



Final Report

Clean Power Roadmap For Atlantic Canada



CLEAN POWER PLANNING COMMITTEE

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Final Report

A CLEAN POWER ROADMAP FOR ATLANTIC CANADA



FOREWORD TO THE FINAL REPORT

Clean, affordable and reliable power is at the heart of the energy transition taking shape across Atlantic Canada. For the past several decades, governments, businesses, communities and households across the region have been making investments to decarbonize their electricity systems – actions that have reduced carbon pollution from electricity across the region by 27 percent below 2005 levels. However, the journey is far from complete. Achieving Canada’s ambitious goals of getting to a net zero grid by 2035, and enabling a net zero economy by 2050 will mean producing more clean electricity to feed our grids, and relying on electricity to meet more of the Atlantic region’s energy needs.

The Clean Power Roadmap for Atlantic Canada, developed by federal and provincial governments and their respective utilities, with input from Quebec and Hydro-Quebec who participated as observers, provides us with a pathway to achieving these goals. It outlines how jurisdictions will collaborate over the coming decades to increase clean generation sources and build an enhanced, interconnected power grid that will serve as the foundation for an electrified economy for the region. The potential backbone of the regional grid is a strengthened Atlantic Loop that would connect existing and new sources of renewable energy to places that could use it.

We recognize that this Roadmap is not an endpoint but rather an important milestone of a journey. Reaching the destination will require strong actions and sustained efforts for years and decades to come. Governments, utilities, industries, Indigenous Peoples – all Canadians will need to innovate, collaborate, and invest in a clean energy future.

Since the completion of this report, federal and provincial governments and respective utilities have taken important steps to turn the Roadmap recommendations into action. In support of the Atlantic Loop, some Roadmap participants have launched key technical studies and discussions to understand the opportunities for enhancing regional transmission interconnections and new sources of renewable energy in the Atlantic region. The federal government has also reached an agreement with Newfoundland and Labrador on a financial restructuring of the Lower Churchill projects, which will help to enable a clean energy transition for the Atlantic region.

The transition planned for Atlantic Canada’s power system is significant. It will help us support Canada’s efforts to enable a reduction in carbon pollution from the electricity sector while creating opportunities for new jobs in communities across the region. For Atlantic Canada, the road ahead opens new, untapped environmental and economic potential. By working together, we will help to ensure that households and businesses in the region continue to benefit from an affordable and reliable supply of electricity to power their daily lives and activities. We are confident that Atlantic Canadians, partner governments, and utilities are ready, willing and able to get the job done.

Final Report

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EXECUTIVE SUMMARY

Atlantic Canada is already on a path to a clean power future. Governments and utilities across the region have embraced the shift to a low-carbon future and, over the past several decades, have put in place a wide array of measures and made significant investments to decarbonize their electricity systems. As a result of these actions, greenhouse gas emissions across the region have decreased 27 percent below 2005 levels. However, the need to reduce global greenhouse gas emissions and address the mounting risks and impacts of climate change means more work is required. While jurisdictions have made great strides, necessary infrastructure investments have increased costs for households and businesses across the region. In addition, coal-fired power generation remains an important source of electricity in the region.

Building on a long history of collaboration, in March 2019, the Atlantic Provinces and the federal government agreed to develop a roadmap for how jurisdictions can work together over the coming decades to achieve a clean power future for the region. This Report is the culmination of the Committee's work since March 2019. It articulates a shared vision of a regional electricity grid powered almost entirely by clean and affordable sources of electricity that would serve as the foundation for a competitive, electrified economy and provide all Atlantic Canadians with an affordable and reliable supply of clean power.

The backbone of the regional grid is a strengthened Atlantic Regional Transmission Loop that would connect existing and new power supplies across the region to places that need it, along with smarter distribution networks that optimize supply and demand while maintaining reliability.

The first major step in the development of the Atlantic Regional Transmission Loop is the Maritime Link, which connects the Island of Newfoundland with Cape Breton, Nova Scotia, allowing electricity to flow from the Muskrat Falls hydroelectric project in Labrador to Nova Scotia and beyond. The Maritime Link was commissioned into service in January 2018.

Achieving the vision requires provinces to consider necessary infrastructure investments from a broader regional perspective and examine new regulatory approaches that can realize the full value of increased electricity connectivity.

To support regional efforts, the Committee undertook extensive modelling and technical analysis of possible future energy scenarios aimed at forecasting regional electricity demand and evaluating different supply options.

KEY FINDINGS INCLUDE:

Electricity demand is expected to increase significantly across the region between 2020 and 2050, largely driven by population growth and increased electrification in the transportation, space heating and industrial sectors. Electricity system costs are also expected to increase as greenhouse gas emissions are reduced.

New electricity generating resources will be needed to meet new loads, and also to replace existing coal and/or other aging infrastructure. However, limited options are available to replace existing coal generation by 2030.

A strengthened Atlantic Regional Transmission Loop could deliver a wide array of system benefits that extend beyond any single jurisdiction and could reduce the costs of decarbonization for individual provinces.

Realizing the vision and achieving emission reductions targets set by governments will require strong commitment and sustained efforts over decades by all involved jurisdictions to advance the development of an enhanced regional electric grid. It will require shared investments and planned transitions that control costs and ensure that power is reliable and affordable for households and businesses across the entire region. Strong partnerships with Indigenous communities and maintaining public confidence that the expansion is occurring in an environmentally responsible manner will also be critical to success. As a next step, the Committee recommends establishing a focused multi-party dialogue to advance priority transmission projects.

CONTEXT

Climate change is one of the defining challenges of the 21st century. Across Canada, governments, cities, Indigenous communities and businesses are taking action to reduce greenhouse gas emissions and transition towards a low-carbon future. Part of the transition includes using more power generated from non-emitting sources on our grids and, via electrification, relying on clean power to meet more of our energy needs.

Building on a long history of collaboration, in March 2019, the Atlantic Provinces and the federal government agreed to develop a roadmap for how jurisdictions can work together over the coming decades to achieve a clean power future for the region.

Over the past year, the top priority of provincial and federal governments has remained supporting people and businesses through the COVID-19 crisis. That said, governments also recognize that they cannot lose ground on the growing threat that climate change presents to Canadians' health and to the economy.

Over the past two years, the Atlantic Clean Power Planning Committee, with participation from Quebec, has continued its important work to develop this Clean Power Roadmap for Atlantic Canada. As Canada builds back from the pandemic, the Roadmap outlines opportunities for how jurisdictions can work together over the coming decades to achieve a clean power future and an economy that thrives in a low-carbon world to the benefit of all Atlantic Canadians.

ASSET ATTRIBUTIONS

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Graphs 3-4: E3 Electrification and Resource Options Study for the Clean Power Roadmap for Atlantic Canada.

For full E3 results, please email rncan.acppc-capep.rncan@canada.ca.



Section One

THE PATH TO NET ZERO



Atlantic Canada is already on a path to a clean power future. Governments and utilities across the region have embraced the shift to a low-carbon future and, over the past several decades, have put in place a wide array of measures and made significant investments to decarbonize their electricity systems. In fact, since 2005, Atlantic Provinces have reduced their emissions more than any other province or territory in Canada, achieving an economy-wide 38 percent reduction in New Brunswick, a 30 percent reduction in Nova Scotia, and a 14 percent reduction in Prince Edward Island.

With regard to the production of electricity, New Brunswick has reduced its emissions by 64 percent, Nova Scotia has reduced its emissions by 38 percent from 2005 levels, and 99 percent of the electricity generated in Prince Edward Island is from renewable sources.

In addition, Newfoundland and Labrador's recent investments in the Muskrat Falls generating facility, Labrador Island Link and Labrador Transmission Assets will make the province's electricity grid 98% renewable and also assist Nova Scotia in replacing existing coal-fired generation with clean, renewable hydroelectricity via the new Maritime Link transmission. Newfoundland and Labrador has significant additional untapped clean energy potential that could be developed to power a green economy.

However, the urgent need to reduce global greenhouse gas emissions and address the mounting risks and impacts of climate change means more work is needed. Canada has joined the vast majority of the world in setting ambitious targets to accelerate the transition to a low-carbon future.

GOVERNMENT CLEAN ENERGY COMMITMENTS

Government of Canada

The federal government has set a target of reducing Canada's greenhouse gas (GHG) emissions by 40–45 percent from 2005 levels by 2030 and achieving net-zero emissions by 2050. Proposed federal legislation would legally bind the Government to a process to achieve this goal. The Government of Canada will collaborate with provinces, utilities and other partners to ensure all of Canada's electricity generation achieves net-zero emissions.

Nova Scotia

Nova Scotia is on track to supply approximately 60% of its electricity from carbon-free sources in 2022. The province is moving toward a renewable electricity standard, with 80 percent of electricity coming from renewable sources by 2030. The province has also committed to ending the use of coal for electricity generation by 2030, in keeping with federal regulatory requirements.

New Brunswick

With annual emissions of 13 Mt in 2019, New Brunswick has exceeded its objective to reduce emissions from 20 Mt in 2005 to 14.8 Mt by 2020 and is working towards its goal to further reduce annual emissions to 10.7 Mt by 2030. New Brunswick has recently exceeded the provincial requirement to serve 40 percent of electricity sales from renewable sources. With historical investments in the Point Lepreau Nuclear Generating Station, including refurbishment, New Brunswickers were served with over 80 percent carbon-free electricity in 2020.

Prince Edward Island

Prince Edward Island is developing a Net-Zero Framework that will outline sector-specific direction and actions to meet the province's legislated 2040 net-zero emissions target. The Framework will set Prince Edward Island on the path to be the first province in Canada to achieve net-zero GHG emissions.

Newfoundland and Labrador

The Government of Newfoundland and Labrador has committed to achieving net-zero emissions by 2050. The Government has also reiterated its support for advancing a renewed financial structure for the Lower Churchill projects, toward realization of the Atlantic Loop, and toward affordable power rates for customers.

A CLEAN POWER VISION FOR ATLANTIC CANADA

Before establishing a Roadmap, it is essential to know the destination. Building on the efforts already occurring across the region and guided by the targets and objectives established by governments, Committee members agreed to a shared vision of an enhanced power grid that could serve as the foundation for a competitive, electrified economy across the region and provide all Atlantic Canadians with an affordable and reliable supply of clean power.

With regard to electricity generation, the vision would see Atlantic Canada being powered almost entirely by clean and affordable sources including hydro, nuclear, wind and solar. Harnessing regional strengths and abilities, the region would serve as a hub for clean energy innovation, including technologies such as small modular nuclear, tidal energy, next generation wind, smart grids and energy storage. Atlantic Canada's remote, off-grid communities would also have access to clean energy systems to replace diesel generation.

A strengthened Atlantic Regional Transmission Loop could connect existing and new power supplies across the region to places that need it, along with smarter grids and distribution networks that optimize supply and demand while ensuring grid stability and reliability. The enhanced regional grid could lead to more effective investment and management of electricity infrastructure, more choices and economies of scale in building new sites, and better coordination of system operation and maintenance.

With a high level of electrical interconnection with New England states, provinces and utilities will continue to explore future opportunities for greater electricity cooperation.

Electrification would serve as a key pathway to achieving economy-wide and electricity sector-specific targets set by jurisdictions. Meanwhile, reliable and affordable electricity would be used to power more of Atlantic Canadians' daily lives. Atlantic Canada's electricity system could serve as a competitive advantage for businesses operating in the region, as well as potential new businesses that place value on access to clean, affordable and reliable power.

Strong partnerships with Indigenous peoples will be critical to Atlantic Canada's clean power future. Indigenous peoples already play a leadership role as pathfinders—stewards of natural resources and of the land and environment. Developing clean electricity projects in partnership with Indigenous communities will continue to be a powerful lever for change by ensuring that communities benefit more directly from energy development and accelerating the path towards reconciliation.



ENHANCED ATLANTIC REGIONAL TRANSMISSION

NUCLEAR



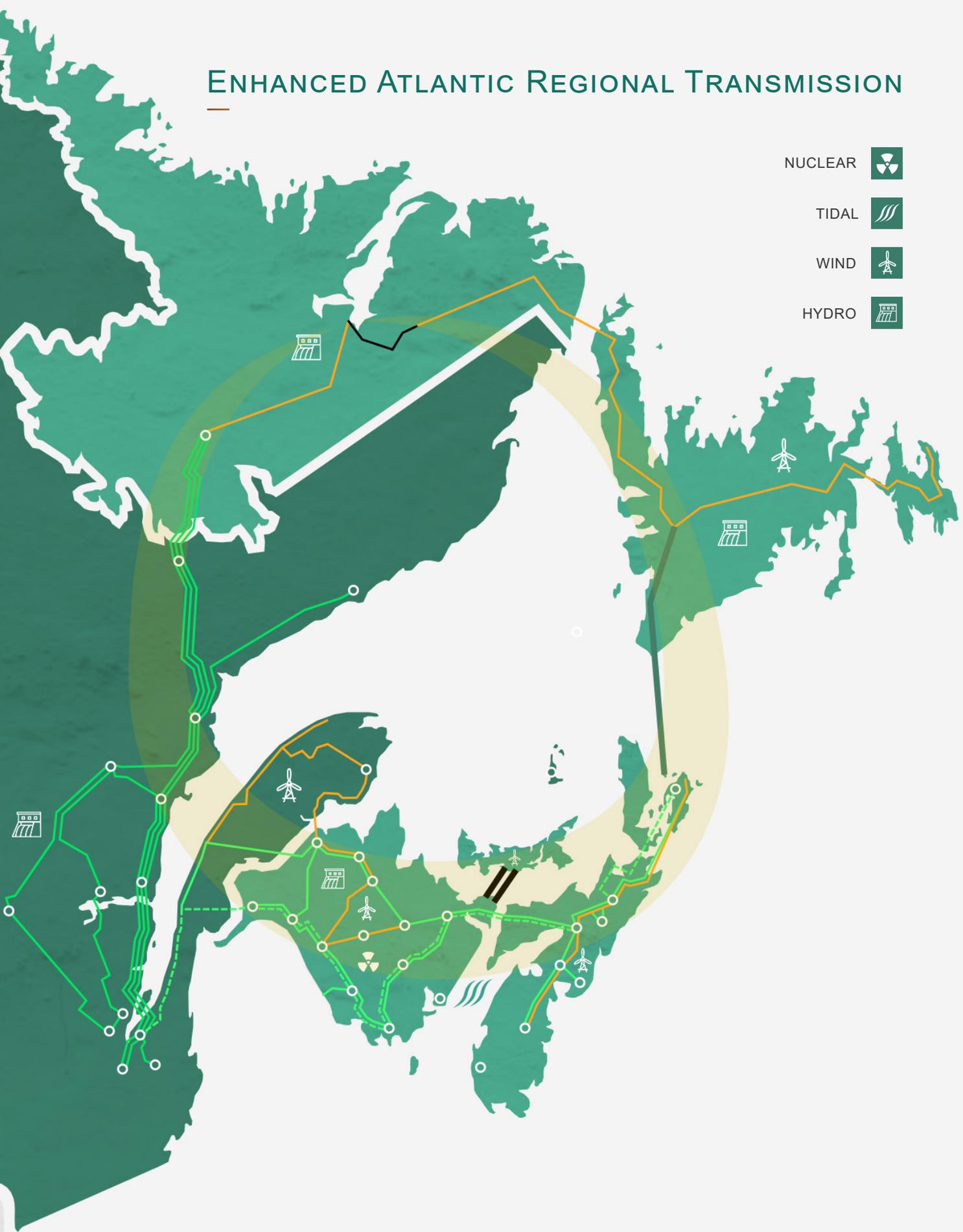
TIDAL



WIND



HYDRO

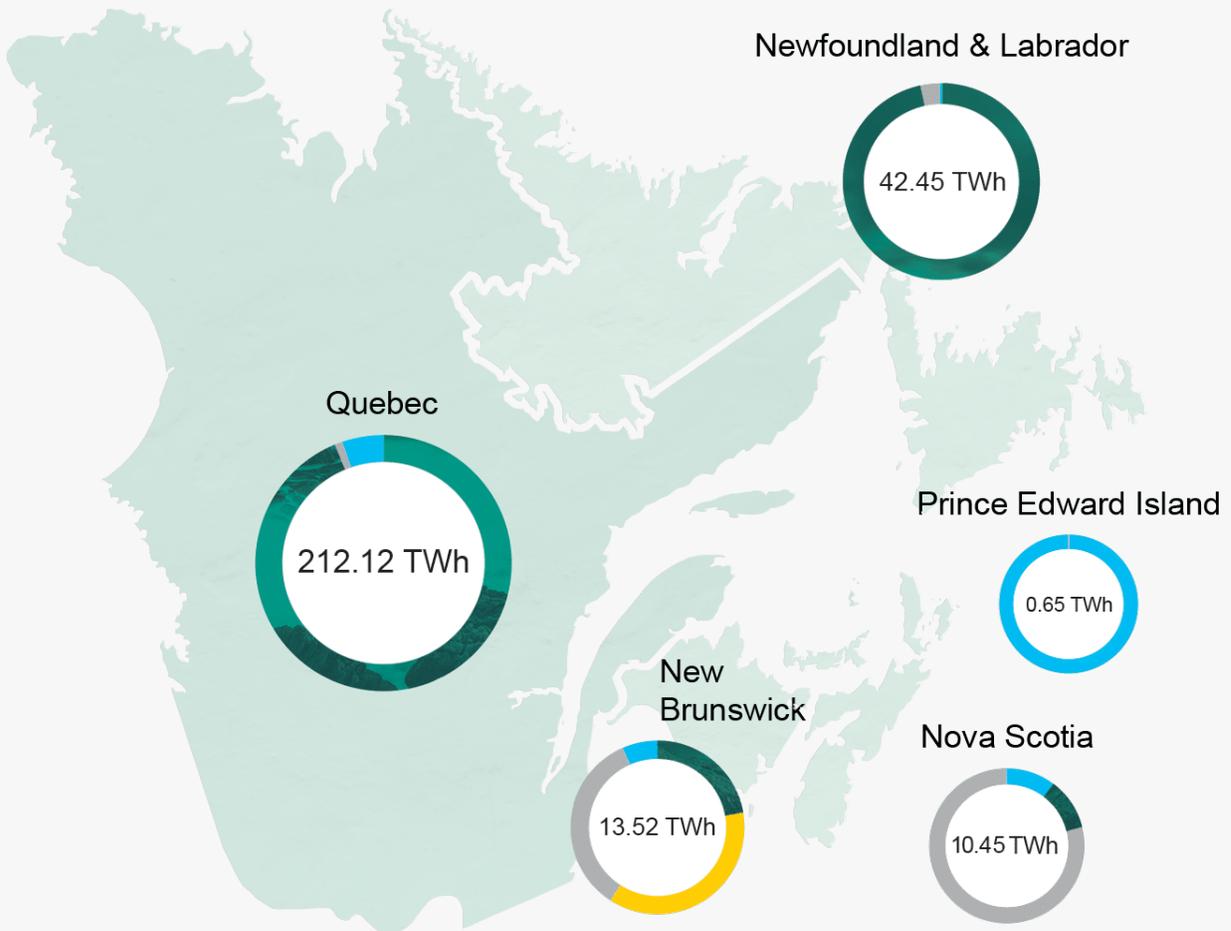


ATLANTIC REGION GENERATION MIX 2019



- HYDRAULIC TURBINE (67.32%)
- NUCLEAR STEAM TURBINE (7.51%)
- WIND POWER TURBINE (4.18%)
- TOTAL FROM COMBUSTIBLE FUELS (20.97%)

NOTE: FIGURE DOES NOT INCLUDE QUEBEC



CHALLENGES AND OPPORTUNITIES

An ambitious vision is one thing, but achieving the vision and ambitious targets set by governments will present numerous challenges. Reaching a net-zero economy by 2050 will require a significant expansion of clean electricity supplies before 2050 to transition from approximately 2000 megawatts of existing baseload fossil fuel generation in the region while at the same time serving a growing demand for electricity. Maintaining public confidence that new sources of supply are being developed in an environmentally responsible manner without causing spikes in electricity costs will be critical to success.

While jurisdictions have made great strides in decarbonizing their electricity systems, significant investment has been required over the past several decades to build and refurbish electricity infrastructure which has created upward pressure on electricity-related costs across the region. At present, residential and industrial rates in Atlantic Canada are among the highest across Canada. Coal-fired power generation also continues to be an important source of electricity in the region, particularly in Nova Scotia and New Brunswick which respectively rely on coal for approximately 50% and 17% of their current electricity supply. Federal regulations that require the retirement of conventional coal-fired generation across Canada by 2030 present a significant challenge for both provinces, as considerable new investment will be required to replace existing coal generation.

Limited transmission connections between jurisdictions, as well as the supplies of natural gas across the region, are also factors that put upward pressure on electricity rates and add to the challenge of retiring coal generation. In addition, large supplies of variable renewable generation have already been integrated into regional electricity systems, so relying on additional supplies of renewables such as wind and solar to replace dispatchable coal and natural gas power plants creates challenges with system reliability. Pairing these technologies with new sources of firm, dispatchable baseload generation, including Small Modular Reactors (SMRs), upgrades to existing hydro generating stations, or new hydro generation stations, will be critical to ensuring that electricity systems remain stable and reliable.

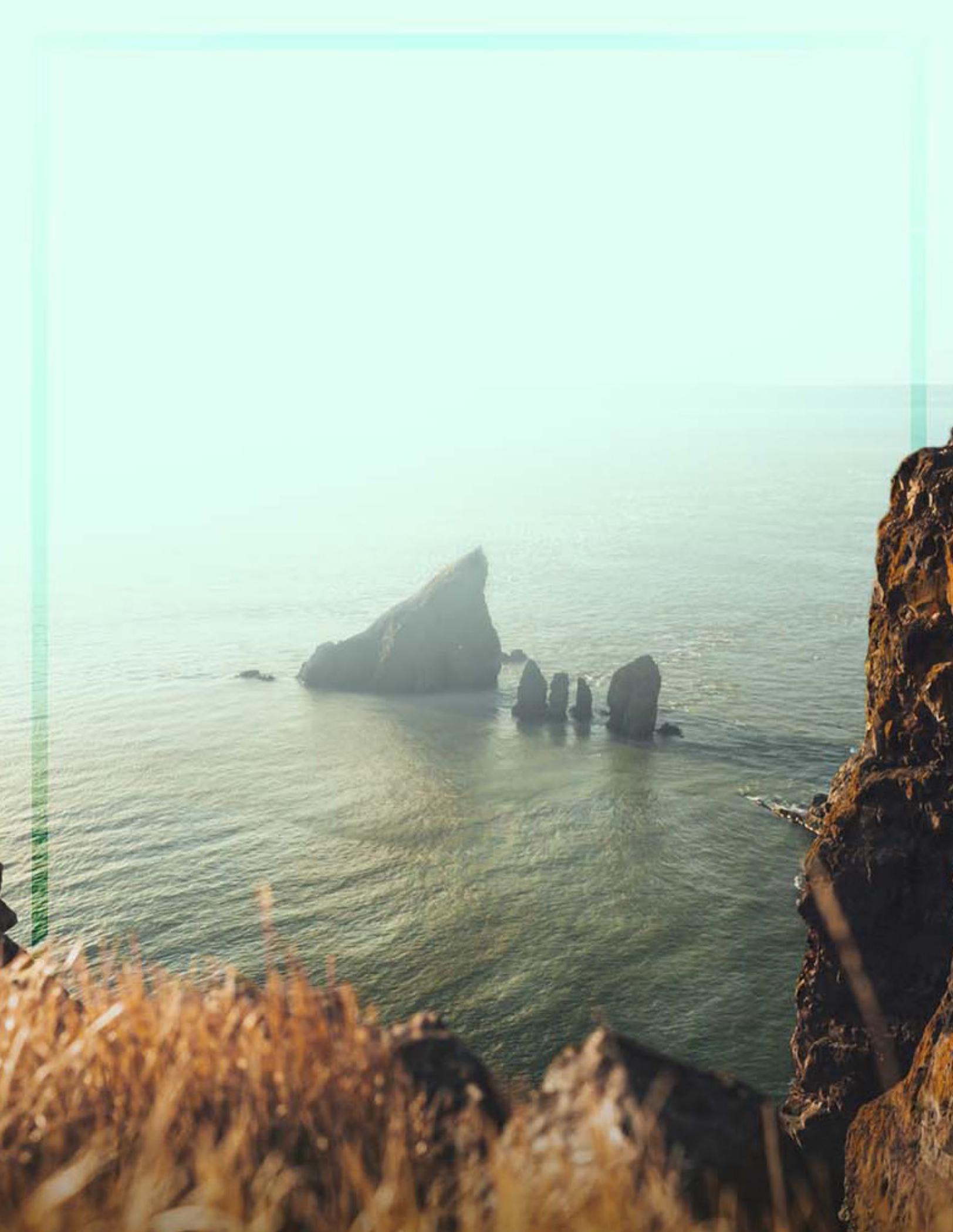
Over the past decade, increasing instances of severe weather events across Canada have also added to the system planning and operating challenges faced by utilities. Large-scale power outages that have disrupted the electricity systems that millions depend on—like those that occurred in Texas in 2021 and in California in 2020—have not only brought into focus the potential devastating effects of such events, but also remind us of the importance of a resilient electricity system as our climate becomes more unpredictable. As Atlantic Canada's electricity grid is interconnected with Quebec and New England, it will be important to continue to consider the reliability and resiliency of the broader electricity system in line with existing practice, including coordinating with Hydro-Québec and U.S. system operators.

KEY PRINCIPLES



The Committee identified the following key principles to guide collective decision-making on potential regional projects:

- I. **Broad Regional Benefits:** Projects should demonstrate that they align with the broader goals and objectives of the region, and that they can provide a range of benefits that extend beyond a single jurisdiction (e.g., new clean capacity, improved reliability, jobs and business opportunities, improved regional market access).
- II. **Clean/Non-Emitting:** Projects should support federal and provincial efforts to further decarbonize and reduce greenhouse gas emissions from the electricity sector across Atlantic Canada, including efforts to replace coal-fired power with non-emitting generation across the region.
- III. **Affordability:** Project decisions should consider the full range of costs and impacts to governments and ratepayers, including the potential impacts on electricity prices across the region. Projects that have long lead times or involve newer technologies typically face a higher risk of cost increases that needs to be appropriately assessed. Atlantic electricity ratepayers already face some of the highest electricity prices in the country. Higher prices can exacerbate energy poverty, whereas affordable prices can drive economic competitiveness and encourage electrification of additional end uses, in turn lowering economy-wide carbon emissions.
- IV. **Reliability and Resiliency:** Project options should be compliant with applicable operational and planning reliability requirements. As electrification is employed as a strategy to reduce GHG emissions from other sectors of the economy, the need for system reliability will be even greater. Further, Atlantic Canada, like all regions, is vulnerable to the impacts of climate change. Regional projects should contribute to the increased resilience of Atlantic Canada's electricity.
- V. **Fair Allocation of Cost and Benefits:** Projects should be subject to cost allocation analysis. Cost incurred from regional projects should be allocated according to benefits accrued to each jurisdiction, including to the federal government. The federal government can play a role to help overcome asymmetries in the costs and benefits that arise from regional projects. Governments will explore the full range of options that may help to overcome these obstacles, including alternative financing mechanisms involving the Canada Infrastructure Bank.
- VI. **Evidence-Based Decision-Making:** Decisions should be informed by the best available evidence on a full suite of possible projects options. This could include independent, expert, public reviews of project proposals that respect commercial sensitivity. Reviews could be performed on options available within or beyond the Atlantic region (e.g., Quebec).
- VII. **Social Acceptance:** In order for regional energy solutions to proceed, provinces will be responsible for securing social acceptance for projects that span their borders. This includes the necessary steps to engage with local Indigenous populations.



Section Two

PROSPECTS FOR THE ATLANTIC LOOP



Achieving the vision outlined earlier in this report requires provinces to consider necessary infrastructure investments from a broader regional perspective. In general, electricity system plans are developed over long time horizons where 2030 is tomorrow, 2040 is near, and 2050 is around the corner. Such plans must take into account a complex set of factors that includes:

1 Electricity demand and potential demand growth across the region over the coming decades (including potential changes in demand from increased electrification)

2 Different options to develop new clean and affordable electricity supplies across the region

3 Cost-effective and critical transmission projects needed to move power across the region and better integrate markets

As part of the process, the Committee commissioned an engineering consulting firm to undertake a regional Electrification and Resource Options Study aimed at forecasting regional electricity demand, evaluating different supply options and assessing the cost-effectiveness of key interprovincial interties. The study modelled a range of potential future scenarios that included provinces pursuing their own respective decarbonization pathways as well as a regional clean energy pathway whereby energy is transmitted across an enhanced transmission network. Multiple coal retirement and carbon reduction trajectories were studied in order to understand the value of enhanced transmission.

In addition to the Electrification and Resource Options Study, a series of System Impact Studies are being carried out by provincial utilities to further assess key parameters (e.g., cost, scale, technical specifications) of various potential transmission projects. There are five electricity interfaces in the Atlantic Region—between Newfoundland and Labrador and Quebec, Quebec and New Brunswick, New Brunswick and Prince Edward Island, New Brunswick and Nova Scotia and Nova Scotia, and Newfoundland and Labrador—with capacity constraints at each interface limiting how much power can flow reliably between jurisdictions today.

KEY FINDINGS

Any modelling exercise is based on an inherent set of assumptions and is subject to the limitations of existing data, which can have a considerable impact on key findings. Governments and utilities rely on a number of different models and analytical tools that often yield very different results. That said, system impact studies and regional modelling/analyses can serve as prudent exercises in ‘future proofing’ the Atlantic grid and can assist policymakers, utilities, regulators and investors in making informed decisions about future infrastructure investments. While it is difficult to summarize the full extent of the modelling and analysis undertaken by the Committee in this report, study work to date indicates the following key findings:

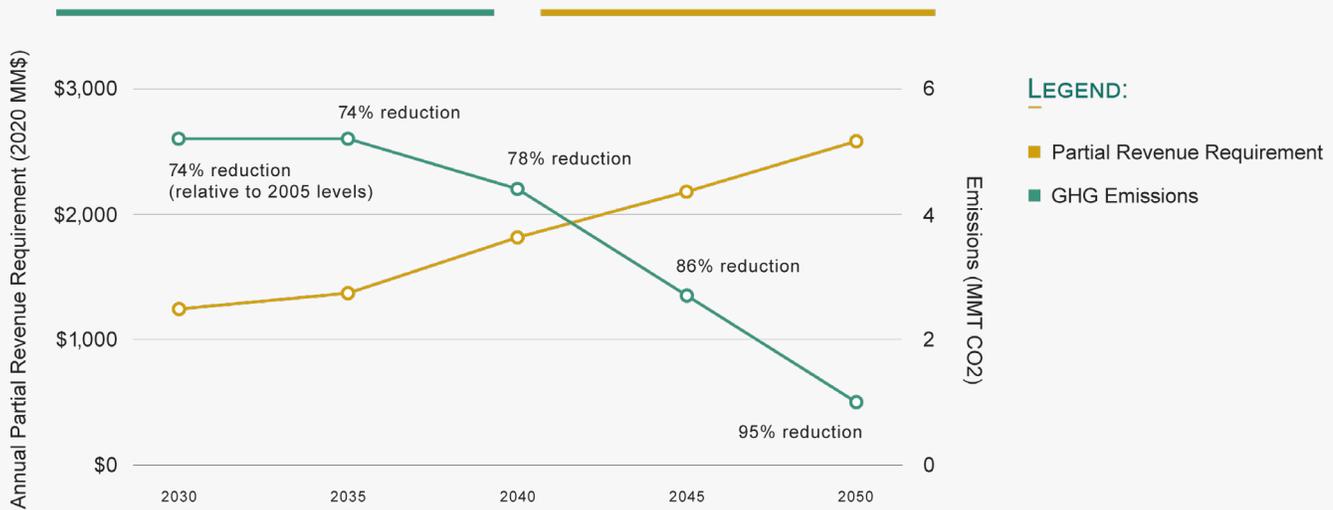
Key Finding #1: Regional electricity demand is expected to grow over the coming decades.

Modelling results indicate a significant increase in electricity demand in the Atlantic region between 2020 and 2050. Growth is expected to have a larger impact in Nova Scotia and Prince Edward Island, where low levels of electric space heating currently exist. While efficiency efforts reduce demand from existing end uses, demand growth was largely driven by population growth and increased electrification in the transportation, space heating, and industrial sectors. The results suggest that new electricity generating resources will be needed to meet new load and changing load profiles, as well as to replace existing coal generation and/or other infrastructure that is nearing end of life.

Key Finding #2: Regional electric system costs are expected to increase as GHG emissions are reduced.

Modelling results show that an incremental reduction in regional GHG emissions from 2005 levels in 2030 to 2050 is expected to increase costs across the region as new investments are required. Due to current technical limitations of integrating additional large amounts of variable renewable energy generation into the region, the costs of meeting higher levels of emission reductions could create upward pressure on electricity rates for the region, partially offset by increasing consumption due to electrification. Additional expenditure will be required to increase low-carbon generation while maintaining the reliability of the electricity system and upholding the affordability principle in the region.

FIGURE 1. ANNUAL COSTS AND CARBON EMISSIONS FROM ELECTRIC SECTOR



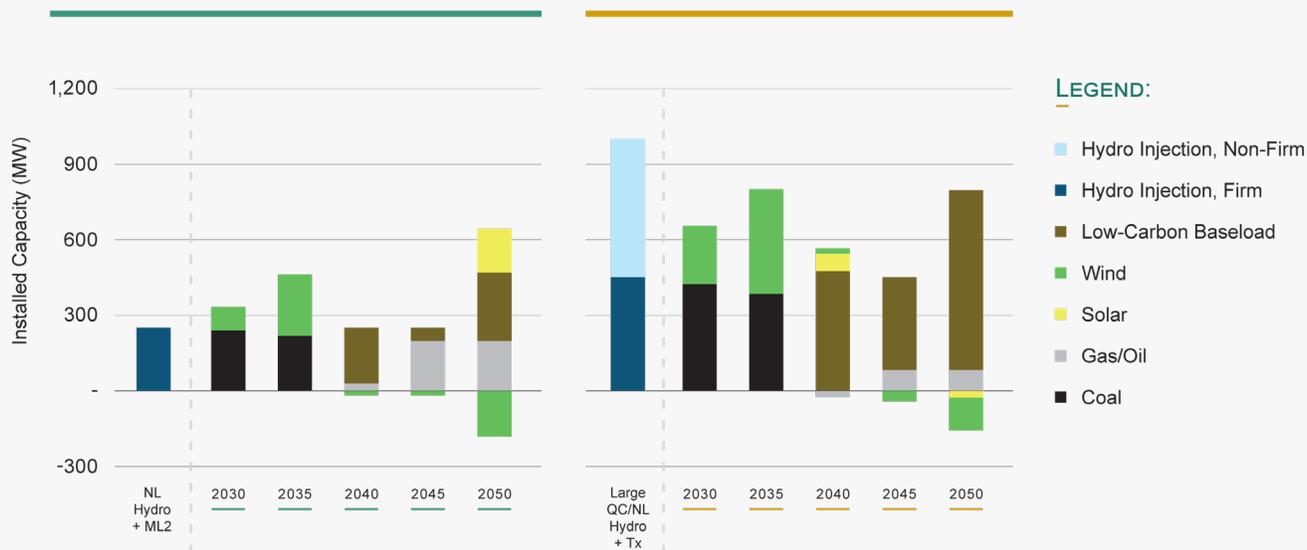
The E3 model scenario displayed above assumed a regional cap on carbon emissions, as opposed to modelling respective federal and provincial carbon policies in the region. The model assumed a future downward trend to get to 95% reduction by 2050.

While the end goal of the scenario reflects long-term emission reductions, the results may differ from provincial, federal and utility planning.

Key Finding #3: Limited options currently exist for zero-carbon, firm generation capacity that can replace existing coal generation by 2030. Existing coal assets are relied upon as firm, on-demand sources of electricity in New Brunswick and Nova Scotia. As coal assets retire, the provinces are examining a variety of affordable resource options and emerging technologies that can meet their decarbonization objectives and regulatory requirements while replacing key services to the grid currently provided by coal-fired generation. At present, there are no affordable or commercially available low-carbon baseload generation (SMRs, hydrogen combustion, natural gas with carbon capture and storage (CCS)) options and limitations to the electricity system’s ability to integrate variable renewable resources. Provinces and utilities will explore the potential for other new sources of clean energy for the region. This could include new Small Modular Reactor technology in the late 2020s to mid 2030s through a joint agreement between New Brunswick, Ontario, Saskatchewan and Alberta; and new hydro generation such as Gull Island in Newfoundland and Labrador.

Key Finding #4: Imports of clean energy, such as hydro, delivered into the Maritime Provinces through enhanced regional transmission could deliver a wide array of system benefits and reduce the costs of decarbonization for individual provinces. Modelling results have demonstrated that, across a number of different energy pathways to net zero by 2050, imported clean energy (enabled via proven transmission technologies from Quebec and/or Maritime Link 2) could supply a significant amount of firm capacity to provide necessary system reliability, help replace existing coal generation and avoid some baseload natural gas builds in the 2030s. Benefits are expected to increase over time as carbon targets and associated policies become more stringent. That said, hydropower imports would not replace the need for additional local installed capacity in the region to meet future demand from population growth and electrification. The extent of the cost benefits of any clean energy and transmission combination will depend on the energy price and cost of transmission infrastructure.

FIGURE 2. RESOURCES DISPLACED BY CLEAN ENERGY IMPORTS



The above E3 graphs identify the amount and type of energy generation in 5-year increments that could be displaced by the injection of new clean power, such as hydro, into the region. The left graph identifies the energy displaced by new clean energy delivered over a possible Maritime Link 2.

The right graph identifies the energy displaced by clean energy delivered from Quebec and Labrador over transmission points at the border of New Brunswick.

FIGURE 3. ATLANTIC CLEAN POWER PLANNING COMMITTEE TRANSMISSION STUDIES

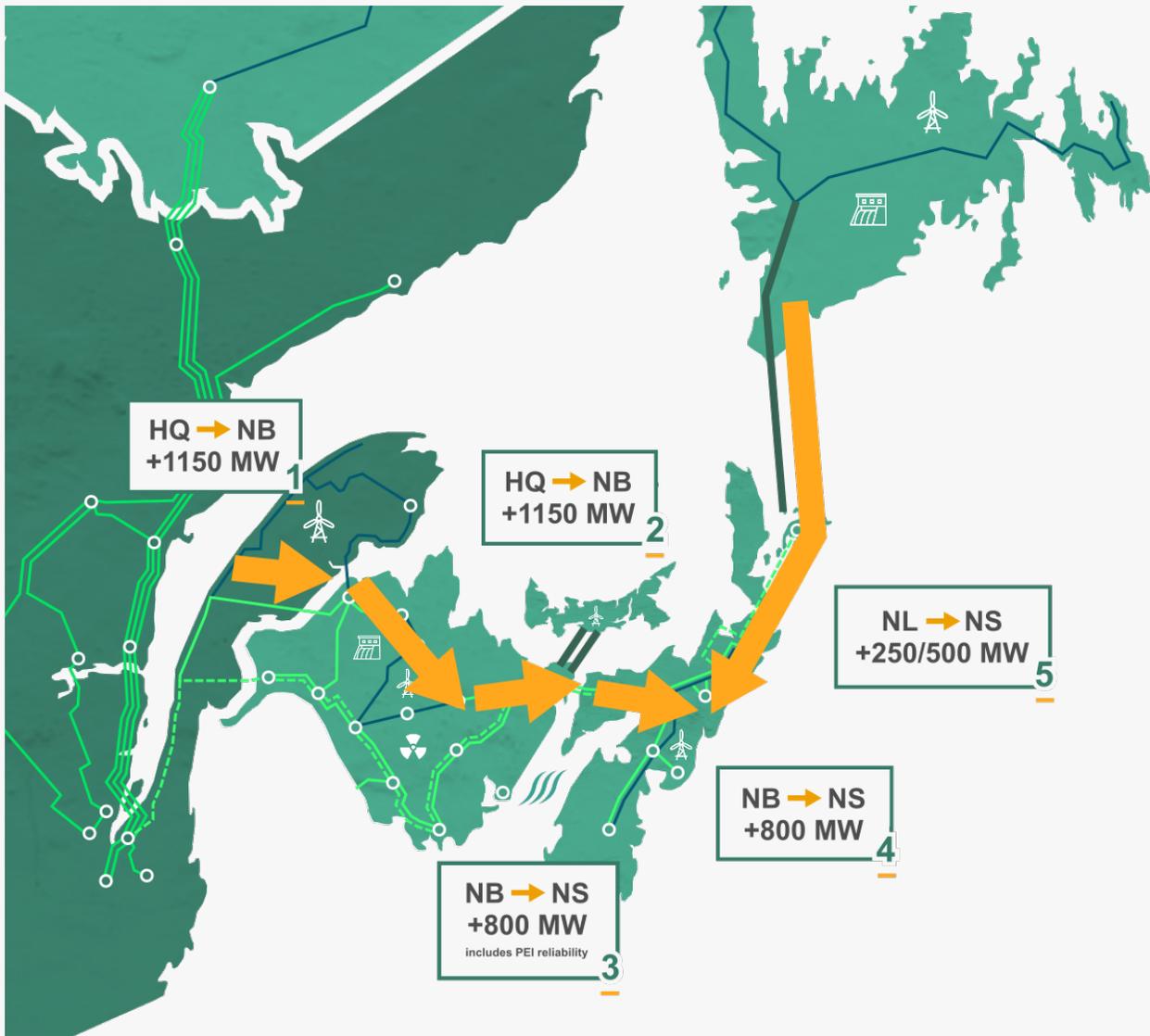
1 Hydro Quebec is studying the transmission of an additional +1,150MW into NB Power's system.

2 NBPower is studying the reception of an additional +1,150MW from Hydro Quebec's system.

3 NBPower is studying the transmission of an additional +800MW into Nova Scotia Power's system.

NB>NS - Nova Scotia Power is studying the reception of an additional +800MW from NB Power into their system.

Newfoundland and Labrador has studied the transmission of an additional +200/500MW into Nova Scotia Power's system.



Based on preliminary technical analysis of potential transmission solutions, the most promising, near-term projects that could move power across the region and better integrate markets were identified. All likely routes being studied would see power transmitted from Quebec and/or Newfoundland and Labrador.

Participants are studying routes from Quebec into New Brunswick, into Prince Edward Island via Memramcook, and into Nova Scotia. The Atlantic Loop could also include new supply via an enhanced Maritime Link between Newfoundland and Labrador and Nova Scotia. Final routing remains undetermined. A future transmission route will be subject to a full Environmental Assessment and see Indigenous and other stakeholder engagement.

**CLEAN ENERGY, SUCH AS
HYDRO DELIVERED INTO THE
MARITIME PROVINCES THROUGH
ENHANCED REGIONAL TRANSMISSION,
COULD PROVIDE A WIDE ARRAY OF
SYSTEM BENEFITS AND REDUCE THE
COSTS OF DECARBONIZATION FOR
INDIVIDUAL PROVINCES.**

Section Three

NAVIGATING THE ROAD AHEAD



Navigating the road ahead will present numerous challenges influenced by a wide array of factors—some within the scope of control, some that can be reasonably anticipated, and others that will catch us by surprise. There will surely be unanticipated turns and unexpected bumps along the way, and governments will need to respond to changing circumstances while maintaining focus towards the destination. Realizing the vision and achieving ambitious emission reduction targets will require strong commitment and sustained efforts over decades by all implicated jurisdictions to advance the development of an enhanced regional electric grid. As a next step, Committee members recommend that on-going actions be taken in the following six areas:

**REGIONAL CLEAN ENERGY
PROJECTS IDENTIFIED IN THE
CLEAN POWER ROADMAP MAY
REQUIRE SHARED INVESTMENTS
ACROSS PARTICIPATING
UTILITIES AND GOVERNMENTS**

ENDORISING COLLECTIVE EFFORTS

In order to implement near-term steps to realize the potential regional benefits, Canada and Atlantic partners will affirm government support to pursue an enhanced regional electric grid. For longer-term net-zero emission goals, the federal and provincial governments will commit to exploring the full range of policy changes and impacts to the region.

INCREASING CLEAN ENERGY SUPPLY

The region is home to significant developed and undeveloped renewable energy resources that can be shared to reduce reliance on carbon-emitting generation. Identifying and evaluating clean power generation options is an essential part of developing new regional transmission infrastructure plans. Some of these options are near-term and can contribute to the regional system by 2030. Other options may take more time to develop but could still be important contributors to achieving net zero by 2050. It is recognized that there is value in further assessing these options for greater non-emitting generation today and using this to inform decision-making. Some of these may add even greater value as regional transmission infrastructure is further expanded.

ADVANCING PRIORITY TRANSMISSION

Modelling and analysis undertaken through the Committee demonstrates that transmission projects that support clean energy imports into the region could return benefits to the region over time, and could help deliver on federal and provincial net-zero goals. In particular, additional work should be carried out to assess the key parameters (i.e., scope, cost, timeline) of new and/or enhanced transmission interconnections. The Committee recommends establishing a focused, multi-party dialogue to advance priority projects. Concurrent with the multi-party table, the Committee recommends establishing a series of bilateral dialogues to address individual provincial interests.

Atlantic Canada is transitioning from coal-fired generation, and plans to expand more renewable generation, storage, and clean energy technologies in the near-term and through the mid-2030s. Given the regulatory assessments, environmental and technical studies still required, investment decisions supported by an appropriate regulatory path on the Atlantic Loop projects are needed in the near term.

Engaging with stakeholders and developing strong partnerships with Indigenous communities is an important component of the Clean Power Roadmap. The Committee will work with all parties to develop a meaningful engagement plan.



ELECTRIFICATION

Achieving the vision in the report will mean using electricity to power more of the daily activities at home and in industries across the region. Modelling and analysis undertaken by the Committee demonstrates that demand for electricity in Atlantic Canada is expected to grow in response to increasing levels of electrification of vehicles, heating and other energy uses. In addition to transmission interconnections, jurisdictions will need to continue to advance plans for conservation and demand-side management measures, and investments necessary to upgrade existing and build new clean supplies of non-emitting electricity to meet both existing demand and potential future demand growth. Committee members are encouraged to explore and bring forward clean supply options that may contribute to clean energy needs in the region. In line with key principles outlined in this report, proposed new sources of clean energy should be based on the best available evidence and provide broad regional benefits. Further technical study work could examine new sources of clean generation in the region.

REGULATORY COOPERATION AND INNOVATION

Regulatory cooperation and innovation across Atlantic Provinces is expected to grow in importance as the region undertakes a significant transition away from existing generation to new and emerging cleaner technologies. The Committee recommends that jurisdictions work collaboratively, leveraging the Innovation & Electricity Regulation Initiative and other measures, to advance new regulatory approaches that can realize the full value of increased electrical connectivity and drive sustained utility investment in grid modernization. Bold action will be required to significantly invest in the regional power system over a short time horizon. With increasing connectivity, opportunities exist to take advantage of innovative regulatory mechanisms that help integrate and balance variable renewable sources of energy. Such mechanisms could enable utilities to better balance electricity generation from variable renewables and optimize the full value of their generation portfolios.

FINANCING PROJECTS

Realizing the vision of a clean electric future for Atlantic Canada will require significant infrastructure investments across the region sustained over longer timeframes, while also ensuring that power is affordable for households and businesses. While Atlantic Provinces and the federal government have co-financed electricity infrastructure of varying types and technologies in the past, the scale and complexity of projects identified in the Clean Power Roadmap may require shared investments across participating utilities and governments as well as innovative financing solutions to control costs and avoid volatility in electricity rates. The Committee recommends that advancing discussions on co-financing of priority transmission and other clean energy projects should be a key focus of the proposed multi-party dialogue.

CREATING AN ENABLING POLICY ENVIRONMENT

The energy transition required in Atlantic Canada to achieve the phaseout of coal and net-zero electricity will require supportive policy frameworks. Regional electricity projects that are cost-effective and in the public interest will need the support of governments and their respective regulators to approve, permit, and construct in a timely manner. As governments across the region work to establish new policies, regulations and initiatives aimed at addressing climate change and re-building their economies post-pandemic, continued dialogue is necessary to ensure the appropriate level of alignment and coherence between jurisdictions, and to ensure that new policies and/or initiatives support broader regional objectives.

FEDERAL MEASURES TO SUPPORT ELECTRICITY INFRASTRUCTURE INVESTMENTS

Canada Infrastructure Bank

The CIB has allocated \$2.5B over the next 3 years (with a longer-term target of \$5B) to support investments in clean power infrastructure including renewable generation, district energy, energy storage, interties and transmission. The CIB is currently working with a number of provinces, utilities and regional partners to advance strategic intertie and transmission projects such as the Atlantic Loop. The CIB is able to work with project sponsors to customize investment solutions with the potential of attracting private capital while achieving goals that benefit Canadians. CIB's financing can be provided using multiple financial tools such as equity or debt and loans to support infrastructure projects.

Smart Renewables and Electrification Pathways Program

Starting in 2021–22, the program will invest \$964 million over four years to advance the development and deployment of smart renewable energy and enabling grid modernization technologies. The program prioritizes projects in jurisdictions dependent on fossil fuel-fired power generation, projects that directly or indirectly support strategic bilateral or regional work with provinces and territories, and Indigenous-owned renewable energy projects.

Strategic Interties Predevelopment Program

Starting in 2021–22, the program will invest \$25 million in pre-development work that supports priority interprovincial electric transmission (“strategic interties”) projects to help proponents complete engineering assessments, community engagement, and environmental and regulatory studies. The program will inform and complement the Canada Infrastructure Bank's Growth Plan commitment to invest \$2.5 billion to support the transmission of clean electricity between provinces.

Investing in Canada Infrastructure Program

The Investing in Canada Infrastructure Program (ICIP) provides \$33.1 billion over 10 years in long-term, stable funding for public infrastructure initiatives across Canada. Investments are provided through Integrated Bilateral Agreements that promote strong collaboration between all levels of government by advancing outcomes in a manner that is flexible and responsive to unique local, provincial and territorial circumstances, and supporting local and regional decision-making in public infrastructure. Provinces and territories, in consultation with municipalities and Indigenous communities, are responsible for identifying, prioritizing and submitting projects and flowing funds to eligible recipients. ICIP could play a role in the Atlantic Loop projects via supporting new transmission, renewable generation, storage, and energy efficiency technologies.

Net Zero Accelerator

The federal government has allocated \$8 billion over seven years to support innovative projects that will help reduce domestic greenhouse gas emissions across the Canadian economy. Launched in the government's strengthened climate plan in 2020, the Net Zero Accelerator will help to decarbonize large emitters by accelerating the adoption of clean technology to meet our goal of net zero by 2050.

