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May 14, 2023

Ministry of Energy, Energy Supply Policy Division
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Comments sent via email: P2D.Consultation@ontario.ca

RE: ONEIA Response to IESO Pathways to Decarbonization Study (ERO # 019-6647)

On behalf of Ontario's more than 3,000 environment and cleantech firms, the Ontario Environment Industry Association (ONEIA) is writing to provide our response to the Ontario Ministry of Energy to consider the following recommendations as it develops its response to Ontario's Independent Electricity System Operator's (IESO) Pathways to Decarbonization Report and, in particular, the IESO's "no-regret" recommendations.

Ontario is home to Canada's largest group of environment and cleantech companies. The most recent statistics from the federal government show that Ontario's environment sector employs more than 226,000 people across a range of sub-sectors. This includes firms working in such diverse areas as materials collection and transfer, resource recovery, composting and recycling solutions, alternative energy systems, environmental consulting, brownfield remediation, and water treatment – to name just a few. These companies contribute more than \$25-billion to the provincial economy, with approximately \$5.8-billion of this amount coming from export earnings.

ONEIA members are committed to engaging with governments as they develop policies and regulations that are consistent with our principles of sound science, a sound environment, and a sound economy.

ONEIA would like to congratulate IESO on its efforts to analyze how the province can achieve a net-zero emissions electricity grid. We appreciate the opportunity to provide our feedback to the Ontario Government in developing its response to IESO's report and to provide valuable information to help it make informed decisions about the future of electricity generation in the province.

Introduction and Overview

Ontario is faced with the choices that define energy policy debates throughout the western world: the role of markets vs. centralized planning; and continue to rely on large centralized generation, particularly nuclear and gas, or move towards decentralized technologies, including energy efficiency low-impact renewables and

storage. How Ontario electricity policy evolves in the near future is relevant to industries and to investors committed to net-zero pathways, especially in light of the U.S. Inflation Reduction Act and the European Union's Green Industrial Plan which have accelerated the competition for clean energy investment and jobs.

Ontario has an opportunity to build on its previous successes of embracing cleaner technology to power its grid and in doing so, build a stronger economic future for all Ontarians such as recently evidenced by Volkswagen's choice to locate its EV battery facility in St Thomas.

Although Ontario has an electricity system that is described as a 'hybrid' of centralized planning and market models, there are some important questions regarding how much to rely on a centrally planned system versus a competitive market approach. This is especially true in light of the rapid evolution of decentralized technologies, including energy efficiency, low impact renewables and storage; and also given the development of innovative business models, such as net billing mixing self-consumption and surplus feed in tariff for prosumers, Property Assessed Clean Energy or PACE financing, renting or leasing options that provide additional maintenance services, and the sale of electricity to third parties or neighbours.

We accept the ongoing need for some degree of central or traditional electricity planning designed to expand major supply resources to meet the expected rapid demand growth from the electrification of industry, transportation, buildings to decarbonize the economy more broadly and to minimize the economic costs of this expansion by improving economies of scale in electricity generation. We also recognize that economies of scale exist for a vertically integrated electric utility because a larger generating system can provide power to many users, and additional users can be accommodated with small increases in power costs.

Centrally planned systems are usually accompanied by a regulatory framework intended to reflect economic, social, and environmental considerations as well as restrict or replace competition with administrative limits on profits. In that regard, we believe in an integrated approach between environmental assessment and the Ontario Energy Board (OEB) that adequately considers economic, social, and environmental considerations associated with an overall electricity plan before actual projects can begin, such as large-scale generation or transmission lines. We recognize that the government is proposing changes along these lines to the environmental assessment program and we are supportive providing the new process will, as committed:

- ensure strong environmental oversight while reducing delays on infrastructure projects that matter most to Ontario communities;
- consider the input of local communities;
- ensure strong environmental oversight by focusing on large scale projects that have the highest impact on the environment.

Also, we recognize that in addition to being part of an approved long-term energy plan, large scale projects will also need to go through nuclear safety, environmental permitting and OEB's leave to

construct. We recommend that there should be one integrated approval process for the overall electricity plan and one approval at the project level for large scale projects.

However, that said, regulated/central systems have their risks and limitations. They can overestimate or underestimate future demand and build unnecessary or inadequate capacity which is not only economically inefficient but can impose unwarranted costs upon the environment and/or the economy. In addition, experience has shown that these large projects frequently end up being significantly over budget which results in additional costs to the economy and rate payers.

We believe that a much higher priority should be placed on incrementalism and decentralization of decision-making, rather than being overly dependent on long-term planning for large scale generation and transmission projects. Such an approach is being enabled by the rapid evolution of decentralized technologies, including energy efficiency, recovery of waste energy (e.g., wastewater thermal to electricity networks), low impact renewables and in particular storage. This approach can be further enhanced through the innovative business and financing models that we noted previously as well as by streamlining permitting (i.e. permit by rule). We think that giving greater emphasis in these areas is entirely consistent with a “no regrets” approach.

Given the rapid evolution of these new technologies, this approach increasingly relies on competitive markets and their added advantage of being able to rely on the knowledge and expertise of investors who generate rational assessments of projects.

The implementation of aggressive energy efficiency programs would lower consumers' bills while increasing Ontario's relatively low energy productivity. Low impact renewables like solar PV and waste energy recovery, can significantly contribute to reducing carbon emissions globally. With different competitiveness conditions, rooftop-based solar and other renewable applications are easing the burden on the distribution grids, allowing companies and households to lower their electricity bills and reduce carbon emissions. These can be eased further by the integration of on-site energy storage systems such as Powerwalls, repurposed lithium car batteries, and vehicle-to-grid (V2G) technology. Capital costs for these solutions could be mitigated with Federal government funding available through the Canadian Infrastructure Bank and the Green Neighbourhood program.

We appreciate the need for some degree of central or traditional electricity planning designed to expand major supply resources to meet the expected rapid demand growth from the electrification of industry, transportation, and buildings to decarbonize the economy more broadly, but there needs to be some balance between meeting overall provincial strategic requirements and the need for input of local communities. The Provincial Policy Statement is an effective means for providing policy direction on matters of provincial interest related to land use planning and development of major electricity generation and transmission projects.

However, there should be adequate support for local area energy planning as a means of exploring a range of different future local energy scenarios to achieve deep decarbonization at least cost while promoting clean growth. Such a process enables stakeholders, led by local government and Indigenous communities, to explore different energy futures for an area and to develop the most

promising cost-effective options for decarbonization. Local Area Energy Planning develops a shared vision as a basis for targeting investment.

Other key stakeholders include various government ministries and agencies at all levels and the sectors they represent along with the consumption or generation opportunities they present. For example, the water and wastewater sector has major implications and opportunities to reduce energy consumption and lower consumers costs. Figures from a December 2022 Financial Accountability Office report provides projection basis for this strategy to have a major beneficial impact.

In response to the specific feedback that the Ministry of Energy is seeking regarding IESO's "no-regret" recommendations, following are our comments and responses on questions posed in your consultations:

1. *The IESO's Pathways Study recommends streamlining regulatory, approval and permitting processes, citing that it can take five to 10 years to site new clean generation and transmission infrastructure.*

What are your thoughts on the appropriate regulatory requirements to achieve accelerated infrastructure buildout? Do you have specific ideas on how to streamline these processes?

Overall, there should be one integrated approval process for the overall electricity plan and then another approval at the project level for large scale projects but these should not be duplicated. The approval of the electricity plan should separately address issues at the overall planning level while project approvals should relate to project specific and local impacts only. At the same time, energy efficiency, low impact renewables and storage should be exempted from these broader planning approvals other than developing realistic and continuously updated estimates of their conservation and supply potential while streamlining permitting (i.e., permit by rule) for low impact renewables.

We believe in an integrated approach between environmental assessment and the OEB that adequately considers economic, social, and environmental considerations associated with an overall electricity plan before actual projects can begin, such as large-scale generation or transmission lines. We recognize that the government is proposing changes along these lines to the environmental assessment program and we are supportive providing the new process will, as committed:

- ensure strong environmental oversight while reducing delays on infrastructure projects that matter most to Ontario communities;
- consider the input of local communities;
- ensure strong environmental oversight by focusing on large scale projects that have the highest impact to the environment.

We recognize that large scale projects, in addition to being part of an approved long-term energy plan, will also need go through nuclear safety, environmental permitting as well as OEB's leave to construct.

Smaller and decentralized projects should have a more streamlined consultation and approvals process (e.g., prioritizing regional needs, impact, etc.), and not necessarily wait for the overall electricity plan. We recognize that speed to transition is critically important.

To improve the process efficiency and speed, we would recommend consideration of: 1) performing a process optimization study if one has not been conducted recently; and 2) adding more resources, people and technology solutions.

Another area that could assist in speed of infrastructure build out is making cooperative use of current infrastructure, such as using highway or railway corridors for electricity transmission. Considering integration of multiple forms of infrastructure in our future planning could be efficient from planning, cost and land use perspectives. Engaging other stakeholders that this would require could result in more innovative solutions with better stakeholder support.

2. *The IESO's Pathways Study recommends beginning work on planning and siting for new resources like new long-lived energy storage (e.g., pump storage), nuclear generation and waterpower facilities.*

What are your expectations for early engagement and public or Indigenous consultations regarding the planning and siting of new generation and storage facilities?

Early engagement and consulting with the public and Indigenous communities at the earliest stages of planning and siting of new generation and storage facilities is paramount and should be part of a cycle of updating the electricity plan every five years. Similarly, local and Indigenous communities need to be consulted during project approvals including nuclear safety, environment permitting, and OEB's leave to construct. However, these should be narrow in scope (i.e., local impacts and mitigation) so as not to repeat consultations that took place on the electricity plan.

Early and continual engagement with Indigenous communities, industry, public and other stakeholders is needed to ensure that the government is considering innovative solutions and suggestions in this rapidly changing environment.

3. *The IESO's Pathways Study shows that natural gas-fired generation will need to continue to play an important role in the system for reliability in the short to medium term. The IESO's assessment shows that most of the projected Ontario demand in 2035 can be met with the build out of non-emitting sources, but some natural gas will still be required to address local needs and provide the services necessary to operate the system reliably.*

Do you believe additional investment in clean energy resources should be made in the short term to reduce the energy production of natural gas plants, even if this will increase costs to the electricity system and ratepayers? What are your expectations for the total cost of energy to customers (i.e., electricity and other fuels) as a result of electrification and fuel switching?

We believe additional investment in clean energy resources should be made in the short term to reduce the energy production of natural gas plants as we believe that costs are much lower than estimated. Also, in cost analyses, the Province should consider the costs of resiliency and recovery

from more extreme weather events and other energy system indirect costs. Consumers should also have access to a strong suite of energy efficiency programs to reduce their overall energy bills.

While IESO's report and underlying analyses are valuable in supporting informed dialogue on significantly reducing emissions from electricity production in Ontario, they underestimate the reliability of diverse clean energy portfolios including the evolution of battery and storage technologies as well as the rapid decline in costs of renewable power while overestimating the competitiveness of natural gas in the long-term. This is especially true following the recent federal budget announcement about the Clean Electricity Investment Tax Credit which will be available to taxable and non-taxable entities such as Crown corporations and publicly owned utilities, corporations owned by Indigenous communities, and pension funds. Also, distributed renewables such as rooftop solar PV are already mainstream and quickly expanding thanks to the innovative business models mentioned earlier.

We strongly caution against new gas investments that will be incompatible with forthcoming Clean Electricity Regulations in 2035, with the costs for these stranded assets likely to be loaded on to ratepayers and taxpayers in the Province. In light of IESO's report, we are concerned that Ontario is at risk of not meeting its own 2030 climate target for the electricity sector. While Ontarians can be proud of the relatively high share of clean energy already powering their grid, emissions have been steadily growing in recent years – and the scenarios outlined in this IESO report indicate that the Province is now on track to far exceed its 2030 emissions reduction target for electricity production. While the report examined a pathway to removing emissions from Ontario's electricity system by 2050, Ontario's grid must be net-zero by 2035 to align with Canada's climate commitments.

4. The IESO's Pathways Study highlights emerging investment needs in new electricity infrastructure due to increasing electricity demand over the outlook of the study. The IESO pathway assessment illustrates a system designed to meet projected demand peaks almost three times the size of today by 2050, at an estimated capital cost of \$375 billion to \$425 billion, in addition to the current system and committed procurements.

Are you concerned with potential cost impacts associated with the investments needed? Do you have any specific ideas on how to reduce costs of new clean electricity infrastructure?

As we stated earlier, we believe that rather than being overly dependent on long-term planning for large scale generation and transmission projects, a much higher priority should be placed on incrementalism and decentralization in decision-making given the rapid evolution of decentralized technologies and innovative business models.

We also believe in the importance of creating a competitive marketplace by building on the market driven areas currently in place. Enabling increased competitiveness will support the continual decrease in costs of energy conservation, and renewable generation and storage solutions. As a compliment to a more open and competitive marketplace, we would also like to see a focus on innovation. Expanding rate design for hydrogen production based on Ontario's Low-Carbon Hydrogen Strategy would be a key innovation needed for green hydrogen production infrastructure

to be deployed in Ontario. The IESO has indicated its intention to develop an interruptible rate for hydrogen producers and we recommend that this be a priority.

5. *The IESO's Pathways Study recommends that for a zero-emissions grid by 2050, investment and innovation in hydrogen (or other low-carbon fuels) capacity could be required to replace the flexibility that natural gas currently provides the electricity system.*

Do you have any comments or concerns regarding the development and adoption of hydrogen or other low-carbon fuels for use in electricity generation? What are your thoughts on balancing the need for investments in these emerging technologies and potential cost increases for electricity consumers?

ONEIA believes that there should be investment in renewable gases such as green hydrogen and renewable natural gas (RNG) to help achieve a zero-emissions grid by 2050 and to replace the flexibility that natural gas currently provides the electricity system.

ONEIA recommends that the government consider the role that RNG sources can play in decarbonizing the grid. We believe that RNG and other renewable gases like green hydrogen can play a crucial role in the decarbonization of the electricity sector and minimizing stranded natural gas generation facilities.

As an example, our members with operations in California are seeing that the state's electricity system increasingly utilizing dispatchable power and flexibility to support the system when other non-emitting sources can't meet demand. Typically, this occurs in the evening ramping portion of the "Duck Curve" when solar generation dramatically falls and other units need to rapidly ramp up to meet the shortfall. Energy storage is seen as the primary solution, however, green hydrogen and other renewable gases (i.e. RNG) are starting to play a key role in the fuel supply for existing natural gas "peaker" plants, and also as cogeneration units at industrial facilities. Our members are also involved in projects that are using fuel-cells as a non-emitting back up to electricity supplies and using RNG as the fuel for these units in lieu of diesel backups.

The assumption that hydrogen can be imported in large quantities by 2035 is aggressive.

- At this time, there is no transportation infrastructure dedicated to hydrogen imports to Ontario and there are significant regulatory hurdles that must be overcome in order to import hydrogen either with modified existing pipeline infrastructure or new infrastructure. It will be challenging to have such infrastructure ready at scale by 2035.
- Regarding hydrogen production facilities abroad, there are very few clean hydrogen production facilities in existence today. Those that are being developed and built already have existing end-market customers in mind. Ontario will have to outcompete those existing uses for clean hydrogen, which will result in higher prices than those contemplated by the report.

For these reasons, we suggest that the Province take further action to develop its own clean hydrogen production and not rely so heavily on clean hydrogen imports. There are recently

announced Federal programs that could assist the Province in establishing a new clean hydrogen economy in Ontario with significant foreign direct investment and job growth.

6. *The IESO's Pathways Study recommends greater investment in new non-emitting supply, including energy efficiency programs.*

Following the end of the current 2021-2024 energy efficiency framework how could energy efficiency programs be enhanced to help meet electricity system needs and how should this programming be targeted to better address changing system needs as Ontario's demand forecast and electrification levels grow?

The implementation of aggressive energy efficiency programs (or deep retrofit including solar, climate control systems, industrial process control systems, building envelopes, waste thermal recovery, and AI) would lower consumers' bills while increasing the province's relative low energy productivity. Low-impact renewables like solar would also significantly contribute to reducing carbon emissions. Distributed solar could contribute to meeting specific regional needs while reducing the need for major transmission infrastructure.

This is especially true in light of the rapid evolution of decentralized technologies, including energy efficiency, low impact renewables and storage in addition to innovative business models (such as net billing mixing self-consumption and surplus feed in tariff for prosumers, Property Assessed Clean Energy or PACE financing, renting or leasing options that provide additional maintenance services, sale of PV electricity to third parties or neighbours).

With different competitiveness conditions, rooftop-based solar (for residential, warehouses, industrial and commercial buildings, and even parking lots) and other renewable applications are easing the burden on the distribution grids, allowing companies and households to lower their electricity bills and contribute to reducing carbon emissions. This can be eased further by the integration of on-site energy storage systems (power wall, repurposed lithium car batteries, vehicle-to-grid (V2G) technology).

7. *The IESO's Pathways Study includes a scenario for over 650 MW of new large hydroelectric capacity to meet system needs in 2050.*

A recently released assessment estimates that there may be potential to develop 3,000 to 4,000 megawatts of new hydroelectric generation capacity in northern Ontario and 1,000 megawatts in southern Ontario.

What are your thoughts on the potential for development of new hydroelectric generation in Ontario by private-, Indigenous- and government-owned developers?

While the capital costs for hydroelectric generation may be higher than nuclear, wind, solar, and natural gas, do you support investing in large scale hydroelectric assets that may operate for over a hundred years?

Given our recommended approach of incrementalism and the rapidly changing technologies and the associated costs, and with the higher capital costs (today's dollars and high potential of cost

overruns), it is difficult to justify massive investments into large-scale hydroelectric in the near term. Smaller, decentralized/regional hydroelectric generation would likely be more effective and efficient.

ONEIA appreciates the opportunity to provide our comments and suggestions and is ready to work with the Ministry and other areas of the government as it plans for the future of electricity generation. We welcome the opportunity to discuss our position and recommendations further. Please contact our office at info@oneia.ca or at (416) 531-7884 should you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Michelle Noble". The signature is written in a cursive, slightly slanted style.

Michelle Noble
Executive Director
ONEIA