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Ministry of Energy

Enhancements to Ontario's Net Metering Regulatory Framework

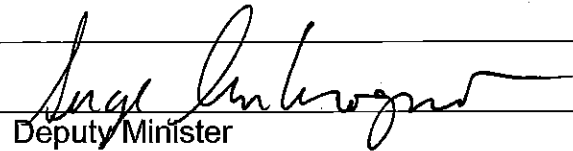
Draft Regulation

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 regulation for O. Reg. 541/05 (Net Metering) made under the *Ontario Energy Board Act, 1998*
2. Amending regulation for O. Reg. 389/10 (General) made under the *Energy Consumer Protection Act, 2010*,
3. New regulation to be made under the *Electricity Act, 1998*

Approvals required prior to LRC

	Committee and date	Cabinet Date
Policy	Cabinet 2017 LTEP approval	July 26, 2017
TB/MBC	No approval needed	


Deputy Minister

Date

Minister

Date

s 1. Proposal Context

The Ministry of Energy ("ENERGY") is delivering on commitments made in the 2017 Long-Term Energy Plan (LTEP) by proposing regulatory changes to, if approved, provide new ways for Ontario businesses and consumers to participate in net metering to reduce their electricity bills by generating renewable energy for their own use and sending any excess electricity to the grid for a credit on their bill. Net metering also allows distributors to reduce grid demand in their service territory.

Currently, an electricity customer who wishes to participate in net metering must own or operate the generating equipment (such as solar panels). The proposed regulatory changes would, if approved, allow a third party to own and/or operate the generating equipment, and to sell the electricity generated to a customer for net metering purposes. This would allow homeowners, businesses and other electricity consumers to participate in net metering without incurring the upfront capital cost of installing the system.

In addition, the proposed changes would, if approved, provide flexibility for electricity distributors to enter into arrangements with customers and generators for virtual net metering demonstration projects which have been selected through the Independent Electricity System Operator's forthcoming renewable distributed generation funding program. Virtual net metering would allow customers to participate in net-metered billing without needing to have the renewable energy generation occurring on site.

Consumer protection is an important consideration for enhancing Ontario's net metering framework. To align Ontario's energy consumer protection framework with the new ownership models being proposed, ENERGY is proposing to make regulatory amendments under the *Energy Consumer Protection Act, 2010*. Further, ENERGY is proposing regulatory changes to, if approved, strengthen consumer protection measures for standard net metering arrangements by requiring a set of standard acknowledgements under O. Reg. 541/05.

ENERGY is also proposing new regulation to, if approved, address specific gaps in siting requirements that currently exist for renewable energy projects.

s 2. Approach and Intended Outcomes

ENERGY is proposing to expand and enhance Ontario's net metering framework by proposing three key regulatory measures, as follows:

- 1) Proposed Amendments to Ontario Regulation 541/05 (Net Metering) made under the Ontario Energy Board Act, 1998 (OEBA):

Existing regulation (O. Reg. 541/05: Net Metering)

The existing net metering regulation requires electricity distributors to allow owners or operators of renewable generation facility, who generate renewable energy primarily for their own use, to convey electricity into the distribution grid for a bill credit on a net-metered basis (i.e., net of consumption and generation). Customer-owned as well as certain forms of leasing and financing arrangements are allowed under current regulation. However, third-party ownership arrangements, where the third party both owns and operates the generation facility and sells electricity to the customer, are not permitted.

The existing net metering regulation also requires that renewable generation must be connected behind the customer's meter. It does not allow for virtual net metering arrangements, where a customer is billed on a net-metered basis for generation located somewhere other than the customer's premise (i.e., "in front of" the customer's meter).

Third-party ownership (TPO)

ENERGY is proposing to amend O. Reg. 541/05 to, if approved, enable a third party to own or operate renewable generation facilities hosted at the customer's site(s) for net metering purposes, where there is an agreement in place between the third-party generator and the eligible customer for the sale of electricity.

If approved, TPO net metering arrangements would require electricity to be generated from a renewable energy source with the generation facility located behind the customer's meter, and would allow for the use of energy storage paired with renewable generation.

The proposed changes to the regulation are necessary to expand eligible net metering models under the regulation to allow for TPO arrangements between customers and generators. Renewable energy businesses, electricity distributors and several electricity consumer groups identified eligibility of TPO arrangements as an important enhancement to Ontario's net metering framework.

The proposed regulatory changes, if approved, would facilitate a variety of benefits to Ontario businesses and electricity consumers by increasing options to participate in the generation of electricity and save on their electricity bills, expanding opportunities for installers, developers, and local distribution companies (LDC) to provide distributed energy solutions to customers, reducing demand on the grid, and providing opportunities for Indigenous communities. These benefits are described in detail in the "Costs and Benefits" section, below.

Virtual net metering (VNM) demonstration projects

ENERGY is proposing to amend O. Reg. 541/05 to, if approved, enable VNM demonstration projects by providing electricity distributors flexibility to enter into

agreements with customers and generators for the purpose of participating in a VNM demonstration project.

The proposed regulation would, if approved, prescribe certain criteria for VNM demonstration projects. While the projects may have to meet other criteria, which would be addressed outside the regulation through the IESO's Renewable Distributed Generation Integration Fund (RDGI Fund), these criteria would not be in the regulation itself. If the proposed amendments are approved, the key parameters of VNM demonstration projects addressed through the proposed regulation would include:

- Projects could only proceed if selected through the competitive process under the IESO's RDGI Fund;
- Electricity distributors would be permitted to facilitate VNM projects but not be obligated to participate or host projects.
- Electricity would be required to be generated from a renewable energy source.
- Generation would need to be distribution system connected at a voltage less than or equal to 50 kV (i.e., no generation connected to the transmission system).
- VNM demonstration projects would also be required to adhere to certain other provisions in the proposed regulation, such as contract terms, compensation/credit valuation and how agreements are structured (e.g., electricity retail contracts).

In developing the proposed regulatory changes to O. Reg. 541/05, ENERGY has taken a measured approach and considered users of the regulation, mainly electricity distributors and renewable energy businesses, who would be involved in developing VNM demonstration projects. Efforts were made to provide flexibility for innovative approaches and align the regulation with anticipated IESO program objectives.

The proposed regulatory amendments for VNM and the IESO's program would, if approved, encourage partnerships and strategic location of renewable generation on distribution systems, explore higher value opportunities and best practices for VNM business models and inform future policy decisions around more broadly enabling VNM through regulation.

Standard set of acknowledgements for net-metered customers

ENERGY is proposing to make changes to O. Reg. 541/05 to, if approved, strengthen consumer protection for net metering arrangements that are currently allowed under the regulation. The amendments would require distributors to receive a standard set of acknowledgements from customers seeking to net meter, where those customers are not pursuing the new TPO model for net metering (i.e. the generator is the customer, who owns or operates the generation facility).

If approved, the proposed requirement would ensure that if the customer has contracted for the generation equipment under a lease or financing arrangement, that customer would certify to the distributor that they have had information disclosed to them that would be important for making an informed decision about the lease or financing arrangement. If approved, the disclosure would include standard information about the other party under the lease or financing agreement, generation equipment, terms of the leasing or financing arrangements, estimates for savings offered and any other penalties or financial liabilities that may be applied.

2) Proposed Amendments to Ontario Regulation 389/10 (General) made under the Energy Consumer Protection Act, 2010 (ECPA):

Existing regulation (O. Reg. 389/10: General)

The ECPA helps to protect consumers from, among other things, hidden costs and other unfair practices, while ensuring they have information necessary to make informed decisions about contracts offered by electricity retailers.

The existing regulation requires electricity retailers to be licensed by the Ontario Energy Board (OEB), abide by a code of conduct and follow strict rules regarding marketing practices and contract disclosure. Licensing requirements and other rules for electricity retailers are determined by the OEB in the Electricity Retailer Code of Conduct.

Currently, the ECPA and O. Reg. 389/10 do not contemplate the new retailing model being proposed.

Third-party ownership (TPO) electricity retailing

ENERGY is proposing to make changes to O. Reg. 389/10 to, if approved, ensure that consumers who are considering entering into a retail contract involving the TPO business model would be able to make an informed decision, have protection from unfair business practices and have recourse through the OEB, if they believe they have been subject to unfair business practices by retailers based on the supply by the TPO retailer of electricity.

Proposed regulatory changes, if approved, would require third-party owners to adhere to the same rules currently in place for electricity retailers, including that:

- Third-party owners would be licensed as retailers and regulated by the OEB and required to follow a comprehensive Code of Conduct.
- Third-party owners would be required to provide detailed disclosure of the terms of the contracts to consumers, offer a 10-day "cooling off" period to cancel contracts and be prohibited from making false or misleading statements.

The proposed regulatory changes would, if approved, introduce the following measures that are specific to the TPO model to further protect consumers:

- Cancellation: Cancellation of the retailing agreement, including if the customer moves, would continue to be permitted. However, any penalties or fees in any associated agreements that could be triggered by the cancellation of the retail agreement would be required to be clearly disclosed to the customer. This is new to ensure the new TPO business model is reflected (equipment removal for example if the retailing contract is cancelled).
- Disclosure: Third-party owners would be required to disclose whether the cancellation of the retail contract could trigger penalties in any associated contracts (e.g., contracts related to equipment), as well as any costs associated with returning this equipment (dismantling, recovery etc.) if the retail contract is cancelled.
- Unfair Practices: If a third-party owner does not disclose the required information to a customer, the OEB would be in a position to enforce the ECPA in order to protect the customer in respect of the retail contract portion of their TPO arrangement.

If approved, the main benefits of the proposed amendments to O. Reg. 389/10 would be establishing appropriate consumer protection mechanisms and dispute resolution processes for this new TPO retailing activity. This approach is supported by most industry businesses and supported strongly by electricity distributors.

3) Proposed New Regulation to be made under the *Electricity Act, 1998 (EA)*:

Existing Siting Restrictions

The *Green Energy and Green Economy Act, 2009* removed municipal planning authority over renewable energy projects. The sole levers to control siting became environmental regulation and the Independent Electricity System Operator's (IESO) Feed-In Tariff (FIT) and microFIT program rules, and later, the Large Renewable Procurement (LRP) process. Residential and agricultural restrictions do not exist for net metering, or other projects developed outside of procurement processes.

On their own, the Ministry of the Environment and Climate Change's (MOECC) approval processes for small wind and ground-mounted solar projects do not sufficiently ensure appropriate siting of renewable energy projects. Additionally, the approval processes do not apply to microscale projects, or projects connected to a residential dwelling or used in agriculture.

If residential and agricultural siting restrictions are not put in place for net metering, some project developers may choose to site net metered projects in residential areas

(creating potential bad neighbour projects), to locate them close to property boundaries, or on prime agricultural lands (normally protected as a provincial priority).

Based on past experience with renewable development, even a very small number of poorly sited projects could create significant program and policy challenges at the community level, increasing the need for government action.

Proposed New Regulation

The new regulation, if approved, would address specific gaps in rules for siting renewable generation in Ontario in the absence of prior siting rules. To achieve this goal, ENERGY is proposing that:

- Non-rooftop solar projects would be required to be set back 15 meters from any property boundary, regardless of the zoning of the property or abutting properties;
- Non-rooftop solar and wind projects would not be permitted to be connected to residential dwellings; and
- Non-rooftop solar projects larger than 10 kW would not be allowed in prime agricultural areas or in areas where the prime agricultural area designation process had not been completed.

If the proposed regulation is approved, a Registered Professional Planner and a land surveyor would be required to certify that the project meets siting restrictions. Individual project owners would be required to deliver the certifications to their electricity distributors as part of the generator connection process.

If approved, solar carports would be subject to the siting restrictions for non-rooftop solar PV projects to ensure these projects are located appropriately (e.g., not abutting property line in urban areas).

In recognition of the authority of band councils elected under the *Indian Act* (Canada) to make decisions regarding land use on reserves, it is the policy of the Ministry of Energy to defer to band councils in relation to the use of reserve land for power generation purposes. As a result, if approved, the proposed siting restrictions would not apply to reserve land.

Furthermore, in recognition of the siting restrictions that have applied to projects through other procurements programs and processes, the proposed siting restrictions, if approved, would not apply to any facility that has received a microFIT, FIT, or LRP Contract (whether or not that facility has been constructed as of the in-force date of this proposed regulation). Similarly, some facilities that do not have a microFIT, FIT or LRP contract may be under development under the current regulatory framework. If such a project has already obtained a connection agreement from their LDC as of the in-force

date of the proposed regulation, the siting of that project will not have to be revised to meet the proposed regulatory requirements. .

Additionally, the regulation would provide flexibility in relation to the 15 metre setback requirement for facilities approved as a virtual net metering demonstration projects under the IESO's RDGI Fund, where the abutting property owner is either a participant in the project or the property owner consents to the siting of the project.

s. 3 Direction and Urgency

Cabinet approved policy proposals for the 2017 LTEP on July 26, 2017. The proposed regulatory 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 developing legislation and regulation to enable TPO, to allow for IESO- administered VNM demonstration projects and to address any related consumer protection and project siting issues.

Legislative amendments to the *Ontario Energy Board Act, 1998*, required to expand the scope of eligible net metering ownership models, were approved by Cabinet October 4, 2017, tabled on November 14, 2017 through Bill 177, *Stronger, Fairer Ontario Act (Budget Measures), 2017*, and passed on December 14, 2017.

If approved, the proposed regulatory amendments would deliver on the 2017 LTEP commitments in a timely manner aligned with customer and industry expectations, OEB and LDC implementation requirements and the IESO's program development and deployment of VNM demonstration projects.

The transition to net metering represents a significant opportunity to shift to more cost-effective deployment of clean energy supply while supporting manufacturers and installers of renewable energy equipment looking for new opportunities.

With the conclusion of the FIT and microFIT programs in 2017, it is expected that there would be an increased interest in net metering across the province. Net metering would be the primary market for renewable distributed generation in Ontario.

The proposed net metering enhancements can also support initiatives under the province's 2016-2020 Climate Change Action Plan.

It is important for the proposed regulatory amendments to be brought forward in Spring 2018, in order to provide stakeholders with adequate lead time for an intended in-force date of July 1, 2018 for the siting regulation and October 1, 2018 for the net metering and consumer protection regulations, if approved. Implementation by stakeholders would involve the following activities that must be considered for timing of the proposed regulatory measures:

- The OEB would need to consult stakeholders and identify any changes required to its licensing requirements and codes to align with the proposed regulatory changes;
- Electricity distributors would need to adjust their administrative systems and procedures to align with the new regulation and any code or licensing requirement changes made by the OEB; and
- Renewable energy businesses interested in TPO business models may need to adjust how they operate within the new regulatory framework, including compliance with any code and licensing requirements.

For VNM demonstration projects in particular, it is important that the proposed regulatory changes are made now to ensure alignment with the IESO's program implementation timelines. The IESO has publicly released an implementation plan for the 2017 LTEP, which states that the IESO expects to have draft selection and funding agreement documents for VNM demonstration projects in the second quarter of 2018 and anticipates initiating the call for applications in the third quarter of 2018 with successful VNM projects announced in the fourth quarter of 2018. IESO initiated stakeholder engagement on the design of the program on March 29, 2018 with a stakeholder webinar.

Potential project proponents would require certainty that VNM demonstration projects have been enabled in regulation and how any related regulatory requirements would apply to their projects.

s. 4 Impact Assessment and Costs

Key Stakeholders Affected and Expected Impact

Stakeholder	Impact
Electricity distributors [There are 71 local distribution companies (LDCs) operating in the province as of the end of 2016.]	LDCs 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. The proposed regulation for VNM demonstration projects would, if approved, have no imposed cost impacts for LDCs, because they would not be required to participate in VNM projects. LDCs that choose to implement VNM demonstration projects would be eligible to receive funding to cover their costs through the prescribed IESO program.

Stakeholder	Impact
Due to consolidation, this number may change over time.]	Cost-shifting can occur when net-metered customers reduce their electricity charges and avoid paying their fair share of fixed costs of operating the distribution system, which must then be paid by other electricity customers. This concern has been largely addressed in Ontario with the OEB's decision to phase in fully fixed distribution delivery charges 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. Although some cost-shifting may occur for other system costs embedded in variable charges, LDCs would be protected from loss of revenue and cost-shifting associated with increased net metering. If the proposed regulatory amendments are approved, LDCs would also be required to incorporate the standard acknowledgement process into their processes for confirming eligibility for net metering. This will have resource impacts for LDCs.
<i>Ontario Energy Board (OEB)</i> [Independent energy regulator responsible for enforcing Ontario's net metering regulation]	The OEB plays a key role in the implementation of net metering policies, and the monitoring and enforcement of LDC compliance with the net metering regulation. OEB costs associated with its oversight role for net metering are recovered through the rate base. As part of its mandate, OEB must ensure alignment of distributor license requirements and the corresponding code, in addition to amending its code of conduct for electricity retailers to the new regulation. If the proposed regulatory amendments are approved, the OEB may incur costs through consultations with stakeholders and other actions the OEB determines necessary to align with the proposed regulatory changes. If the proposed regulatory amendments are approved, the OEB may also need to develop standard forms to facilitate compliance with the proposed siting regulation, in addition to an overall assessment of codes and standard agreements related to net metering, renewable generation connection processes contained in the Distribution System Code (DSC) or other codes as may be required.
<i>Independent Electricity System</i>	Net metering applies to distribution network connected customers only, and therefore, the IESO would have no direct costs or

Stakeholder	Impact
<i>Operator (IESO)</i> [Manages Ontario's power system, including delivery of conservation programs]	impacts as a result of the the proposed regulatory measures. If the proposed regulatory amendments are approved, IESO would have indirect impacts to staffing and resourcing related to implementation of the RDGI Fund , which would be the vehicle to select and support virtual net metering demonstration projects. These costs would not be as a result of the regulation directly, as the IESO was directed by ENERGY, through the 2017 LTEP Implementation Plan Directive, to develop and implement the fund.
<i>Ratepayers</i> [Includes Ontario electricity consumers that are currently or would be net metering participants and those that are non-participants.]	If approved, the proposed regulatory changes are 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. If the proposed regulatory amendments are approved, existing net metering participants would not be affected by the proposed measures. Prospective and new participants would have a positive impact due to increased options for participation with the introduction of TPO arrangements. If the proposed regulatory amendments are approved, 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 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. If the proposed regulatory amendments are approved, the projected impact of cost-shifting from net-metered customers would 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 would be taken for commercial and industrial rate classes, pending OEB's finalization of their current review. 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. In addition to the proposed measures to apply ECPA provisions to TPO net metering arrangements, the <i>Consumer Protection Act, 2002</i> (CPA) applies to existing customer-owned net metering

Stakeholder	Impact
	transactions involving individuals (i.e., purchase or leasing for personal, family or household purposes).
<i>Industry</i> [Includes renewable energy developers and service providers, electricity retailers, LDC unregulated affiliates, renewable energy manufacturers and component suppliers]	If the proposed regulatory amendments are approved, renewable energy industry stakeholders, including developers, LDC affiliates, electricity retailers and other businesses interested in owning and operating net metering systems, would 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, potential cost savings, and innovative business models, including VNM. If the proposed regulatory amendments are approved, 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. The proposed siting regulation would, if approved, require project developers to submit appropriate attestation forms to the distributor during the connection process, demonstrating that a project meets the established siting requirements. A project developer would need to hire a Registered Professional Planner and a land surveyor to complete this process. The estimated cost for a single project would be a minimum of \$2,000. Indirectly, renewable energy manufacturers and suppliers would benefit from expanded market opportunities associated with increased demand for renewable energy systems used for net metering.
<i>Indigenous communities and groups</i> [Includes 133 First Nations in Ontario; 25 remote First Nations communities are diesel reliant]	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 benefit from TPO arrangements and to explore participation in VNM demonstration projects, if the proposed regulatory amendments are approved.

Stakeholder	Impact
served by LDCs not subject to the net metering regulation.]	A common barrier in Indigenous 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 net metering arrangements could, if the proposed regulatory amendments are approved, provide a solution to this structural barrier by eliminating or reducing upfront capital costs for residential customers or building owners. Indigenous 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 Indigenous bands and business owners to realize savings on their electricity bills through participation in renewable, net metered projects.

Costs and Benefits

System Impact

- Net metering provides system benefits resulting from lower overall demand on the system. Similar to energy efficiency measures, adding net metering capacity to the system results in a benefit from 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).
- System costs from net metering are not typical of other generation costs to the system. Net metering generation is compensated by the distributor as a credit to the net-metered customer's bill. The distributor avoids line losses and the cost of purchasing electricity from the bulk system. To the bulk system net metering capacity appears as a loss of load. This loss of load translates to a loss of revenue to pay for certain system costs (e.g. transmission and global adjustment). These costs are shifted from net-metered customers, who are avoiding their volumetric charges and some fixed charges, to other customers, who must pay the balance of those avoided charges.
- At the levels of uptake projected (468 MW cumulative total from 2018-2027), the expected difference in net system costs (costs less benefits) under the net metering scenario is about \$40 M per year on average over the 2018-2035 period when compared to a baseline scenario with no net metering (translating to an average percent difference in net system costs of 0.18%).
- Enabling the TPO model provides new opportunities for customers to participate in net metering but does not necessarily improve the business case for the third-

party owner, and as a result, does not change the projected uptake from current projections or the expected net system costs.

- VNM demonstration projects are not expected to result in any significant additional net metering capacity that would affect the uptake projections or net system costs.

Rate Impact

- Ontario's Fair Hydro Plan has lowered electricity bills for a typical residential consumer by 25 per cent, and includes a commitment to hold increases to the rate of inflation for four years (i.e., until 2021).
- The reduction is the result of the refinancing of a portion of the Global Adjustment (GA) over a longer time period.
- As a result, there would be a negligible impact on residential electricity bills over the short term. In later years, deferred GA amounts, including the costs of net metering, would be recovered from ratepayers.

Other benefits

The proposed regulatory measures would, if approved, have the following benefits:

- Eligibility of TPO net metering arrangements:
 - Expands consumer choice by increasing options available for consumers to participate in net metering without the upfront capital cost of purchasing and installing a system.
 - Expands opportunities for installers and developers of renewable distributed generation to market services and products;
 - Creates new business models available to electricity distributors through their affiliates to offer renewable distributed energy solutions to their customers while also addressing local system needs; and
 - Encourages new sources of distributed generation, helping to reduce demand on the transmission grid, and supporting the needs and interests of local communities.
- Flexibility for VNM demonstration projects:
 - Removes barriers for distributors to pursue innovative demonstration projects under prescribed conditions;
 - Creates opportunities for partnerships between distributors and businesses on innovative approaches to integrating renewable generation through demonstration projects;

- Informs policy and regulatory and planning processes, such as future updates to the net metering framework, project siting requirements, regional planning processes and participation of distributed energy resources in grid service and other energy markets that could be accessible in the future; and
- Demonstrates best practices by providing sector-wide learning that would benefit all distributors by reducing the risk of exploring new value streams and disseminating results.

Risk mitigation for system impacts

System impacts and the risk of unanticipated costs that could be passed on through rates would be highly related to the amount of 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 is low due to the challenging economics of distributed solar energy under net metering in Ontario at current capital costs and electricity rates.

However, 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.

ENERGY is taking a measured approach to net metering policy to mitigate the risk of unanticipated levels of net metering uptake and associated cost impacts. ENERGY will regularly monitor and review impacts of net metering and take steps to adjust regulation as may be needed. ENERGY has committed to undertaking a three-year cost-benefit evaluation of net metering, in conjunction with the Net Metering Advisory Working Group (AWG) and in line with the LTEP cycle.

The Distribution System Code (DSC) 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.

s. 5 **Implementation**

Timelines and Activities

If the proposed regulatory amendments are approved, ENERGY is proposing an in-force date of July 1, 2018 for the siting regulation, and October 1, 2018 for the net metering and consumer protection regulations. It is expected that, by the in-force date, all OEB consultations, code changes and other implementation requirements would have been finalized with enough lead time for LDCs to operationalize any required changes to be in compliance with the new regulation.

Given a filing date of the proposed regulations, if approved, by the end of April 2018, this would provide a total of two months for OEB and LDC implementation related to the siting regulation, and five months for OEB and LDC implementation related to the net metering and consumer protection regulations.

The IESO submitted their LTEP Implementation Plan to the Minister of Energy on January 31, 2018 and, following approval by the Minister, released it publicly on February 22, 2018. The Plan outlined the IESO's activities and timelines for implementing the RDGI Fund, including timeframes for accepting submission of VNM demonstration project proposals and announcing successful VNM projects.

The following table outlines the timing of implementation milestones for implementing the proposed regulatory amendments and new regulation:

Timelines	Activities
April 16, 2018	Seek LRC/Cabinet approval of regulatory amendments
End of April 2018	Filing of approved regulations to e-laws
Q2/Q3 2018	OEB to undertake consultations on code/licensing changes required to align with new regulation
Q3/Q4 2018	IESO to begin accepting applications for VNM demonstration projects through its RDG program
July 1, 2018	Siting regulatory amendments to come in force
October 1, 2018	Net metering and consumer protection regulatory amendments to come in force
Q4 2018	IESO to announce successful VNM demonstration projects
Beginning Q4 2018	Monitoring and evaluation of implementation by distributors, OEB and ENERGY – ongoing

Risk mitigation

Risks associated with implementation of the proposed regulatory changes, if approved, and planned mitigation measures are described in the following table:

Implementation Risks	Description	Mitigation Measure
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Implementation Risks	Description	Mitigation Measure
Lack of LDC preparedness for influx of TPO projects	LDCs would need to be prepared to comply with the regulatory changes in addition to an anticipated increase in overall number of entities applying for net metering.	If approved, regulatory amendments would be posted online and a decision notice would be posted on the Environmental Registry and Regulatory Registry, in advance of the in-force date, giving LDCs sufficient time to modify their application processes and to accommodate potentially greater volumes of net metering as well as TPO net metering. ENERGY would also engage with its Net Metering Advisory Working Group, a stakeholder working group comprised of government, agencies, LDCs and industry members, to monitor and advise ENERGY on any issues that may arise with LDC implementation.
Consumer Protection Issues	Potential participants may be unfamiliar with this new business model and would need appropriate disclosure with regard to cancellation rights, early termination penalties and price comparisons to make informed decisions about entering into an agreement.	ENERGY has conducted due diligence to ensure that appropriate consumer protections can be enabled under existing legislative authority under the ECPA. ENERGY is working with the OEB to ensure that such transactions are captured by applicable instruments to support strong protection for participating customers. ENERGY and OEB would collaborate with LDCs to enhance consumer education and consistency of net metering information available to the public.
Ensuring Responsible Project Siting	Residential and agricultural land restrictions do not currently exist for renewable energy projects.	The proposed new regulation under the <i>Electricity Act, 1998</i> , if approved, is intended to ensure that net-metered renewable generation projects are appropriately sited.
High Levels of Deployment and Associated Cost Impacts	There is a risk that higher than anticipated levels of net metering	ENERGY has committed to review the net metering regulatory framework every 3 years, consistent with the LTEP process, and revise any regulation as required, which

Implementation Risks	Description	Mitigation Measure
	deployment could occur resulting in greater impacts to ratepayers than estimated.	would 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 (DSC) and the OEB's Reporting and Record-Keeping Requirements (RRR), 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.

If the proposed regulatory amendments are approved, ENERGY expects to track and assess results of VNM demonstration projects through the IESO's RDGI Fund, including:

- Assessment of impacts of VNM models on relevant stakeholders by:
 - Evaluating level of interest in VNM models in the sector; and
 - Quantifying costs and benefits (to LDCs, customers, ratepayers, etc.).
- Consideration of potential further net metering policy and regulatory updates in the future:
 - Evaluating how VNM models could serve as a framework to achieve non-wires solutions and other areas of change/innovation in the electricity sector;
 - Determining regulatory parameters of VNM to maximize net benefits (in terms of eligible VNM models, compensation levels, connection priorities, and locational value);
 - Evaluating how VNM models could be deployed to achieve policy goals

- around energy conservation/efficiency and net zero/GHG reduction; and
- Informing structural policy goals (i.e., OEB processes, LDC culture of innovation, regional planning, etc.).

ENERGY's engagement with the Net Metering AWG would support monitoring and evaluation of the proposed measures. The AWG's mandate has been renewed to continue providing feedback to ENERGY.

Measuring Performance

ENERGY would monitor and evaluate performance based on several indicators that would inform how the proposed regulatory changes (if approved) and net metering in general meet policy objectives. Objectives and indicators would be developed further, in consultation with the AWG during implementation phases of the regulatory measures 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 AWG on any implementation issues, administrative and other costs. • IESO analysis of system impacts. • Anticipated data obtained from GreenON regarding delivery of the proposed solar PV incentive.
Encourage efficient and effective integration of renewable distributed generation into distribution systems	• LDC reporting on connection of renewable generation. • OEB reporting on adoption of TPO models and adherence to any requirements placed on TPO retailers. • Project data obtained from the IESO on VNM and other innovative distributed generation 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 TPO retailers under the ECPA or other mechanism. • Coordination with Ministry of Government and Consumer Services on complaints or reports under the Consumer Protection Act.
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 distributed generation technology and adoption in the marketplace.

Adjusting Policy if Required

If the objectives outlined above are not being met, ENERGY would 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 and the Green Ontario Fund to make adjustments to any GreenON incentives for renewable electricity generation, as required;
- Issuing guidelines or consumer education materials as required; and
- Working with the OEB to update consumer protection regulations or code requirements as required

s.7 Stakeholder Consultations

Stakeholder engagement on the proposed regulatory changes leveraged previous consultation and engagement on net metering regulatory updates, which came into effect July 1, 2017.

During consultations for those regulatory updates, ENERGY undertook the following activities:

- Established the Net Metering AWG 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 through the Environmental Registry and Regulatory Registry in August 2016.

ENERGY conducted additional stakeholder and Indigenous engagement related to the current proposed regulatory amendments and key policy considerations for TPO and VNM in early 2017 (from January to March 2017), which included engagement with the AWG, a public webinar, a stakeholder questionnaire and targeted meetings with key stakeholders and Indigenous groups. Stakeholder feedback is summarized as follows:

- TPO net metering arrangements:
 - 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.
- VNM demonstration projects:
 - Municipalities support 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 supported VNM in principle, 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 supported VNM but indicated TPO as the more important enhancement to net metering to provide net metering services to customers and reduce lost revenue risks.

ENERGY posted plain language proposals for the three regulatory measures to the Environmental Registry and Regulatory Registry (ER/RR) on November 28, 2017 for a 50-day public comment period ending January 18, 2018.

A total of 45 stakeholder comments and submissions on the regulatory proposals, including 20 responses from industry businesses, 9 responses from industry associations (including two associations representing distributors), 5 from distributors, 4 from municipalities, 4 from individuals and one from an NGO.

- The need for clarity on the roles that each party would play was identified for each proposed regulation.
 - While the regulation sets out the roles and responsibilities of each party, OEB consultation on the specific processes that would be enabled would allow opportunity for detailed feedback on each of these roles.
- Industry respondents consisted of businesses and associations from a broad spectrum of the renewables sector, including developers, installers, consulting services, energy retailing, manufacturing and other areas.

Feedback on the proposed amendment to O. Reg. 541/05 (Net Metering) for TPO and VNM is summarized as follows:

- Overall, stakeholders consistently supported the proposed changes to allow for TPO arrangements and VNM demonstration projects.
- The posting also received feedback on implementation and program design for the IESO's RDGI Fund, including suggestions for further engagement and the need for public guidance materials, as well as questions about ownership of environmental attributes, TOU billing and OEB rate design for commercial and industrial customers.

Feedback on the proposed amendment to O. Reg. 389/10 (General) to align consumer protection under the ECPA with TPO retailing activities is summarized as follows:

- Overall, stakeholders expressed support for the policy direction adapting the existing consumer protection framework to cover a new type of electricity retailer activity related to TPO net metering arrangements under the ECPA.
- Most respondents supported licensing requirements. Several stakeholders suggested there should be a standard agreement and cited the need for clear disclosure rules, as well as the need to develop guidance materials to help educate potential customers. This aligns with current ECPA requirements for electricity retailers.

Feedback on the proposed new regulation to be made under the *Electricity Act*, 1998 to impose siting restrictions on renewable energy projects included:

- Proposals to return control over siting to municipalities;
 - The policy, legislative and regulatory changes required to enable this proposal make the solution impractical to implement in a timely fashion, however, Ontario could consider this approach in the future.
- A recommendation that developers should simply attest that they had met the siting criteria (rather than hiring a professional to attest that they had) and requests that the setback distance be reduced and the application of prime agricultural protection only apply to larger projects (well above 10 kW).
 - Following consideration from a policy and implementation perspective, including discussion with the OEB, incorporating this feedback would be detrimental to ensuring the appropriate siting of renewable energy projects.

The Ministry of Agriculture, Food and Rural Affairs, Ministry of Municipal Affairs, and Ministry of Natural Resources and Forestry were independently consulted on the development of the proposed regulation.

In 2017, ENERGY also explored an option with MOECC to update their environmental approval requirements (such as the solar Environmental Activity and Sector Registry – EASR and Renewable Energy Approval - REA) to ensure appropriate siting of projects.

However, MOECC advised that visual impacts or agricultural policies are not strictly related to MOECC's mandate to protect health and the natural environment.

**s.8 Other Jurisdictions and
Harmonization**

Harmonization with other Key Jurisdictions

Net metering regulation is specific to the electricity sector in which it is situated, and differs to some degree across jurisdictions that have made net metering available. There are no national or international standards that apply or trade issues around harmonization.

Non-domestic businesses can operate in Ontario's renewable energy market, including marketing of renewable products and services for net metering. A number of Ontario businesses are active in US net metering renewable energy markets and are expected to be active in providing similar products and services to Ontario's market. Some solar companies specializing in TPO and VNM business models, which are not active in Ontario now, may seek to enter into the marketplace.

ENERGY's approach to consumer protection differs from US jurisdictions in that it proposes to use Ontario's existing ECPA framework to provide for 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.

*Comparison with other Key Jurisdictions*Net Metering Frameworks

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 jurisdictions that have enabled TPO and VNM are in the United States:

- 38 states, Washington, D.C., and 4 territories offer net metering, and utilities in two additional states—Idaho and Texas—have voluntarily adopted net metering programs.
- At least 17 states have authorized aggregated net metering, including Arkansas, California, Colorado, Connecticut, Delaware, Maine, Maryland, Minnesota, Nevada, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Utah, Washington and West Virginia.
- At least 18 states and Washington, D.C., have legislation authorizing shared renewables, 15 of which use VNM as the enabling compensation framework.
- There are broadly four different models employed to allow for TPO net metering arrangements in the U.S.:
 - 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.
- 17 states and Washington D.C. use the Power Purchase Agreements model, with 4 states exempting third-party systems from regulation, four states using the threshold model and only one regulating third party systems as a public utility.

Consumer Protection

The most common consumer protection issues that have arisen (whether through TPOs or other arrangements such as sales or leasing of solar panels) are high-pressure sales tactics, false or misleading advertising, inflated estimates of savings, incomplete contract disclosure, hidden fees and high cancellation costs.

Some states (including California, New York and Arizona) have disclosure rules specific to solar generation agreements. Some states also require solar contractors to be licensed.

There are also industry-led initiatives designed to increase consumer satisfaction with solar service providers. The U.S. Solar Energy Industries Association and the Canadian Solar Industries Association both have industry codes of conduct and a complaint resolution process.

Ontario's *Energy Consumer Protection Act* is designed to protect consumers from, among other things, high-pressure sales tactics, false misleading advertising, inflated estimates of savings, incomplete contract disclosure, hidden fees and high cancellation costs. The proposed regulatory amendments to O. Reg. 389/10 are designed to adapt and enhance the existing consumer protection framework to cover a new type of electricity retailer activity.

If approved, the addition of standard acknowledgements for non-TPO net metering customers would also provide a baseline of customer awareness for these arrangements. This will help ensure that customers are aware of important information required to evaluate the contract/arrangement for the renewable generating equipment.

Siting

In many jurisdictions in the United States local government is responsible for ensuring that renewable energy projects are appropriately sited; however, state laws may prohibit municipal by-laws and land-use rules that unreasonably restrict the development of solar projects.

Accordingly, many states provide technical or regulatory guidelines or model zoning language that allows local government to establish reasonable standards for the development of solar energy systems. This is not something that can currently be pursued in Ontario at this time due to an exemption for renewable energy projects in the *Planning Act*, as introduced in the *Green Energy and Green Economy Act, 2009*.

s. 9 **Communications**

See Appendix C, Communications Plan

ENERGY plans to take a low-profile, targeted approach to communications of the proposed regulatory measures. The proposed measures are not contentious and are anticipated to be well received by stakeholders.

If the proposed regulatory amendments are approved, the key opportunities to communicate the proposed changes to Ontario's net metering framework and ENERGY's planned communications activities include:

- Decision Notice (Target Date: End of April 2018)
 - ENERGY would communicate the substance of the approved regulations to stakeholders and provide rationale for the inclusion or rejection of stakeholder feedback.
- E-Blast (Target Date: End of April 2018)
 - Through a targeted email distribution, ENERGY would notify approximately 850 stakeholders of the posting of the approved regulations and decision notice on the Environmental and Regulatory Registries.

- Net Metering Web Page Updates (Target Date: End of May 2018)
 - ENERGY would update the net metering webpage on the Ontario.ca website with a view to providing a single access point to accurate information on the changes being implemented and consumer education for customers interested in participating in net metering.
 - OEB would also likely produce some changes to their website, to ensure any relevant consumer protection retailer code changes are reflected and available to retailers and consumers on their webpage.
- Additional Guidance Resources (TBD)
 - ENERGY is also considering developing additional guidance resources to assist electricity customers in evaluating the benefits and risks of net metering.
 - ENERGY would work closely with the OEB to develop these resources which may ultimately be hosted on the OEB website.

Stakeholders with questions or concerns resulting from the above communications of the regulatory measures would be directed to ENERGY's Renewable Energy Facilitation Office for responses.

Further details about potential stakeholder issues, including consumer protection, ratepayer impact and policy concerns, and ENERGY's approach to addressing any potential stakeholder issues are included in Appendix C, Communications Snapshot.

ENERGY also plans to post a summary of its Regulatory Impact Analysis (Final Analysis) with the Decision Notice, which would outline ENERGY's assessment of administrative and compliance cost impacts to businesses.

s. 10 Contacts and Appendices

	Name	Phone Number
Ministry Policy/Program		
Ministry Legal		
Ministry Communications		
Assistant or Deputy Minister's Office		
Cabinet Office Policy		

Appendices

Appendix A: Regulation Comparison Charts
Appendix B: Proposed Regulations
Appendix C: Communications Snapshot

