

Newfoundland and Labrador  
Net Zero Advisory Council



Summary of Recommendations

December 30, 2024

# Newfoundland and Labrador Net Zero Advisory Council



December 30, 2024

Minister Dempster,

On behalf of the Net Zero Advisory Council (NZAC, 'the Council'), I am sharing with you a summary of the recommendations that we have made since our appointment in December 2021.

The Council was created with a mandate which included to '*Identify and/or review near term and foundational actions the government and others can take to set the province on a strong path to achieve net-zero that would grow the green economy, while considering a just transition and affordability*' within the context of Newfoundland and Labrador (NL).

Following its appointment, the Council deliberated on how it would approach this work – ultimately deciding to provide guidance on a sector-by-sector basis. Within each sector, we met with stakeholders who could inform our work and ground-truth our findings. Once we came to a set of conclusions specific to a given subject, we provided our recommendations to you (or your predecessor) and moved on to the next.

Our three (3) year mandate came to a conclusion this December.

The scope of work was ambitious but, by the end of our mandate, the Council provided recommendations for near term and foundational actions that could be taken relating to six (6) of the province's most emitting sectors from a greenhouse gas (GHG) perspective: mining, electricity, oil and gas, transportation, buildings, and waste.

We were encouraged to see that some of the Council's recommendations were actioned or addressed through the life of our mandate. We would not presume that our findings were solely responsible for these actions, but do hope that they were helpful in providing evidence and support for them. We look forward to seeing how our recommendations are reflected in the province's forthcoming climate change action plan (2025-2030).

The Council made the deliberate decision to prioritize GHG emissions reduction activities versus negative emissions activities (such as carbon sequestration or carbon capture). As such, as our mandate concludes, you should note that we did not have time to '*Track and advise on methods to optimize use of oceans as a carbon sink, as well as forests, wetlands, and depleted petroleum reservoirs*' as was also asked of the Council in its Terms of Reference.

As the Council Chair, I would like to take the opportunity to highlight three (3) areas which struck me personally as subjects requiring more targeted and immediate attention:

- First, to achieve net zero, the importance of clean electricity access and the incorporation of new technologies into the electricity grid cannot be understated. But decision-making processes related to electricity in NL can be complex and protracted; the approval process and construction of new generation can take at least 7-10 years. Such timelines are not congruent with the climate emergency that the world is facing, and as NL's electricity grid becomes more complex there is danger that this will worsen. Swift decisions about electricity supply are needed to continue to (1) facilitate continued decarbonization efforts and (2) foster green economic growth (e.g., industrial activity that uses clean energy). Processes must remain rigorous to protect the environment and ratepayers – but must also be efficient.

- Second, transportation is the single largest contributor to NL's GHGs – however, there are no quick fixes. The increased adoption of EVs over time will be helpful, but the facts will remain that the province is remote and features small populations dispersed over large geographies. This creates GHGs from road, marine, and air transportation that are structural and will be difficult to address. A long-term vision for intra-provincial transportation – viewed through the lens of improved connectivity, economic development, our growing clean energy and fuels industries, and net zero – could yield positive outcomes on multiple fronts.
- Finally, it is clear that the achievement of net zero will require extraordinary financial resources. Many of the Council's recommendations require some sort of investment – in some cases very substantial ones. Yet there is a limit to what taxpayers, ratepayers, and/or businesses and industry can be burdened with. Care must also be taken to ensure that the most vulnerable in society are not unfairly impacted. While the commitment to net zero by 2050 is a commendable pursuit – how will NL 'pay' for it? The province will need to explore new and different options for financing key infrastructure investments.

While the Council came to some recommendations related to these areas, I suggest that each requires a focused, thorough, and sustained analysis with subject matter experts if NL is to meet its net zero goals by the year 2050.

In submitting to you this summary of our recommendations, on behalf of the Council I would like to thank you for providing us with the opportunity to make a meaningful contribution to NL and its pursuit of net zero by 2050. We believe that the insights that we have provided will help to lay a solid foundation from which others (including, hopefully, our successors) can build upon. I would also like to thank your staff who provided us with any and all support that we needed or asked for, and all of those in the public and private sectors who took the time to meet with us to inform our recommendations.

It is our hope that you will make the attached *Summary of Recommendations* available to the public to help educate those interested on some of the key challenges facing the province as well as to inspire conversation and debate on the possible pathways to achieving net zero by 2050. I am available, if required, at your request to explain the rationale behind each of the recommendations provided.

Finally, to my fellow Councillors: I would like to express my deepest appreciation for the time, effort, and expertise that you volunteered to the NZAC over a three-year period. I know that this was a significant commitment for each of you. Your insights and contributions were invaluable. Given the diverse backgrounds and differing perspectives of the Council, the resulting outputs are an impressive accomplishment and something that I hope each of you are proud of.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Kieran Hanley', with a stylized flourish at the end.

Kieran Hanley

*Chair - Net Zero Advisory Council*

# 1 | Implementing Foundational Net Zero Policy

A series of legislative and policy interventions should be made in Newfoundland and Labrador to set the province on a path to achieving net zero by 2050, while considering the green economy, the just transition, and affordability.

- 1.1 *By 2025, the Government of Newfoundland and Labrador should legislate its net zero greenhouse gas (GHG) emissions by 2050 target.* This legislation should be inclusive of interim GHG reduction targets (for 2035, 2040, and 2045) and requirements to report annually on GHG emissions and climate plan progress.

Regulatory / Policy

- 1.2. *Set GHG reduction targets for the provincial government including its crown corporations in 2025.* The provincial government must lead by example and immediately instruct relevant Departments, agencies, and crown corporations that GHG reduction targets be set that align with the province's net zero by 2050 objective.

Regulatory / Policy

- 1.3 *Commit to Provincial carbon pricing frameworks in 2025.* Carbon pricing is a proven and effective tool in fighting climate change. Canada has had a nationwide carbon price since 2019. As intended, industries, businesses, and individuals have been making decisions about their future with the understanding that the carbon price would be a constant, with pricing forecasted up until the year 2030. It is possible that future Federal governments may eliminate carbon pricing. Such a change would jeopardize Newfoundland and Labrador's net zero momentum, create uncertainty for industry within it, and make it more challenging for the province to promote itself internationally as a clean energy leader. Carbon pricing is fundamental policy that is required to meet net zero by the year 2050 and, therefore, should be protected.

Regulatory / Policy

## Enabling and Facilitating Negative Emissions Projects

Every effort should be made to eliminate and prevent GHGs. However, some level of GHGs is unavoidable because solutions do not exist in some cases to address certain sources. Therefore, to achieve net zero, negative emissions projects must be developed. It is unknown what quantity of carbon is possible to be sequestered or captured in Newfoundland and Labrador, or what approaches would be most effective within the provincial context. At present, no framework exists that would require or allow for a regulated facility to invest in a negative emissions project to achieve net zero by 2050.

- 1.4 *Assess best options for negative emissions projects in NL in 2024* from technical, economic, and socio-economic perspectives (i.e., perform a carbon removal capacity / supply study).

Study / Assessment

- 1.5 *By 2026 create the necessary frameworks and processes to allow for regulated facilities to invest in negative emissions projects* to meet their net zero by 2050 requirements.

Regulatory / Policy

## 2 | Building and Maintaining a Clean Electricity Grid

Immediate action must be taken by the Government of Newfoundland and Labrador in order to build the foundation from which net zero can be achieved by 2050: its clean electricity grid. While matters of electricity are (appropriately) regulated and addressed through arms length processes, it must also be recognized that the regulatory framework was not designed to deal with the pressures that the pursuit of net zero has introduced. Moreover, the reduction of greenhouse gasses is a societal concern and not just a ratepayer concern; the Government of Newfoundland and Labrador must be prepared to play an active role.

- 2.1 *Legislate the maintenance of NL's current level of 90% or more clean energy generation within its interconnected electricity grid in 2024.* This will provide clear policy direction for NL Hydro resulting in better environmental outcomes and certainty for clean energy investors. Investments into combustion turbines – without the explicit intent to utilize renewable energy (fuels) – to address growing demand or reliability for the interconnected grid is not compatible with the pursuit of net zero and would threaten the province's green transition.

Regulatory / Policy

- 2.2 *Immediately direct NL Hydro and the Board of Commissioners of Public Utilities (PUB) to have at least 400MW of new firm clean/net zero electricity supply commissioned on the bulk grid by the year 2035 to meet anticipated needs.* Adding new sources of clean electricity to the grid is a fundamental action that must be taken in the near term to support net zero in the province. The specifics of how this is to be achieved is a decision that is best left to established regulatory processes in order to ensure transparency and public confidence in decision-making. The Government of Newfoundland and Labrador can repeat this approach to set policy direction but not prescribe results (e.g., "NL requires X amount of electricity for reason Y – deliver it by year Z and make it clean").

Regulatory / Policy

- 2.3 *Enhance funding for initiatives that are right for the environment and aligned with 'Just Transition' principles by 2025.* Investments made by NL Hydro and Newfoundland Power financed by the ratepayer are scrutinized by the Public Utilities Board (PUB) with least-cost being a primary decision criterion. Utilities have faced challenges being approved for expenditures (e.g., electrification, EV charging stations) which have importance from a GHG reduction perspective but have been deemed not to be the responsibility of the ratepayer. In these situations, to accelerate climate action the Government of NL must work with the utilities and provide funding support to bridge the gap between the cost of implementation and what the PUB will consider acceptable investment from ratepayers.

Programming

- 2.4 *Conduct third-party assessment of clean energy-related regulatory processes in NL in 2024 to determine their effectiveness and efficiency compared to other jurisdictions.* In a climate emergency, action must be swift and decisive. However, transparency and public confidence in them must be maintained. How do NL processes like environmental assessments, permitting, regulatory frameworks, etc. compare to those in other jurisdictions? Are there best practices that exist elsewhere that can be implemented in NL? As planning for net zero will be complex, high-pressure, time-sensitive, and expensive, should decision-makers (government departments, utilities, regulator) be provided with additional resources that will be required to make the appropriate decisions in a timely manner? A third-party investigation can provide NL with important insights as to what may be implemented to help with decision-making within the context of achieving net zero by 2050.

Study / Assessment

## 3 | Establishing New Partnerships to Advance Clean Electricity Grid Priorities

The pressures that the pursuit of net zero in Newfoundland and Labrador – in the form of accelerating electrification and green economic growth – will place on decision makers will be immense. Grid-related investments have traditionally been borne by the provincial government or utilities, yet there are other actors that can play a significant and helpful role. Achieving net zero by 2050 in NL is a challenge that will only be solved through the new ideas, approaches, and investments that increased collaboration and new partnerships can bring.

- 3.1 *Work more proactively in partnership with municipalities, Indigenous groups, and not-for-profits to advance prioritized community-level electricity-related priorities.* Not all activity must be driven or financed solely by the provincial government or its utilities. Municipalities, Indigenous groups, and not-for-profits have access to different financing mechanisms and funding and can play a helpful role where common objectives exist and mutual benefit is possible.

### Programming

- 3.2 Conduct a technical, economic, and policy analysis in 2024 to *understand how relationships with prospective wind-to-hydrogen producers can be maximized* to assist with NL's pursuit of net zero. Areas of investigation should include power purchase agreement (PPA) opportunities, energy storage opportunities, and the use of renewable fuels produced within NL's economy.

### Study / Assessment

- 3.3 *Allow and define opportunities for third party investment into net zero projects by 2025.* The involvement of communities, Indigenous groups, and/or the private sector in net zero projects can help reduce the burden on and risk for governments, utilities, taxpayers, and ratepayers. Projects can be large or small in scale. For example: a community could invest into a local clean energy project to ensure that they accrue proportional benefits; or an investor may wish to contribute to a clean energy generation or energy efficiency initiative in one location in exchange for guaranteed grid access at another.

### Regulatory / Policy

## 4 | Addressing Present and Future Emissions from Heavy Industry

Heavy industry accounts for a large portion of Newfoundland and Labrador's GHG emissions; in 2022 oil and gas was responsible for 15% with mining responsible for 13%. As a natural resource rich province, there will be continued opportunity and pressures for industrial development. Addressing present and future emissions from heavy industry is therefore essential in Newfoundland and Labrador's pursuit of net zero by 2050.

## Prioritizing Clean Energy Supply for Mining Operations

The single greatest need to assist in GHG reductions in the mining industry is access to clean energy. This can be achieved through new clean energy generation or new transmission infrastructure from existing clean energy generation.

- 4.1 *Assess best options for the clean energy supply from technical, economic, socio-economic, and cultural perspectives for mining operations in Newfoundland and Labrador in 2024.*

Study / Assessment

- 4.2 In conjunction with rights holders, Government of Newfoundland and Labrador and mining operators to *accelerate decision-making on clean energy access* in order to achieve GHG reductions as soon as possible. Near term action will have a significant and positive environmental impact.

Regulatory / Policy

- 4.3 *Develop and articulate formal policy in 2024 for industrial operations to self-generate clean energy to meet their own electricity needs.* Developed policies must make clear to interested parties that self-generation is expected to have no impact on the province's electricity infrastructure and no negative impact on ratepayers. Where such impacts cannot be completely avoided, the industrial operator is expected to bear the associated financial burdens.

Regulatory / Policy

## Require Continued GHG Emissions Reductions for Existing Facilities Beyond 2030

The *Management of Greenhouse Gas Act* currently requires facilities producing over 25,000 tonnes of GHGs annually to reduce their emissions (or achieve compliance through other means) on an annual basis up to the year 2030. It is understood that offshore oil and gas is an area of joint federal-provincial jurisdiction, and that NL action is dependent on the Federal Government's plans related to a planned oil and gas emissions cap. However, NL must be prepared to have plans in place for beyond 2030 in the event that Federal action in this regard does not materialize.

- 4.4 In lieu of superseding Federal regulation, *Newfoundland and Labrador's Output Based Pricing System (OBPS) should be revised by 2026 to require continued GHG emissions reductions on an annual basis between 2030 and 2050.* This revision should include a requirement for the achievement of net zero by the year 2050 for facilities that expect to still be in operation at that time, while prioritizing the achievement of near-term emissions reductions.

Regulatory / Policy

## Put the Enabling Conditions in Place to Allow for Significant GHG Reduction Projects in Newfoundland and Labrador's Offshore Oil and Gas Sector

The majority of GHGs in NL's offshore oil and gas (produced at the point of extraction) are associated with onsite power generation to meet operational electricity needs. Initiatives to address this challenge are likely to be complex and capital intensive. Therefore, there must be absolute clarity within relevant policy and regulations as to how projects that reduce GHGs associated with power generation could be advanced.

4.5 *Ensure enabling policy and regulatory conditions are in place to allow for the use of clean energy for offshore oil and gas power generation.*

Regulatory / Policy

Area of Divergence	
Some NZAC members believe that carbon capture, utilization, and storage (CCUS) has the potential to play an important role in the reduction of offshore oil and gas GHGs, and recommend that ensuring that enabling policy and regulatory conditions are in place to allow for it to occur.	Some NZAC members do not believe carbon capture, utilization, and storage (CCUS) to be an appropriate technology for use towards the reduction of GHGs in the oil and gas sector, and do not recommend a focus on ensuring that enabling policy and regulatory conditions are in place to allow for it to occur.

**Requiring Net Zero by 2050 Commitments and Plans for Future Heavy Industrial Projects**

Achieving GHG emissions reductions within heavy industrial activities (i.e., mining, oil and gas) as it exists today is important, but also imperative to consider is the development and impact of new industrial operations in the province. It is possible that new major heavy industrial projects will be pursued in NL. For NL to have any chance of achieving net zero by 2050, new industrial developments must not add new significant new GHG emissions burdens – and thus must be designed to meet net zero by 2050 as a stipulation in their approval.

4.6 Minister of Environment and Climate Change to issue a policy directive by 2027 to *require that environmental assessment (EA) and project approval processes are conditional on net zero by 2050 commitments* and detailed plans from future heavy industrial development proponents on how this will be achieved.

Regulatory / Policy

4.7 Change Environmental Protection Act by 2028 to codify this policy in legislation and *require that environmental assessment (EA) and project approval processes require net zero by 2050 commitments* and detailed plans from future heavy industrial development proponents on how this will be achieved.

Regulatory / Policy

## 5 | Providing Provincial Leadership on Transportation

Transportation represented 43% of Newfoundland and Labrador’s GHG emissions in 2022, making it the province’s single largest contributor to climate change on a sectoral basis. Provincial government leadership is required in this sector to ensure the province can achieve net zero by the year 2050.

5.1 *Set a 2035 100% zero emissions vehicle (ZEV) sales target for Newfoundland and Labrador for all new light-duty vehicles, with interim 5-year targets.* What is measured matters; road transportation amounts to almost 60% of the sector’s emissions, and much of this comes from light duty vehicles. Establishing targets that align with



federal commitments will provide opportunities for decision-makers to adjust interventions over time depending on ZEV adoption rates. In addition, this will provide more certainty for auto dealerships (who need to make decisions on maintenance, inventory, etc.) and electricity utilities.

#### Regulatory / Policy

- 5.2 *Set ZEV adoption mandate for provincial government and its crown corporations in 2024.* The provincial government must lead by example and immediately instruct relevant Departments, agencies, and crown corporations that new procurements must utilize zero emissions technologies. This mandate should be inclusive of all forms of transportation (e.g., road, marine) where technologies are commercially available. A timeline should be established for the entirety of government's fleet to be switched.

#### Regulatory / Policy

- 5.3 *Pre-empt the challenges expected to be posed by increased EV adoption by working with the utilities on EV load and demand management initiatives.* Action will better regulate timing of EV charging and help mitigate predicted peak electricity demand impacts.

#### Programming

- 5.4 *Support initiatives to create renewable fuels (i.e., hydrogen) refueling infrastructure.* Hard to abate aspects of transportation such as heavy-duty road transportation and marine transportation can be addressed through the adoption of renewable fuels. It is anticipated that Newfoundland and Labrador will become a large-scale producer of these fuels (such as renewable diesel and hydrogen) and as such should commit to their use domestically to help fight climate change.

#### Programming

- 5.5 *Develop a marine transportation decarbonization strategy by 2025 with ports and clean energy as the focus.* Marine transportation accounts for 27% of Newfoundland and Labrador's total transportation emissions. The operations and maintenance for vessels servicing marine industries (e.g., freight, fisheries, offshore oil and gas, aquaculture, mining, passenger, etc.) is inextricably tied to the ports within which they operate. The adoption of renewable fuels in marine transportation activities is the most promising avenue to reduce GHGs in concert with electrification infrastructure. Supporting this transition will not only help the province reach its net zero by 2050 commitments, but also provide the important enabling conditions for important industries for the provinces to do the same. Key advantages for the province are that renewable fuels are expected to be produced in Newfoundland and Labrador within close proximity of a number of the province's largest ports and its existing 90%+ clean electricity grid. However, the logistics of renewable fuels transportation and refueling is complex and must be studied/assessed on a pan-provincial basis in order to arrive at a strategy which will help the sector decarbonize and achieve net zero.

#### Study / Assessment

- 5.6 *Create an entity with the mandate to partner with municipalities in the implementation of intra-provincial road transportation throughout Newfoundland and Labrador in 2025.* There are many benefits to robust transportation infrastructure – from health, to equity, to economic development, to environment. Transportation requirements are often regional in nature, however there are few mechanisms that allow for regional collaboration between the hundreds of municipalities, local service districts, and unincorporated areas in the province. It cannot be expected that regional / provincial coordination on transportation will occur without intervention. Examples of rural transportation initiatives are emerging in Newfoundland and Labrador and may be replicable; economies of scale are likely to yield benefits but additional research and coordination is required. A public transportation entity can also explore effective transportation between economic hubs in the

province, more efficient options for the transportation of goods, and help address accessibility concerns of rural/remote communities.

#### Regulatory / Policy

## 6 | Empowering The People to Do Their Part

Many Newfoundlanders and Labradorians are passionate about the environment, their impact on it, and taking action to ‘do better’. Citizens can effect change if they have the information and capability to do so, and in the context of the environment can contribute to Newfoundland and Labrador’s pursuit of net zero by 2050 provided they are given the opportunity.

- 6.1 *Provide resources to support Indigenous group participation in Province’s net zero journey.* The Provincial government is increasingly recognizing the importance of Indigenous consultation and engagement in planning and decision-making processes. These expectations are also becoming normalized for industry and in project development. While these are positive steps, it is clear that Indigenous groups are facing challenges as a result with a rapid increase in requests for information, commentary, and partnership. To help build capacity within Indigenous groups to respond, to ensure that Indigenous groups help shape the province’s net zero future, and to help ensure that processes are thorough and timely, the Government of Newfoundland and Labrador should provide resources to support Indigenous group participation in net zero related processes.

#### Programming

- 6.2 *Invest in enhancing energy efficiency and conservation public education campaigns through TakeCharge by 2025.* The cheapest electricity is that which is not used. Studies suggest that Newfoundland and Labradorians use more electricity per capita than the majority of Canadians, indicating opportunity for improvement. More education and awareness will empower electricity consumers to reduce their electricity bills while making more energy available for other purposes. Existing campaigns are funded through ratepayers and subject to approval through the PUB; the Government of Newfoundland and Labrador can increase the impacts of education through supplemental investment.

#### Awareness Campaign

- 6.3 *Provide funding to utilities to continue with successful takeCHARGE programming, ensuring supports remain focused on activities which provide best environmental and economic returns* as identified by forthcoming ‘TakeCharge Energy Solutions Potential Study’. Expand the eligibility of existing programs to increase the breadth of energy efficiency activity. This could include ensuring electrically heated homes can benefit from energy efficiency programming, or homes that are not a primary residence. Consider initiatives that are not likely to be financed by ratepayers due to PUB’s least-cost decision making criterion. Examples are programs designed to provide better access to energy efficiency retrofits for middle and low-income earners.

#### Programming

- 6.4 *Support small-scale residential clean electricity generation and storage initiatives through TakeCharge by 2025.* Specific near-term actions should include: (1) significantly raising the net metering program limit from 5MW; (2) creating grant and/or rebate incentives for residential, community, and commercial adoption of clean energy (e.g., solar panels) when paired with energy storage technologies (e.g., smart home battery systems) to assist in demand management; and (3) create ‘Clean Technology Tax Credit’ for individuals parallel to the existing

commercial tax credit and identify equitable mechanisms to enable the participation of low-income populations.

#### Programming

- 6.5 *Continue to provide ZEV subsidies for passenger vehicles until such time that established targets are met or purchase price parity is achieved with traditional internal combustion engine vehicles – whichever comes first.* Ensure charging stations are eligible for rebates. Newfoundland and Labrador has been slower to adopt ZEVs than most other provinces in Canada. Given that passenger vehicle transportation is a significant contributor to GHGs in the province, it would not be logical to discontinue ZEV subsidies until either of the above conditions has been met.

#### Programming

- 6.6 *Develop, publish, and finance EV charging infrastructure plans.* Charging infrastructure is a significant enabler for the adoption of EVs by individuals and businesses. Through the efforts of its utilities, the province has made important progress in recent years in providing new charging infrastructure. The development and publication of an EV charging station plans, with implementation timelines and targets, will help provide another layer of certainty and confidence for those that are willing to make the investments required to adopt EVs. This plan should include the continued pursuit of establishing financing models that involve the private sector so that the cost burden does not rest squarely on the taxpayer.

#### Regulatory / Policy

- 6.7 *Advance 'Right to Charge' legislation by end of 2025.* The ability to charge an EV at home is an important factor in driving affordable access to EVs. However, not all EV users have designated off-street parking where they can charge their vehicles. Residents living in apartments, condominiums, and even in some cases single-family dwellings are restricted from installing EV chargers. Advancing 'Right to charge' legislation is an intervention that will force property owners (and those regulating property owners such as municipalities) to consider how they can provide better EV charging access. Engagement with key stakeholders should take place in advance to ensure that legislation is not punitive and is accompanied by the appropriate supports for those required to make investments.

#### Regulatory / Policy

- 6.8 *Expand ZEV subsidies for other modes of transportation by 2025.* Aside from automobiles, there are other modes of zero-emissions transportation that can be supported. For example, as active transportation infrastructure continues to improve in the province, electric bikes are a promising mode of transit. Also, in many cases Indigenous groups and those living in Northern areas of the province rely on snowmobiles for transportation and in some cases might be suitable for fuel-switching. Meanwhile, technologies exist to retrofit marine vessel engines to accommodate zero emissions technologies and their adoption should be supported. Subsidies should take grid readiness into consideration (i.e., it would not be logical to subsidize the purchase of ZEV technologies where charging infrastructure relies entirely on diesel for electricity generation).

#### Programming

## 7 | Making Buildings More Energy Efficient

Residences, commercial buildings, and industrial structures accounted for 8% of Newfoundland and Labrador's GHG emissions in 2022. While not the largest contributor to emissions, action taken to reduce GHGs are highly related to the province's electricity grid affecting demand and thus have a high degree of importance.

- 7.1 *Prioritize electrification for home and commercial heating.* Ensure as many residences move away from fossil fuel heating as is possible through the life of the Oil to Heat Pump Affordability Program. Consider extending the life of the program and expanding upon it to include commercial buildings.

Programming

- 7.2 *Ban the installation of fossil fuel furnaces in new residential construction.* While investment in home heating electrification is being prioritized, it would not be logical to allow for new residences to be built featuring fossil fuel heating sources.

Regulatory / Policy

- 7.3 *Support financing mechanisms for deep energy retrofits.* In many cases, significant investment is required to achieve significant energy efficiency. Benefits of 'deep' energy retrofits are not just environmental but also reduce costs for energy consumers, reduce overall energy demand, and create good green jobs. Work with municipalities, banks, NGOs, and others to explore and support mechanisms that make energy efficiency improvements more accessible to medium and low-income earners and small-to-medium sized businesses in NL.

Programming

- 7.4 *Require Energy Labels for New and/or Existing Buildings.* Energy disclosure and ratings can keep home/building owners, prospective buyers, building managers, and the public informed about a building's energy performance. Ratings seek to distinguish the least efficient homes/buildings from the most efficient and disclosing the information can help the market make informed decisions (e.g., update existing or design new policies, support research, guide building upgrades and purchase decisions).

Regulatory / Policy

- 7.5 *Adopt the upper tiers national building codes for both small buildings and houses and commercial and industrial.* Ensure the adoption of the tiers align with planning as to not inadvertently interfere with other NL-centric priorities. Ensure there are methods to enforce building codes across the province.

Regulatory / Policy

- 7.6 *Invest in targeted upskilling opportunities for builders, contractors, skilled trades.* A better understanding of GHGs and energy efficiency amongst those involved in creating/retrofitting building stocks will improve outcomes over time.

Programming

## 8 | Tackling the Organic Waste Problem

Waste accounts for 7% of Newfoundland and Labrador's GHGs and is primarily caused by the breakdown of organic material in the province's landfills.

- 8.1 *Facilitate an electricity market for landfill gas re-use.* Electricity via (otherwise flared) biogas can help contribute to much needed electricity demands. While this would perhaps not be the least-cost option for electricity, it can be a reliable source of non-intermittent electricity that has additional societal benefits. Review the Biogas Electricity Generation Program as already committed to, including the review of terms to reflect this energy's source contribution to managing peak demand. Identified barriers include the 2MW maximum project size and the meter aggregation exclusion.

Regulatory / Policy

- 8.2 *Support landfill operators in addressing landfill gas* through: their adoption of federal regulations; their exploration of funding opportunities, tax credits, and carbon offset market opportunities that can reduce the capital costs of landfill gas re-use and improve project economics; and the implementation of gas re-use initiatives.

Programming

- 8.3 Geography, economies of scale, and volumes make the prospect of widespread organic waste diversion in Newfoundland and Labrador complex and expensive. *Engage in research to better quantify residential, commercial, and industrial organic waste streams and understand the economic feasibility and environmental impacts of local and provincial organic waste diversion* to de-risk future investments.

Study / Assessment

- 8.4 With 8.3 complete, follow through on recommendation made in the 2020 review of the Provincial Waste Management Strategy: *"MMSB lead the development of a provincial organic waste management strategy, and that this strategy be developed against the backdrop of implementing an appropriate provincial landfill ban for organic waste in five years"*. Ensure scenarios explored require the use of ZEVs in organics collection and transfer to maximize GHG benefits.

Regulatory / Policy

- 8.5 With 8.3 complete, *conduct a technical, economic, and policy analysis in 2025 to understand the potential for biomass energy projects in Newfoundland and Labrador* to help address organic waste management challenges that province faces.

Study / Assessment

## 9 | Supporting Targeted Research, Development, & Demonstration Projects

Research, development, and demonstration (RD&D) projects can help decision-makers and investors better understand new ideas and new technologies, de-risking their potential future larger scale adoption. RD&D efforts in Newfoundland and Labrador relating to GHG reductions should be targeted towards areas that have been identified

as being priority. This will speed up the adoption of technologies, GHG emissions reductions, and reduce risk. Where these efforts are led by local businesses and innovators, benefits are local and successful investments can be exported worldwide.

- 9.1 Recognizing that (a) utilities are highly regulated and do not have the flexibility to invest significantly in RD&D, yet (b) utilities are the key enabler and adopter of clean energy technologies and initiatives – commit specific programming by 2024 towards initiatives that embrace partnership and collaboration in the advancement of prioritized RD&D. This can be partly achieved, for example, by dedicating a specific percentage of the province’s ‘Green Transition Fund’ resources on an annual basis.

#### Programming

- 9.2 Working with utilities, *implement a series of pilot projects to de-risk technologies and strategies that can help optimize the electricity grid*. In addition to financing, RD&D relies on enabling regulatory conditions. Explore the opportunity to create a ‘regulatory sandbox’, or a framework to allow for the testing of novel products or processes prior to demonstration or adoption in real-world conditions.

#### Programming

- 9.3 *By 2025, commit specific RD&D programming towards offshore oil and gas industry decarbonization initiatives that are led by local companies and research institutions*. Initiatives considered for funding should be prioritized according to the degree to which they have the potential to contribute to GHG reductions.

#### Programming

- 9.4 *By 2025, commit specific RD&D programming towards mining industry decarbonization initiatives that are led by local companies and research institutions*. Initiatives considered for funding should be prioritized according to the degree to which they have the potential to contribute to GHG reductions.

#### Programming

- 9.5 *Require future heavy industrial operations in Newfoundland and Labrador to contribute to provincial RD&D programming targeted at achieving GHG reductions and net zero by the year 2050* (to help finance 9.3 and 9.4).

#### Regulatory / Policy

- 9.6 When product becomes available via local producers, *test the use of renewable fuels within electricity systems to help determine long-term suitability*. A near term opportunity would be a demonstration project which utilizes locally produced renewable diesel within existing diesel generators.

#### Programming

- 9.7 *Conduct a technical, economic, and policy analysis in 2024 to understand the potential for large scale energy storage technologies and/or initiatives to help optimize NL’s electricity grid*. Technology areas should include (but not necessarily be limited to) battery, underground, thermal, pump/gravity, and vehicle-to-grid.

#### Study / Assessment

- 9.8 *Commit specific RD&D programming towards supporting the private sector in becoming early adopters of ZEV technologies for medium and heavy-duty transportation*. A third of the province’s transportation emissions come from heavy-duty vehicles, and a variety of other modes of transportation ranging from busses to off-road industrial vehicles. Meanwhile, marine transportation accounts for 27% of Newfoundland and Labrador’s total

transportation emissions. Operators of these vehicles need to test new technologies within the fleets before committing to broadscale adoption.

#### Programming

9.9 By 2025, commit specific RD&D programming towards organic waste diversion initiatives that have the potential to address known challenges related to geography, economies of scale, and end uses.

#### Programming

## 10 | Engage in Continuous Net Zero Planning and Analysis

Efforts to achieve net zero by 2050 in Newfoundland and Labrador will benefit from continued attention and analysis by a group like the Net Zero Advisory Council (NZAC). It is recommended that the NZAC continue to exist in some form to provide guidance to the Minister of Environment and Climate Change. With foundational recommendations having now been made, the Government of Newfoundland and Labrador will want to consider what this group's future mandate, structure, and membership should be in order to obtain the most valuable and relevant analysis.

#### Regulatory / Policy

### Notes

- Unless otherwise indicated, recommendations are directed at the Government of Newfoundland and Labrador.
- Recommendations relating to electricity use and the electricity grid are made exclusively for the interconnected grid system, unless explicitly stated otherwise. These recommendations may not apply in the off-grid context.