environmental Bill of Rights Registry Posting

- Once the proposed legislative amendments have been introduced to the legislature, the Ministry will proceed with an Environmental Bill of Rights Registry (EBR) posting to seek feedback on proposed regulatory amendments enabling TPO and VNM demonstration projects.
- Within the EBR posting the Ministry will include context and background for the posting and communicate the benefits of the proposed approach.
- Timing for the EBR posting is not known at this time as it is dependent on introduction of the legislative amendments.

Updates to the Ministry's website

- There is currently a webpage with net metering information available on www.energy.gov.on.ca.
- This information will be further updated to reflect the proposed amendments, once they have been introduced.

Announcement of Green Ontario Fund Incentives for Solar PV

- The Ministry of Environment and Climate Change (MOECC) Green Ontario Fund currently plans to release incentives for various low carbon technologies, including net metered solar PV.
- These incentives are expected to significantly improve the economics of deploying solar PV.
- When incentives are announced, ENERGY can work with MOECC to include key net metering messages and links to online ENERGY materials to ensure incentive recipients are aware of how to go about deploying a net metering system and the various ownership options that will be enabled by the proposed amendments.

- Timing for an announcement by MOECC of incentives for solar PV is to be determined. Current estimate for the release of incentives for solar PV is late 2017/early 2018.

Closure of the microFIT Program

- Messaging that is distributed to program subscribers upon the closing of the microFIT application period could be utilized as a channel to communicate the net metering revisions. With the closure of the microFIT Program, net metering will become the main method for deploying small scale renewable distributed generation.
- The microFIT website will continue to exist for the foreseeable future. The website could also be utilized to host information linking to net metering web pages.
- This approach would necessitate coordination with IESO.

Key Messages and Context

- Please see Appendix D: Communications Snapshot

**s. 10 Contacts and
Appendices****Contacts**

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Appendices

Appendix A: Variance Memo
Appendix B: Compendium
Appendix C: Draft Legislation
Appendix D: Communications Snapshot

