CANADA ELECTRICITY ADVISORY COUNCIL

Canada Electricity Advisory Council

Interim Report

December 2023

Contents

INTRODUCTION & HIGHLIGHTS

Canada, alongside most of the world, is in the midst of one of the greatest economic transformations of modern times: the transition to clean energy. The impacts of this transition will be felt far and wide: in infrastructure investments; in jobs; in foreign investment attraction; in the competitiveness of our exports; in how we heat our homes and buildings, propel our vehicles and power our industry; in our relationships with Indigenous communities; and of course in our collective ability to address the risks of global climate change.

At the heart of this transition lies electricity.

Electricity currently accounts for one fifth of the energy Canadians consume (and over 80% of that electricity is currently emissions-free). Yet if Canada is to succeed in its goal of a net-zero emissions economy by 2050, most studies tell us that, in addition to eliminating its remaining emissions, electricity's market share will need to double or triple.

In other words, in a single generation, clean electricity will need to become the dominant source of energy in this country.

Council's mandate and early views

In May 2023, the Minister of Natural Resources convened the Canada Electricity Advisory Council ("the Council") with a mandate to provide recommendations that enable the rapid expansion of clean electricity, with a dual objective of largely decarbonizing our existing electricity system, while also growing that system sufficiently to help other sectors of the economy achieve net-zero emissions by 2050.

This dual goal – decarbonizing our electricity and growing it to decarbonize the broader economy – offers Canada unparalleled opportunities.

- *Economically*, success will enable Canada to maintain or strengthen its current global leadership position in clean electricity. This in turn is quickly becoming a crucial factor for attracting investment and jobs to Canada and, increasingly, to exporting Canadian products internationally. At a generational level, it can position Canada favourably for the global low-carbon economy.
- *Socially*, the level of investment in new electricity infrastructure offers an opportunity to create significant, good-paying jobs and, critically, for economic reconciliation with Indigenous communities, on whose ancestral lands much of this development will occur.
- *Environmentally*, it is indispensable to meeting our international climate commitments and contributing to the global push to slow and eventually halt dangerous heating of our shared climate.

Yet securing these opportunities is not without significant challenge. Indeed, this is a complex task — one of the thorniest aspects of the transition to a net-zero economy. If not done right – with careful consideration and deliberate intent – electricity could become unaffordable,

uncompetitive and/or unreliable, outcomes that would simply be unacceptable to Canadians. Put plainly, if not done right, it may not happen at all.

Council believes the challenge is not insurmountable. To meet it, our institutions will need to plan (and regulate) for it deliberately. Our review and approval processes will need to be reformed to enable development of clean power at a much faster pace, and in ways that benefit our Indigenous communities. Our investment landscape will need to provide more certainty, and be supported by more than just ratepayer dollars. Our provinces and territories will need to plan for and seize on more cost-reducing opportunities for internal electricity trade. And we will all need to enable consumers to play a greater role in improving energy efficiency and reducing peak demands.

Council is now mid-way through its 12-month mandate. To date, it has convened nearly 60 meetings – both full-council meetings and those of its working groups – to discuss these issues. In this Interim Report, you will find both a description of the work completed to date, as well as of our initial findings.

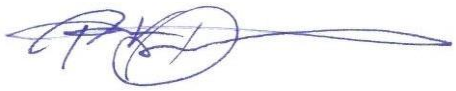
Council's early recommendations

In addition, Council has identified five (5) recommendations that we felt compelled to make now, given the need for more immediate advice. These are:

1. **The Clean Electricity Regulations (CER)** – Council encourages the federal government to provide substantively greater flexibility to covered entities;
2. **Conditions for Investment Tax Credits (ITCs)** – Council recommends adjusting the proposed conditionality to focus instead on planning for 2050 decarbonization;
3. **Assets covered by the ITCs** – Council recommends extending the ITCs to investments in new *intra*provincial transmission assets;
4. **Indigenous loan guarantees** – Council recommends the federal government proceed with a national loan guarantee program and ensure funding is commensurate with anticipated growth in clean electricity; and
5. **Labour and supply chain** – While not part of our scope of work, Council calls attention to this urgent and growing challenge for electricity's needed pace of growth, and urges government to rapidly launch a process dedicated to addressing it head-on.

As you will see, Council's recommendations on these five issues are directional in nature. They – and the Interim Findings herein – have been arrived at by consensus of all Council members.

Over the remainder of our mandate, Council will continue to investigate the changes needed to enable Canada's success in both decarbonizing and vastly growing its electricity sector, while being mindful of the need for affordability, reliability and Indigenous participation.



Philippe Dunsky
Council Chair

COUNCIL MEMBERS

Pete Bothwell
Vice President, Energy Transition & Industry Relations,
ATCO Electric

Jason Dion
Senior Research Director,
Canadian Climate Institute

Philippe Dunsky (Chair)
President,
Dunsky Energy + Climate Advisors

Tim Eckel
Vice-President, Energy Transition and Asset Management,
SaskPower

Robert (Bob) Elton
Independent corporate director and former CEO,
BC Hydro

Judith Ferguson
Executive Vice President, Regulatory, Legal and Government Relations
Nova Scotia Power

Gerald D. (Gerry) Forrest
Former Chair and CEO
Public Utilities Board of Manitoba

Wendy Franks
Renewable power executive, and former Chief Strategy Officer, Head of Hydrogen,
Northland Power Inc

Chief Sharleen Gale
Fort Nelson First Nation, and Chair,
First Nations Major Projects Coalition

Lesley Gallinger
President and Chief Executive Officer,
Independent Electricity System Operator

John Gaudet
Former President and Chief Executive Officer,
Maritime Electric Company, Limited

Bruce Lourie
President,
Ivey Foundation

Stephen MacDonald
President and Chief Executive Officer,
EfficiencyOne

Kerry O'Reilly Wilks
Executive Vice President, Growth & Energy Marketing,
TransAlta Corporation

Greg Robart
Chief Executive Officer,
Smart Grid Innovation Network Canada Inc

Stéphanie Trudeau
Executive Vice President Québec,
Énergir

Darlene Whalen
Former Commissioner, Chair and CEO,
Newfoundland and Labrador Board of Commissioners of Public Utilities

Emily Whetung MacInnes
Chief Emerita, Curve Lake First Nation, and Director of Indigenous Partnerships – Business Development, Ontario Power Generation

COUNCIL MANDATE AND PROCESS

The Government of Canada has committed to moving away from unabated fossil fuels and largely decarbonizing the electricity sector by 2035, while also rapidly expanding the clean electricity grid to meet the growing electricity demand required to support a net-zero emissions economy by 2050.

To support this commitment, the Honourable Jonathan Wilkinson, Minister of Energy and Natural Resources, launched the Canada Electricity Advisory Council ("the Council") in May 2023 on behalf of the Government of Canada, with a one-year mandate. The independent body is comprised of eighteen Canadian electricity sector experts, representing a cross-section of current and former leaders of electric utilities, power system operators, power producers, utility regulators, Indigenous communities, as well as clean energy thought leaders.

The Council acts as an independent expert advisory body focused on the electricity sector, providing advice to the Minister of Energy and Natural Resources for the acceleration of investment and the promotion of sustainable, affordable, and reliable electricity systems. The Council is examining key questions related to governance and decision-making and will supply expert advice to support federal, provincial, territorial and industry stakeholders and Indigenous groups in achieving the country's mid- and long-term energy transition commitments.

Since its launch in May of 2023, the Council has established five thematic working groups, which have been meeting every two to three weeks:

1. **Governance**: Electricity system planning and oversight (8 meetings to date)
2. **Projects**: Project approvals and Indigenous benefits (10 meetings to date)
3. **Money**: Capital attraction and affordability (11 meetings to date)
4. **Cooperation**: Regional planning and cooperation (13 meetings to date)
5. **Innovation and Reliability**: (10 meetings to date)

The working groups in turn share their analysis with the full Council, which meets over two days every six to eight weeks. Four full Council meetings have taken place to date: Toronto, May 11-12; Halifax, June 28-29; Montréal, August 30-31; and Calgary, October 26-27. Further meetings have been scheduled for the winter and spring of 2023-24 to continue deliberations and to refine the Council's final findings and recommendations, which will be reported to the Minister in May 2024.

The Council is also conducting engagement with key stakeholders to better understand the opportunities, barriers and needs associated with a net-zero economy. These proceedings, which will inform the Council's final recommendations, include:

- Briefings from eleven external stakeholders since May 2023, touching on all working group topics, from federal policy to labour and workforce needs to the role of energy efficiency;
- Eighteen briefings from stakeholders since May 2023, delivered to individual working groups;

- An online stakeholder engagement process, which will launch in December 2023, focused on targeted questions and information gathering to support working group deliberations and inform the Council's final recommendations.

This Interim Report represents the Council's initial findings and preliminary recommendations, based on discussions and information gathering from May to October 2023. **These findings and recommendations represent the consensus view of the Council, defined in its Terms of Reference as "when all members can accept the proposed decision on a specific issue in the context of the full package of outcomes."**[1]

Please note that while Council members bring a diversity of professional backgrounds and perspectives, their contributions to the Council are made as individuals. As such, findings and recommendations herein are in no way intended to reflect or bind the organizations with which they may be affiliated.

[1] Natural Resources Canada. (2023). *Terms of Reference: Canada Electricity Advisory Council*. https://natural-resources.canada.ca/home/terms-reference-canada-electricity-advisory-council/25059

INTERIM FINDINGS

A primary focus of the Council's work to date has involved determining the essential conditions and parameters of Canada's electricity systems that must be considered in the development of new policies to guide the pursuit of its emissions reduction goals. Taken together, these findings define the playing field on which the Council's policy recommendations will be pursued. This includes a comprehensive survey of Canada's electricity systems, from physical assets, stakeholders and institutions to existing regulations, policies, and mandates.

The Council has divided the job of assembling these findings into five working groups, each tasked with a different critical aspect of the analysis. Their findings to date are described below, with the understanding that the Council is currently midway through its 12-month mandate, and there will be much more to add as the Council's deliberations continue into 2024.

Working Group 1 – Planning and Oversight

Working Group 1 (WG1) – Planning and Oversight has been asked to investigate policies and actions required to ensure regulators, system operators and utilities have the necessary mandates, resources and guidance to pursue net-zero goals alongside existing priorities. These include changes aimed at accelerating the investments needed to drive grid decarbonization, support electrification, mitigate emerging risks, and enable proper planning and decision-making around these changes.

Findings to Date

WG1's key findings to date are best summarized as **the need to add a vital pillar – the attainment of climate goals – to the existing pillars of reliability and affordability** (just and reasonable rates) that currently govern the mandates of utility regulators, system operators, and Crown utilities across Canada.[2] The primary role of these bodies historically has been to balance these fundamental objectives.

WG1 has found that while several provinces and territories have set emissions reduction goals, these have not yet been consistently translated to the addition of decarbonization as a specific objective to utility and/or regulator mandates associated with the 2035 and/or 2050 federal targets. As a result, utilities and regulators may be hindered from ensuring the investments they make or approve are consistent with government climate goals.

The Council views the three pillars of reliable, affordable and net-zero electricity as the fundamental baseline for all of Canada's future electricity systems (in addition to safety). Aligning regulator and Crown mandates, and/or providing clearer policy direction, is essential for providing greater certainty to markets; enabling clear, optimized long-term

[2] In addition to reliability and affordability pillars, utilities also give top-line priority to safety.

planning; attracting sufficient and competitive capital; and ensuring a reasonably predictable and timely approvals process.

WG1 has found as well that although the energy transition represents a significant challenge for Canada's electricity systems, many effective planning tools are already at hand. Fulfilling an updated mandate for Canada's climate goals, however, will oblige governments to provide necessary guidance and resources. There are two essential tools for doing so: independent pathway assessments and provincial/territorial net-zero energy roadmaps. Pathway assessments commissioned by provincial/territorial governments can help identify the most cost-effective paths to net-zero for their jurisdictions and guide decision-making by governments, utilities, system operators and regulators. Net-zero energy roadmaps, meanwhile, provide signposts and guidance to regulators, utilities, and system operators on how the government wants the province/territory's transition to proceed. In doing so, they provide a defensible policy basis for decisions taken by regulators, utilities, and system operators. Numerous provinces have commissioned pathway assessments, and at least three have commissioned net-zero energy roadmaps.

The three-part approach of clarified mandates, independent pathway assessments, and net-zero energy roadmaps represents the core set of interventions needed from provincial/territorial governments in WG1's analysis. They are complemented by other vital actions, which include ensuring early engagement with communities and Indigenous groups and securing needed financial and human resources for system operators and regulators.

Ongoing Work

WG1 is continuing to investigate the potential contributions the federal government can make — including the identification of best practices and most effective policy levers — to help align provincial and territorial electricity system planning and oversight with net-zero goals, while ensuring that these contributions respect their jurisdiction over electricity. In particular, the WG is examining what the suggested scope and features of net-zero energy roadmaps should be if they are required as a condition of accessing federal funding.

Working Group 2 – Project Approvals and Indigenous Benefits

Working Group 2 (WG2) — Project Approvals and Indigenous Benefits has been asked to examine regulatory reform and other changes to approval processes needed to accelerate and streamline the development of clean electricity projects, while strengthening opportunities for Indigenous communities to participate as partners.

Findings to Date

WG2's work has proceeded from the understanding that **clean electricity projects, including generating, transmission and distribution infrastructure, simply must find ways to be approved and built at a faster pace in order for Canada to meet its net-zero targets.** The necessary reforms identified by WG2 are substantial, including: better

coordination of permitting across multiple jurisdictions or agencies; reducing duplication between federal, provincial and local requirements; identifying priority projects for fast-tracking; and earlier engagement with key project stakeholders and rights holders. Because many jurisdictions outside Canada also struggle with efficient permitting and approval processes, there is an opportunity for Canada to become more competitive (thereby attracting capital and talent) by making timely reforms to improve these processes.

WG2 has identified several barriers to these reforms that are found consistently from jurisdiction to jurisdiction. These include: insufficient strategic and net-zero-aligned energy planning; limited regulatory and permitting capacity; skilled labour shortages; insufficient clarity on permitting process timelines and requirements; and uncertain regulatory environments and insufficient clarity regarding evolving federal policies. To overcome these barriers, Canada can learn from other jurisdictions (such as the United Kingdom, United States, and Australia) that are already taking steps to reform permitting in order to accelerate the implementation of clean electricity projects. Canada can also explore opportunities to act in concert with these jurisdictions to avoid missing out on investment opportunities.

On top of reducing greenhouse gas emissions that contribute to climate change, **Canada's transition to a net-zero economy is also creating opportunities to address the historical relationship between Indigenous communities and energy projects.** Learning from the negative impacts and exclusions of previous eras, the build-out of net-zero electricity infrastructure today could instead, if done right, offer the potential for substantial benefits as well as helping to advance economic reconciliation. Among the broad range of solutions WG2 has identified are: equity and revenue sharing; asset ownership; community benefit agreements; training, employment and other community skills development; and business opportunities. There is also a range of ongoing initiatives – established by Indigenous communities and organizations as well as governments, utilities, and regulators — that can be supported and scaled up to help address barriers to Indigenous participation.

WG2 also notes that significant challenges remain for achieving greater Indigenous participation in electricity projects. For Indigenous communities these include challenges such as lack of access to financing, education and technical training, and capacity to actively engage with project development. For project proponents, these challenges include insufficient understanding of how and when to involve Indigenous partners, and support for Indigenous partners to access capital for equity investment, which can lead to delays and missed opportunities.

Ongoing Work

WG2 is continuing to investigate the variations in permitting and approvals processes by jurisdiction, region, and infrastructure type, in order to identify how challenges may differ. The group is also developing solutions that can accelerate clean electricity approvals and project development to the pace needed to support net-zero goals, while continuing to respect Indigenous rights and involvement and broader community concerns.

Working Group 3 – Capital and Affordability

Working Group 3 (WG3) – Capital and Affordability has been tasked with examining the role of governments and regulatory tools in attracting and improving access to sufficient capital for net-zero electricity projects (including access to capital for Indigenous communities). WG3 is also working to define and analyze the investment needed to align electricity systems with net-zero, as well as the implications for electricity rates and consumer net energy costs ("energy wallets").

Findings to Date

WG3 recognizes that investment needs of the net-zero transition are significant. Still, **Canada has embarked on this transition from a position of strength, and the cost and benefits of such investments – which include both decarbonization efforts and the expansion of electricity grids – will be distributed differently between regions and customers.**

Growth in the availability of clean electricity offers real economic benefits for Canadians. For example, electric vehicles, which are roughly three times more efficient than combustion engines, can slash the cost of driving by thousands of dollars per year for the average Canadian. As more trucks move to electricity, delivery cost savings can also be expected to trickle into cost savings on food and other delivered goods, to the benefit of all Canadians. And since electricity prices in most of Canada are regulated, moving to electricity helps Canadians avoid price swings at the pumps, which can be hard to plan for and impact lower-income households more heavily.

On the other hand, the costs associated with Canada's transition will also be significant, including the cost of reducing emissions from existing electricity infrastructure, expanding and modernizing the electricity system, and improving grid resiliency and reliability. Such costs have historically been passed on to ratepayers, whose capacity to manage higher costs varies significantly. The regional impact of the net-zero transition will challenge some jurisdictions more than others. Increasing electricity prices can disproportionately impact vulnerable groups such as low-income households, as well as commercial and industrial consumers that are energy intensive and trade exposed, if not managed with care.

Federal recognition of the need for the tax base to share some of the costs of net-zero electricity with the rate base – through new Investment Tax Credits (ITCs) and other funding programs – is welcome. Low-cost private sector capital will also be required to minimise the costs of the transition and the financial burden to ratepayers. To attract sufficient capital, Canada must reduce investment barriers, which include: global (and especially United States) competition for investment; risks associated with regulatory and policy uncertainty and project approval timelines; and insufficient clarity around financial incentive availability and applicability. High-quality projects that have been properly de-risked would attract the necessary capital.

Ongoing work

WG3 is continuing to research the net-zero transition's impacts on ratepayers and on energy affordability more broadly, as well as the role that demand-side measures and other initiatives can play in mitigating these impacts. WG3 is also exploring ways to address the barriers to low-cost capital attraction for transition projects.

Working Group 4 – Regional Cooperation

Working Group 4 (WG4) – Regional Cooperation is investigating issues of regional planning and regional integration for net-zero electricity systems, searching for ways to encourage provinces and regions to cooperate on electricity planning and to pursue greater integration and interconnection. This group is also looking into opportunities for regional or national standards to assist with supply chains and investment.

Findings to Date

WG4 has determined that as provinces and territories decarbonize their electricity systems, **wider regional integration, combined with multi-jurisdictional planning and coordination, has the potential to support reliability and resilience goals at lower overall costs than other available solutions.**

For various reasons, provincial grids have evolved historically with limited consideration for inter-regional cooperation within Canada. There are, however, ongoing efforts in some regions (for example between Ontario and Québec and between Nova Scotia and New Brunswick) to harness greater cooperation to support capacity and decarbonization goals in more systematic ways.

Ongoing Work

WG4's research will continue to focus on better understanding the barriers to regional cooperation, the role of the federal government in removing those barriers, the specific opportunities that exist for more cooperation, and what changes might be required to pursue net-zero goals in the most efficient and least-cost ways. Recommendations will take care to respect provincial jurisdiction over electricity matters. WG4 is also continuing to examine ways for national standards to help facilitate Canada's energy transition.

Working Group 5 – Innovation and Reliability

Working Group 5 (WG5) – Innovation and Reliability is responsible for looking at a range of issues in the realm of market adoption, innovation and reliability regarding the net-zero electricity transition. This includes examining market rules and regulations on both the supply and demand sides for ways to better enable flexible energy resources, as well as considering

which policy tools, programs and standards best enable the development and adoption of new technologies and solutions.

WG5 is also analyzing the tools required to maintain and enhance reliability through the net-zero transition. In some instances, the rapid adoption of new technologies has had unintended consequences on reliability, especially as variable technologies and distribution-level resources have emerged as viable options. For example, ancillary services previously provided by synchronous generators must now be provided by the transmission system. Monitoring how innovations interact with the existing electricity grid is an important aspect of managing the evolution to net-zero.

Findings to Date

WG5 has found that **in order to maintain current reliability levels during this transition, electricity grids will need to evolve to support a greater range of low-carbon grid flexibility options, including low-cost options such as distributed energy resources, demand-side management and efficiency improvements.**

The deployment of these and other net-zero technologies and solutions, however, faces several significant challenges. There are numerous barriers in current market structures and refunding models, including regulatory requirements that impose costs on ratepayers and government funding supports that favour certain technologies or lack coordination across provincial/territorial goals and programs.

Energy technologies have meanwhile evolved faster than regulatory frameworks to support innovation in some instances, which can lead to unnecessary "pilot paralysis" without the market and institutional reforms needed to bring emerging solutions to scale. Municipalities, Indigenous communities and other stakeholders often lack the capacity and expertise to navigate new funding and investment requirements and capitalize on the opportunities that these innovations can bring to their communities.

Ongoing work

WG5 continues to examine the role of the federal government and potential programming and funding mechanisms in providing stronger support for electricity sector innovation and reliability goals.

EARLY RECOMMENDATIONS

As noted in Section III, the work for the Council's final report is still underway and the Council's five Working Groups continue to examine a wide range of potential policies and other initiatives that may be useful to enable the electricity industry to contribute to Canada's net-zero goals while continuing to deliver reliable and affordable electricity.

In the course of this work to date, five topics have emerged that the Council has decided are especially time sensitive and merit including recommendations in this interim report. These are:

1. Improve the flexibility of Clean Electricity Regulations (CER)

Canada's electricity sector is currently among the cleanest in the G20, with over 80% emissions-free electricity.[3] According to Environment and Climate Change Canada's modelling, the proposed CER would further reduce remaining electricity sector greenhouse gas emissions from 62 Mt to 9.8 Mt, Canada-wide, by 2035.[4] While this alone does not cut emissions to zero, the result would be a largely decarbonized electricity system.

On the whole, the Council supports the CER's core goal of largely decarbonizing Canada's electricity systems in the coming years. The Council notes that if an appropriate balance between electricity decarbonization, cost and reliability is struck, the resulting clean power would be well-positioned to in turn enable other sectors of the economy to decarbonize, such as transportation, industry and buildings. In essence, our ability to decarbonize the remainder of the economy by 2050, depends in part on our ability to get the CER balance right. Alternatively, if the electricity system bears too great a cost burden or is unable to meet growing demand reliably, it will be hindered in its ability to support economy-wide net-zero emissions by 2050.

The Council has discussed the draft CER, and is concerned that they do not, in their current form, provide sufficient flexibility to utilities, system operators and market participants to achieve that desired balance. For many provinces, most notably those that are historically

---

[3] Natural Resources Canada. (2023). *Powering Canada Forward: Building a Clean, Affordable, and Reliable Electricity System for Every Region of Canada*. https://natural-resources.canada.ca/our-natural-resources/energy-sources-distribution/electricity-infrastructure/powering-canada-forward-building-clean-affordable-and-reliable-electricity-system-for/25259; Ember. (2023). G20 Progress towards 1.5C power sector benchmarks. https://ember-climate.org/countries-and-regions/regions/g20/

[4] Values reflect CO2e emissions, under the CER as proposed in Canada Gazette I (CGI), associated with electricity sold to the grid from units that are 25MW or larger, according to ECCC's E3MC model. Other models, other versions of the E3MC model, and the future CER that will be published in CGII would all result in different projected emissions in 2035. See: Government of Canada. (2023). *Canada Gazette, Part I, Volume 157, Number 33: Clean Electricity Regulations*. https://www.gazette.gc.ca/rp-pr/p1/2023/2023-08-19/html/reg1-eng.html

more reliant on fossil fuels, the result could be a degree of cost pressures and/or reliability risks that could, in turn, put broader net-zero goals out of reach.

A more detailed assessment of the CER – and thus a more prescriptive set of recommended changes – is outside the scope of the Council's work. Nonetheless, **the Council calls on the federal government to consider providing substantively greater flexibility to covered entities**, recognizing that such flexibility could render the CER more practicable, more affordable and more likely to enable electricity to decarbonize other sectors of the economy in the long run.

2. Modify the conditionality of Investment Tax Credits (ITCs)

The clean energy transition is creating substantial economic opportunities across Canada, but will also require significant capital investments. For example, Hydro-Québec's recently unveiled 2035 action plan, which anticipates investment of roughly $170 billion in the province's clean electricity infrastructure over the next 12 years alone[5] – more than historic investments – provides an indication of the scale of investment in electricity infrastructure that will be needed in the coming years.

The Council supports the use of Investment Tax Credits (ITCs) to pursue long-term net-zero electricity goals. The ITCs in place and under consideration by the federal government[6] represent an historic investment by Canadians in clean electricity. This investment from the tax base will lead to lower relative costs for ratepayers, a shift that recognizes the societal nature of the drive to decarbonization.

As stated in Budget 2023, provision of the Clean Electricity ITC is expected to be conditional on provincial and territorial commitments to achieving net-zero emissions electricity by 2035. While the Council understands the federal government's desire to leverage this historic investment in clean energy by securing commitments to its broader net-zero goals, it has serious concerns with this condition as written.

Assuming the CER or a version thereof comes into force, the electricity sector will already be subject to national emissions performance standards aimed largely at the 2035 timeframe.

---

[5] Hydro-Québec. (2023). *Action Plan 2035: Towards a decarbonized and prosperous Québec*. https://www.hydroquebec.com/about/publications-reports/action-plan-2035.html

[6] The ITCs most relevant to net-zero electricity are:

- Clean Electricity ITC: 15% refundable tax credit for investments in non-emitting generation, natural gas fitted with carbon capture and storage, electricity storage, and inter-provincial transmission infrastructure. Both taxable and non-taxable entities are eligible.
- Clean Technology ITC: 30% refundable tax credit for investments in non-emitting generation and storage systems, as well as electrified technologies (including heat pumps and electric vehicles). Only taxable entities are eligible.

See: Department of Finance. (2023). *Budget 2023: A Made-in-Canada Plan: Strong Middle Class, Affordable Economy, Healthy Future*. https://www.budget.canada.ca/2023/report-rapport/chap3-en.html#a6

The Council believes it would be inefficient to layer on an additional set of conditions regarding emissions reductions for the same sector and the same timeframe. Furthermore, because the CER is *not* expected to require absolute net-zero emissions, this condition would potentially be inconsistent with the regulations. Finally, the Council notes that while the proposed condition addresses the 2035 timeframe, it does not address the longer-term goal of achieving economy-wide net-zero emissions by 2050, which will require historic investments in electricity systems to meet demand from widespread electrification.

Recognizing the overall intent of this condition – which is to ensure that provinces and territories drive toward Canada's decarbonization goals – **the Council recommends removing the condition for provincial and territorial net-zero commitments.** In its place, **the Council recommends that the Clean Electricity ITC be conditional on provinces and territories committing to develop and regularly update *roadmaps* for achieving net-zero energy (not just electricity) by 2050, and to provide annual reports on progress toward key milestones.**

This condition is fully aligned with federal policy, while allowing for far greater flexibility by leaving the scope of each net-zero roadmap up to individual provincial and territorial governments. It is significantly less burdensome, and leaves provinces and territories with full control over the paths that best fit with each region's unique situation. It is non-binding – provinces and territories would not be bound to deliver on their roadmaps – and less likely to elicit opposition. Yet the Council believes that such roadmaps, complemented by regular progress reports, can be critical tools – and ultimately pave the way – to greater clarity, certainty, and timely decision-making on the road to a decarbonized economy.

In light of their importance, the Council invites the federal government to consider providing guidance on the scope of these roadmaps, within the range of federal jurisdiction.

3. Expand coverage of Investment Tax Credits (ITCs)

The Council supports *in principle* the ITCs and broader federal commitment to share the costs of decarbonization goals with other levels of government and ratepayers. The Council also endorses the simplicity and longevity of the ITCs, as they should not require a cumbersome project-by-project approval process.

The success of the ITCs in aiding Canada's pursuit of its decarbonization goals, however, is dependent on their ability to be applied to *all* projects critical to achieving those goals, without creating unintended distortions. The proposed Clean Electricity ITC currently extends to many of the critical investments required for net-zero, including all forms of clean power generation, interprovincial interties, and storage. Notably absent, however, are investments in *intra*-provincial transmission, as well as in distribution assets and many distributed energy

resources (DERs), all of which are expected to play a critical role in achieving decarbonization goals in the most affordable way for Canadians.[7]

The Council has not yet determined the need for and appropriate vehicles to support DERs and distribution assets. However, the Council views transmission infrastructure as part and parcel of the clean electricity infrastructure needed to achieve long-term decarbonization goals. Indeed, investment in inter-provincial transmission almost invariably triggers investment in *intra*-provincial transmission assets. Similarly, growing clean electricity generation – whether wind and solar, nuclear or other assets – will invariably require investment in intra-provincial transmission to bring new clean power to market. So too will efforts to decarbonize large, resource-based industrial clients, through provision of clean electricity.

The Council thus recommends including intra-provincial transmission infrastructure in the coverage of the Clean Electricity ITC. Doing so will go a long way to ensuring that the costs needed to build out electricity are shared more equitably between taxpayers and ratepayers.

4. Offer Indigenous Loan Guarantees

The electricity transformation now underway in Canada will generate unprecedented investments in new power generation, transmission and distribution infrastructure, storage, and demand-side management. The Council views this as an historic opportunity to advance Indigenous economic reconciliation, especially because most assets will be located on ancestral Indigenous land.

Economic reconciliation starts with ensuring that Indigenous communities are provided the opportunity to work as project partners. Yet historic federal policies have severely restricted the ability of Indigenous communities to raise capital, creating a significant barrier for true Indigenous leadership and/or partnership in electricity infrastructure projects. This must be corrected.

[7] The full list of eligible technologies is: Non-emitting electricity generation systems: wind, concentrated solar, solar photovoltaic, hydro (including large-scale), wave, tidal, nuclear (including large-scale and small modular reactors); Abated natural gas-fired electricity generation (which would be subject to an emissions intensity threshold compatible with a net-zero grid by 2035); Stationary electricity storage systems that do not use fossil fuels in operation, such as batteries, pumped hydroelectric storage, and compressed air storage; and, Equipment for the transmission of electricity between provinces and territories. See: Department of Finance. (2023). *Budget 2023: A Made-in-Canada Plan: Strong Middle Class, Affordable Economy, Healthy Future*. https://www.budget.canada.ca/2023/report-rapport/chap3-en.html#a6

As a result, **the Council strongly supports the Government of Canada's announcement in the 2023 Fall Economic Statement[8] to create a National Indigenous Loan Guarantee program to assist interested Indigenous communities in taking equity (or similar) positions in clean electricity projects.** As final program details are still to be determined for Budget 2024, the Council also recommends that funding for clean electricity investments under this new mechanism be commensurate with the scope of anticipated investment needs in the clean electricity sector.

5. Address Labour and Supply Chain Challenges

Labour and supply chain challenges, already present throughout the economy, present particularly significant obstacles to meeting Canada's net-zero electricity goals. That's because the rapid growth in electricity generation needed to achieve those goals may be hindered by significant gaps in qualified workforce. If there's no one to install the turbines, there won't be clean power.

While outside the scope of the Council's mandate and deliberations, we collectively felt that this challenge is urgent enough to warrant highlighting in this, our interim report.

Canada's electricity sector employs 110,000 workers across generation, transmission, and distribution. [9] In addition, thousands more enable Canadians to plug in their growing number of appliances, including heating and vehicles.

In the long run, a doubling or more of electricity generation will require similar growth in skilled labour. Additional growth in new end-uses – vehicles and heating in particular – will only add to the challenge.

In the medium term, the drive to both decarbonize and grow power will similarly require significant new skilled labour. In its recent power plan, for example, Hydro-Québec identified skilled labour shortages as one of the top risks for the plan's success. According to the utility, implementation of the plan will require an additional 35,000 full-time qualified workers, every year, for the coming 12 years.[10]

And labour shortages present a short-term risk as well. According to one recent study by the Electricity Human Resources Council, today's workforce will need to grow by 25% over the next five years alone to meet demand from new electricity infrastructure, largely driven by

---

[8] Department of Finance. (2023). *2023 Fall Economic Statement*. https://www.budget.canada.ca/fes-eea/2023/home-accueil-en.html

[9] Electricity Human Resources Council. (2023). *Electricity in Demand: Labour Market Insights 2023-2028*. https://ehrc.ca/labour-market-intelligence/electricity-in-demand-labour-market-insights-2023-2028/

[10] Hydro-Québec. (2023). *Action Plan 2035: Towards a decarbonized and prosperous Québec*. https://www.hydroquebec.com/about/publications-reports/action-plan-2035.html

planned growth in renewable power generation.[11] Regulatory capacity will also need to grow to meet the growing demand and complexity of new project approvals.

Supply chain challenges add further complexity and risk to the transition. The COVID-19 pandemic and Russia's invasion of Ukraine created shortages of many key raw materials, leading to delays and price increases for key electricity technologies and components, such as distribution transformers. The concentration of clean technology supply chains within a few key countries creates added risk, leading to a renewed focus on re-shoring domestic production or developing closer ties with key international allies. Recent announcements by the United States may provide opportunities for Canada in this regard.

There are no silver bullet solutions to these challenges. The Council notes that the federal government has been working on initiatives to address workforce and supply chain issues for the clean economy more broadly.[12] Nonetheless, more is needed to address the unique challenges of electricity, and urgently. **The Council urges the federal government to build on these immediately with a dedicated initiative focused on addressing the electricity sector labour and supply chain challenges** that can imperil our ability to succeed in the energy transition.

[11] Electricity Human Resources Council. (2023). *Electricity in Demand: Labour Market Insights 2023-2028*. https://ehrc.ca/labour-market-intelligence/electricity-in-demand-labour-market-insights-2023-2028/

[12] These include the National Supply Chain Office, Regional Energy and Resource Tables, Sustainable Jobs Training Centre, and other skills development programs.

NEXT STEPS

As the Council continues its deliberations, we will invite electricity sector stakeholders and members of the public to participate in our engagement process. Stakeholders will be invited to respond to the discussion questions in December 2023 and January 2024 that can be found on the Council's webpage.

The Council will use the information and feedback received from this process, along with ongoing research, targeted stakeholder engagements, and ongoing Council and Working Group discussions, to develop and finalize its recommendations. The Council expects to complete these by May 2024, i.e., 12 months after the Council's inception.