Conservation Council *of* New Brunswick
Conseil de conservation *du* Nouveau-Brunswick
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Submission

Updating New Brunswick's Climate Action Plan: A strategic opportunity

Dr. Louise Comeau
Director of Climate Change and Energy Solutions
Conservation Council of New Brunswick

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Introduction

The Conservation Council of New Brunswick (CCNB), is a non-profit charity, with over 50 years committed to environmental protection, conservation, public policy, education and public engagement work in the province, regionally, and nationally. Our climate change program is:

- Principle driven based on evidence, science and values
- Focused on public policy, education, public engagement and mobilization
- Driven by our own social science and communications research and institutional and peer-reviewed research

This submission complements our presentation to the Legislative Committee on Climate Change and Environmental Stewardship to update the Province's Climate Action Plan. Our recommendations are based on a review of the Conservation Council of New Brunswick's proposed 2016 climate plan, the 2016 Select Committee Climate Change report, the *Transitioning to a Low-Carbon Economy, Climate Change Action Plan*, recent NB progress report, and federal legislative, policy and regulatory plans.

We start this submission with a review of progress to date, we then identify issues the province should consider in updating its climate action plan, and then close with recommendations focused on three categories of action:

- Provincial policy, legislation/regulation and management
- Hazards and preparedness
- Electrification

NB is making progress

The 2016 Select Committee on Climate Change; *New Brunswickers' Response to Climate Change* is an excellent report. It is comprehensive, including 85 recommendations based on expert and public input through Legislative and regional hearings. The Government accepted many of the Select Committee's recommendations and included them in their own *Transitioning to a Low-Carbon Economy: New Brunswick's Climate Change Action Plan.* The Province now has, for example, a *Climate Change Act* and a Climate Fund, both recommended by all-party legislators on the Select Committee.

The Government, however, did not adopt all Select Committee's recommendations. Some recommendations included in the Province's climate plan are weaker than the Select Committee recommended or are not in the Plan. These are the recommendations that we need to revisit now, especially those relating to electricity.

Transitioning to a Low-Carbon Economy

The Province's climate action plan is also comprehensive with 118 commitments: It is a foundation plan that needs all recommendations implemented, but the opportunity to update the Plan need not focus on all 118 commitments. All commitments should proceed as part of the day-to-day operations of Government, but there are certain commitments that warrant a near-term focus.

CCNB urges Government to engage on climate action in a broader context. While there is progress, the pace of implementation is too coloured by whether the province has met the federal greenhouse-gas reduction target. This focus on meeting the federal target has weakened motivation for aggressive implementation and proactive and strategic planning. We note that New Brunswick will have to comply with federal regulations regardless of emissions levels, and we know that emissions levels must fall drastically before 2030.

Pace of climate action is quickening

There is a growing understanding of the global carbon budget

The global carbon budget is shrinking. Every tonne emitted in the next few years matters, including tonnes of greenhouse gases emitted in New Brunswick.

The United Nations Environment Program *Emissions Gap Report 2021* review all governments commitments offered at the 26th Conference of the Parties meeting in the Edinburgh, United Kingdom take 7.5 per cent off predicted 2030 greenhouse gas emissions, compared to the 2015 Paris Agreement commitments. The world needs to cut global emissions by an average of 55 per cent from today's levels by 2030 to avoid 1.5°C global average warming. Richer countries are expected to do even more.

Deeper, faster cuts are inevitable

The global carbon budget refers to the level of greenhouse gas emissions we can emit globally to keep global average warming to a particular level like a 2 degrees average increase, or 1.5 degrees that the International Governmental Panel on Climate Change has clearly shown is associated with life-threatening effects for people, plants and animals. The world has already warmed 1.1 degrees since the Industrial Revolution and we are seeing the effects of extreme weather increasing every day as a result.

To understand how much work we have to do, think of a bathtub (Figure 1) with the tap fully turned on and water nearly overflowing. If we only turn the tap slightly to slow the water flow, the stock of water in the tub will still overflow. To stop the bathtub from overflowing, we have to turn the tap off, and to get the water level down, we have to widen the drain.

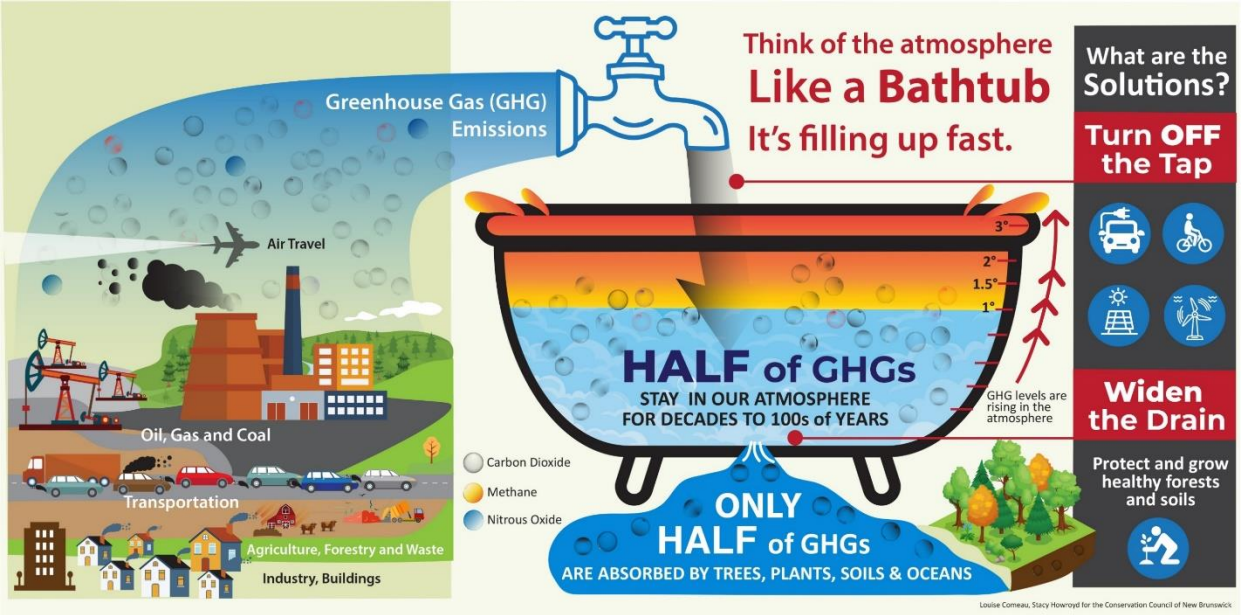


Figure 1. To understand how much work we have to do, think of a bathtub with the tap fully turned on and water nearly overflowing. If we only turn the tap slightly to slow the water flow, the stock of water in the tub will still overflow. To stop the bathtub from overflowing, we have to turn the tap off, and to get the water level down, we have to open the drain.

The only way to stop the total concentration of greenhouse gases in the air from growing (the stock in the atmospheric bathtub) is for all of us to work together to shrink global emissions to less than half today's levels in the next 10 years, and then get to near zero emissions within the next 30 years. New Brunswick has a part to play in this global effort.

Prepare for Business Unusual

Canada's current target of 40 per cent to 45 per cent will likely strengthen between 2023 and 2026. Figure 2 summarizes why this is a reasonable expectation. The federal Government passed its *Climate Accountability Act* in 2021. The Act requires five-year reviews of commitments like the federal greenhouse gas reduction target. This review will take place in 2026. The United Nations Climate Change negotiations also hosts a "Global Stocktake" in 2023. This review will assess how short all country commitments are in meeting the need to stay below 1.5 degrees warming. As already noted, the International Energy Agency says current commitments only shave 7.5 per cent of global emissions by 2030. The target needed to keep warming below 1.5 degrees is at least 55 per cent in global reductions; rich countries are expected to do more.

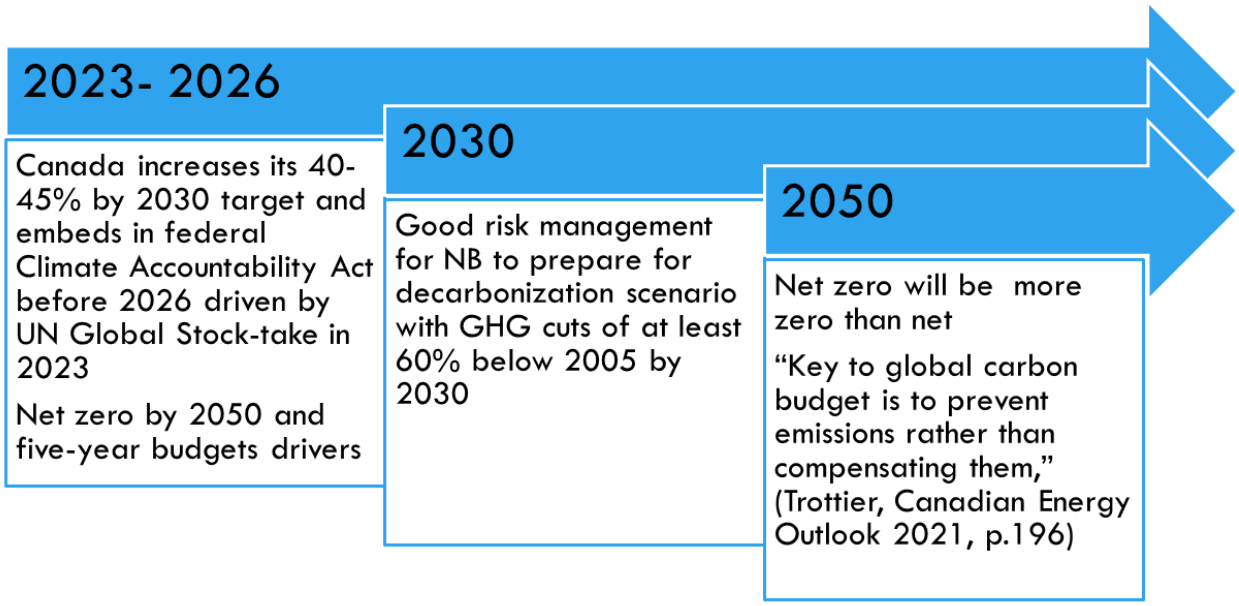


Figure 2. Canada's greenhouse gas target will increase significantly this decade to stay within the needs of the global carbon budget.

It is with this in mind, that CCNB recommends New Brunswick prepare for Business Unusual and a target closer to 60 per cent or more by 2030-2035, and net zero by 2050. Net zero means that the emissions tap is turned off, and natural systems are healthy enough that greenhouse gas concentrations no longer grow and start to decline in the atmosphere.

Depending on one's perspective, CCNB often sees companies and governments focusing on the "net" part of net zero. The reality is that we cannot allow companies to neutralize their emissions with offsets, as all sources must decline to meet the global carbon budget requirement. As noted in Figure 3, the "key to the global carbon budget is to prevent emissions, rather than compensating for them," (Trottier, *Canadian Energy Outlook*, 2021)

New Brunswick should assume that its commitment to net zero by 2050 is more zero than net. A reasonable proportion to think about is 90 per cent reductions; 10 per cent negative emissions through sequestration.

Risk and Opportunity

The Canadian Institute for Climate Choices' (CCIC) *Sink or Swim* report suggests decision-makers consider more than cost-benefit when assessing climate actions. CCIC encourages decision-makers to "…account for the future competitive benefits of near-term climate action, including

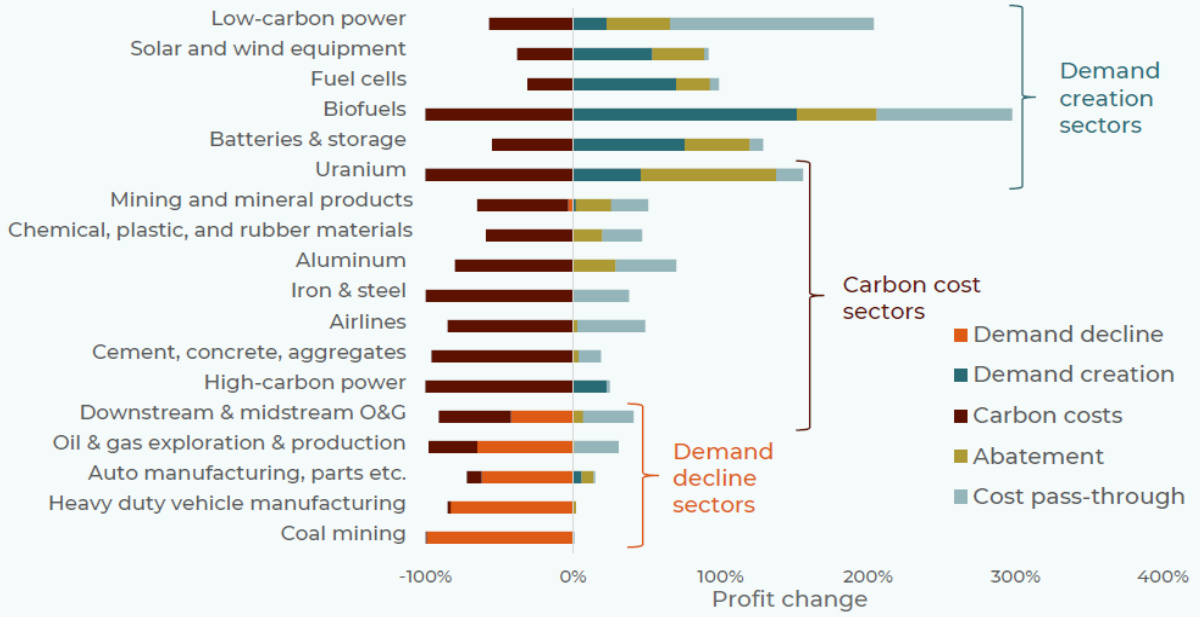
improved transition readiness and increased demand for clean energy and technologies," (p. 87).

CCIC's analysis highlights the risk of not considering competitive issues. Figure 3 (Figure 9 in the CCIC report), shows that companies supplying the electricity sector will see increasing profit as Canada electrifies its economy, while other sectors face high carbon costs, and others declining demand. Growing sectors include low-carbon power, solar and wind equipment, fuel cells, biofuels, and batteries and storage.

Sectors with declining profitability, include oil and gas exploration and production, including refineries, auto manufacturing and parts, heavy-duty vehicle manufacturing and coal mining. Other sectors like uranium; mining and mineral products; chemical, plastic and rubber materials; aluminum; iron and steel; airlines, cement, concrete, and aggregates all face higher carbon costs to operate, but have some capacity to pass costs through to customers.

Figure 9

Each sector faces different drivers of profit change. For some sectors, changes in market demand are more important than emissions



Source: Canadian Institute for Climate Choices (2021c), based on modelling and analysis commissioned from Planetrics. Notes: This figure breaks down the three major impact drivers and two company-level responses that determine the future profitability of companies under different low-carbon scenarios. It shows all equities operating in the Canadian market under the 1.5 degree scenario in 2050. Demand decline is the most significant factor for coal mining, heavy duty vehicle manufacturing, oil and gas, and automobiles. Carbon costs are a more important factor for biofuels, mining, chemicals, aluminum, airlines, and heavy building materials. Many of the biofuel companies included in the analysis are biofuel refiners. Biofuel refining is currently an emissions-intensive process, which results in high carbon costs. However, costs are offset by increased demand for biofuels, abatement of emissions, and cost pass-through to consumers.

Figure 3. Sectors supporting electrification of our lives will grow, while fossil fuel sectors will decline.

New Brunswick's refining operations will face challenges due to the increasing demand for electric vehicles. The International energy agency, World Energy Outlook-2021 predicts three billion electric vehicles (EVs) on the road in 30 years (p.30). The Trottier Institute sees 35 per cent of cars electrified in Canada by 2030 under net zero by 2045 or 2050 scenarios (p.72)

Near term: deeper reductions by 2030

The Canadian Institute for Climate Choices explored options for Canada to reach net zero by 2050. The Institute found that in the short term to 2030, most greenhouse gas reductions would come from what it calls, "Safe Bets", actions that are available today and cost-effective. Safe Bets include improving energy efficiency; shifting to non-emitting electricity; adopting heat pumps and electric vehicles; …reducing the use of HFCs [hydrofluorocarbons]; and adopting Carbon capture utilization and storage (CCUS) for concentrated gas streams.

Wild Cards for CCIC include greenhouse gas reduction options that are not yet available or cost-effective but that could play a role in reductions post 2030 or 2035. These include small modular nuclear reactors and carbon capture and storage technologies.

Federal drivers are strengthening; global pressure is intensifying

New Brunswick's update to its climate plan needs to consider that the past is not the future. The federal Government is strengthening its regulations and targets and is updating its own climate plan for March 2022 release. Recent federal cabinet mandate (and public) letters show policies and regulations will tighten for buildings, carbon pricing, coal phase-out, electricity, and vehicles:

- Net zero homes building code by 2024 for 2025; all buildings net zero by 2050; EnerGuide labeling of buildings (Green Construction through Wood);
- Rising price on carbon pollution ($15t/year to $170/t in 2030)
- Coal phase-out "as swiftly as possible" and no later than 2030
- Clean electricity standard to "achieve a net-zero clean electricity grid by 2035 and achieve 100% net zero emitting electricity future"; Advance Atlantic Loop
- Regulated sales mandate of 50% of new light duty vehicles zero emissions by 2030; 100% non-emitting vehicle sales by 2035; 100% of medium-and-heavy-duty vehicles sales zero emission by 2040

New Brunswick must prepare to comply with stronger federal regulations. Recent federal decisions already affect New Brunswick. For example:

- The federal decision to not approve an equivalency agreement that would have allowed Belledune to operate to 2040. Coal phase-out by 2030 is now a requirement
- New Brunswick will be affected by the recent update to the federal carbon pricing benchmark. The benchmark sets the minimum requirements provinces must meet if they want to operate their own carbon pricing system. Actions that lower the price

effects of carbon pricing, like reducing excise taxes on fuel will no longer comply with the benchmark. Provinces must submit their proposed carbon pricing system for 2023 to 2030 in 2022 for federal review. New Brunswick will also have to match the federal benchmark for price (rising $15/year to reach $170/tonne in 2030). The federal carbon price applied on industrial emissions is also strengthening. The federal Government is now also proposing a tightening rate of two per cent/year industry except for iron and steel, cement, aluminum (1%). This means that every year two per cent fewer emissions would be protected from carbon pricing if companies fail to emit less than their required standard. NB currently has a system that only tightens the emissions standard by one per year; 1.1% reduction/year electricity on facility baseline

- A Clean Fuel standard will also apply to reduce the emissions intensity of transportation fuels.

It is important to understand that federal regulations apply regardless of where NB is on its greenhouse gas target.

CCNB recommends the province focus on three strategic opportunities in updating its climate plan. The first focuses on government decision-making calling for an increase in strategic government planning to drive deeper emissions reductions through stronger targets, performance metrics, using a climate lens in more government decision-making, updates to policy especially related to electricity, and greater use of growing carbon pricing revenue to finance decarbonization.

Secondly, the province must significantly increase the priority it is giving to reducing climate change induced hazards and to increase preparedness for more extreme weather. Thirdly, given the expected growth in demand for electricity, but also regulation of this sector to eliminate fossil fuel power, CCNB calls on government to prioritize transformation of the electricity sector, and electrification of the economy starting with developing an electrification strategy for the province that directs investments and details how New Brunswick plans to integrate with the Atlantic region.

Strategic opportunities

1. Provincial policy, legislation/regulation and management

- Set stronger targets:
  - Plan for 60 per cent greenhouse gas target by 2030 declining every five years to reach near zero emissions by 2050.
  - CCNB suggests it is best to define “Net zero” as near-zero emissions than net. A safe planning guardrail is to plan for 90 per cent reductions, with a small amount of offsets (up to 10%).

- New Brunswick should also establish performance metrics like the cost per tonne of reductions, and reductions associated with as many commitments as can be quantified.

These metrics allow for greater accountability because external reviewers can independently assess progress.

- Government decision-making should apply a Climate lens that considers the effects of a changing climate and potential effects on greenhouse gas emissions. A climate lens should be applied to government spending, and procurement and permitting.

- Release statement of public interest on climate change quickly
    - Climate Fund. The Province should direct new carbon pricing revenue to expand investment in mitigation and adaption programs, to cut secure deep building retrofits, and transforming the electricity and transportation sectors.

- Where carbon-pricing revenue goes to funding government projects and studies, ensure these projects and studies are new and additional, and not subsidizing day-to-day government budgets.
    - Follow Select Committee recommendations to "be completely transparent regarding who is paying and how the revenue is spent" and to ensure that all carbon pricing revenue is "dedicated climate change fund, not general revenue."

- Be more transparent in planning, analysis and decisions. The Province should make public:
    - Mandate letters
    - Climate Action Plan Studies:
        - For example: carbon-neutral government, offsets potential, forests and soil sinks, watershed/land use/peak water flow, health effects of extreme weather
    - Future studies done by consultants for government, by government agencies (e.g., Opportunities NB), and provincially funded studies done at universities (e.g., using Environmental trust fund (ETF) or carbon levy funding).

- Increase public engagement:
    - There is no stakeholder advisory committee as promised in the provincial climate plan. The province should create a net zero advisory council as other provinces and the federal government is doing. The focus should not be on 2050, but rather on deep reductions to 2030, with targets reviewed every five years to determine if the province is on track to near-zero.
    - There is no government-sponsored climate education and awareness programming, except through Environmental Trust Fund
    - There is no multi-year funding

These were all recommendations of the Select Committee on Climate Change and included in the provincial climate plan.

- Amend municipal act to allow for property assessed clean energy (PACE) financing and other financial flexibility to support local action
- Procurement:
    - Electrification of School Bus Fleet
        - The Conservation Council of New Brunswick recommends the province commit to full electrification of the school bus fleet as was outlined in the New Brunswick Climate Change Action Plan.
        - The decision to replace diesel fueled buses by buying 74 gasoline and 16 propane buses instead of electric is short sighted and does little to lower the province's emissions. Since 2017, there have only been two fully electric and 11 hybrid-electric school buses added to the fleet. Alternative fuel sources such as gasoline and propane lock us into a polluting mode of transportation for the lifetime of the buses, well into the 2030s. The New Brunswick government should look to neighboring jurisdictions such as Prince Edward Island and Québec as examples in showing leadership to electrify their fleets. We need to protect the environment and the health of our children and eliminate harmful pollutants from school buses.

2. Reduce hazards and increase preparedness

The Province needs to do more to protect its citizens from a changing climate. CCNB recommends that the province:

- Develop a provincial and regional integrated risk assessment to identify climate change hazards and prioritize investments as Prince Edward Island has done. The risk assessment allows the province to identify at risk areas and to assign a risk level (low, medium, high). It is time for the Province to prohibit building in highest risk areas and to use regulations to minimize low-to-medium risks. CCNB also recommends the Province prioritize natural infrastructure and conservation to lower risks and help hold carbon.

- We recommend the Province not use carbon offsets. CCNB does not support using nature as a commodity to offset polluter emissions through tree planting or other conservation measures. We need to turn of the pollution tap in terms of emissions, and we need to enhance nature's capacity to hold carbon to stay within the 1.5 global carbon budget. We cannot afford to allow companies to neutralize their pollution. We need companies to lower their emissions.

- The Environmental Trust Fund has provided grants to complete coastal and city vulnerability assessments. We can build on these individual studies to create a province-wide risk assessment that can be used to direct investments.

- The Province will also need to complete a provincial adaptation plan in line with the federal climate-change adaptation plan due in 2022.

3. Create Electrification strategy

The Province should consider three trends in thinking about its climate action plan update:

- Demand for electricity is going to grow from electrification of transportation, industrial processes and economic activities like bitcoin.

- Least-cost analysis consistently shows nuclear, including small modular nuclear reactors, and fossil fuels less competitive with renewable energy, efficiency, interconnections (e.g., Atlantic Loop), and increasingly storage technologies .

- New institutions and planning will be required to manage transformation of the electricity sector. For example, we likely will need to do regional integrated resource planning and create a regional electricity system operator to coordinate supply, demand and to create the Atlantic loop, the transmission network proposed to link Quebec and Newfoundland and Labrador with the Maritime Provinces.

Affordability

When talking about reforming the electricity sector, the response is that introducing more renewable energy into the system will raise power rates. Studies, however, like the recent World Energy Outlook 2021 from the International Energy Agency (IEA) show that households will spend less on energy by achieving net zero emissions. The IEA notes that energy is "…30% less costly to households in the net zero emissions scenario, compared with current policies. "Reaching this point will require policies that assist households with the additional upfront costs of efficiency improvements and low emissions equipment such as electric vehicles and heat pumps." (p. 20).

CCNB recommends that New Brunswick update its policy and legislative framework to:

- Focus on low bills rather than low rates (we can have higher rates but lower bills because of energy efficiency);
- Consider environmental and social costs, not just economic costs;
- Allow for mix of public, private and community owned power generation options to meet growing demand for electricity; and
- Amend policy and legislative framework to set new targets for energy efficiency and renewables:
    - Energy-efficiency: Implement current climate action plan commitment to require investments in efficiency of 1.75 per cent/year rising to at least 2.5 per cent by 2030 (NB Power currently achieving about 1%; best in class jurisdictions are between two percent to three per cent (Dunsky analysis).

    - There is also a need to continue providing grants to low-income households to do deep retrofits of their homes and to expand eligibility to cover moderate-income households.

- Renewable energy (e.g., wind, solar, hydro): 80 per cent by 2030 which is in line with Nova Scotia (Select Committee had called for 60% renewable energy and phase out all fossil fuel electricity supply by 2030); improve the net metering program to better compensate participants, and expand the embedded generation program.

Belledune

CCNB strongly recommends that the Province respond to the coal phase-out at the Belledune power plant by developing a province-wide electrification strategy. There currently is discussion about converting to Biomass/wood pellets. Other options are available, however, like additional wind power in the region.

The Province should compare costs across all options. That there is lifecycle assessment of options, and that the contribution of various solution to long-term strategic electrification goals be considered. We want an outcome at Belledune and in New Brunswick that creates jobs, provides job security and creates economic development in line with ecological protection.

Wood pellets: some considerations

It is critical that New Brunswick consider the pros and cons of burning wood pellets at Belledune before making any decision. Considerations must include:

- Burning wood pellets to generate electricity is inefficient:
    - Energy density of wood pellets is lower than coal, so we burn more pellets to generate electricity which can increase emissions
    - It can take 40 to 100 years for the carbon debt from cutting forests to be recovered. These near-term emissions generate near-term warming and reduce the global carbon budget.
    - Biomass plants will likely require carbon capture and storage in future as the world moves to reduce the greenhouse gas load in the atmosphere.
    - Forest conversion to plantations reduces carbon uptake, compared to more diverse, healthy and hardwood forests (Sherman 2017).

Burning wood pellets is even more inefficient if used to generate electricity. When used to heat buildings, combined heat and power, or in district energy efficiencies are as high as 85 per cent to 90 per cent or more efficient. To generate electricity, efficiencies are about 35 per cent efficient (closer to 30% if counting line losses). If Belledune operates as a winter peaking plant (assuming 1,000 GWh net generation), one calculation provided to CCNB is that we would need 660,000 tonnes/year of wood pellets. If the plant operates at full capacity, we could need 1.5 to 2.2 million tonnes/year.

NB currently produces just under 500,000 tonnes annually (492,500) of wood pellets, according to the Canadian Wood Pellets Association. (Group Savoie: 90,000 tonnes; Grand River Pellets:

125,000 tonnes; Shaw Resources: 100,000 tonnes; Crabbe Lumber: 40,000; Marwood: 12,500; Grand River: 125,000).

CCNB is told by industry experts that most of the wood pellets produced in New Brunswick are exported to the UK DRAX biomass plant (e.g., CCNB has been told that exports represent 90% or more of provincial production). In-province, pellets are used for heat (boilers in schools, hospitals, homes, buildings). It is unlikely that exports would be diverted to Belledune given companies have long-term contracts with customers. This suggests that the Province could need to double or quadruple wood pellet production to supply the power plant depending on whether the plant operates all year or for winter peaking. A thorough analysis on a lifecycle basis is required to assess the viability of using pellets at the Belledune power plant.

Belledune: What about air quality?

Can a retrofitted Belledune plant meet new World Health Organization standards of no more than 5 micrograms of 2.5 microgram particulate matter in a year? Figure 4 shows that near or actual exceedances of this standard throughout the province in 2019.

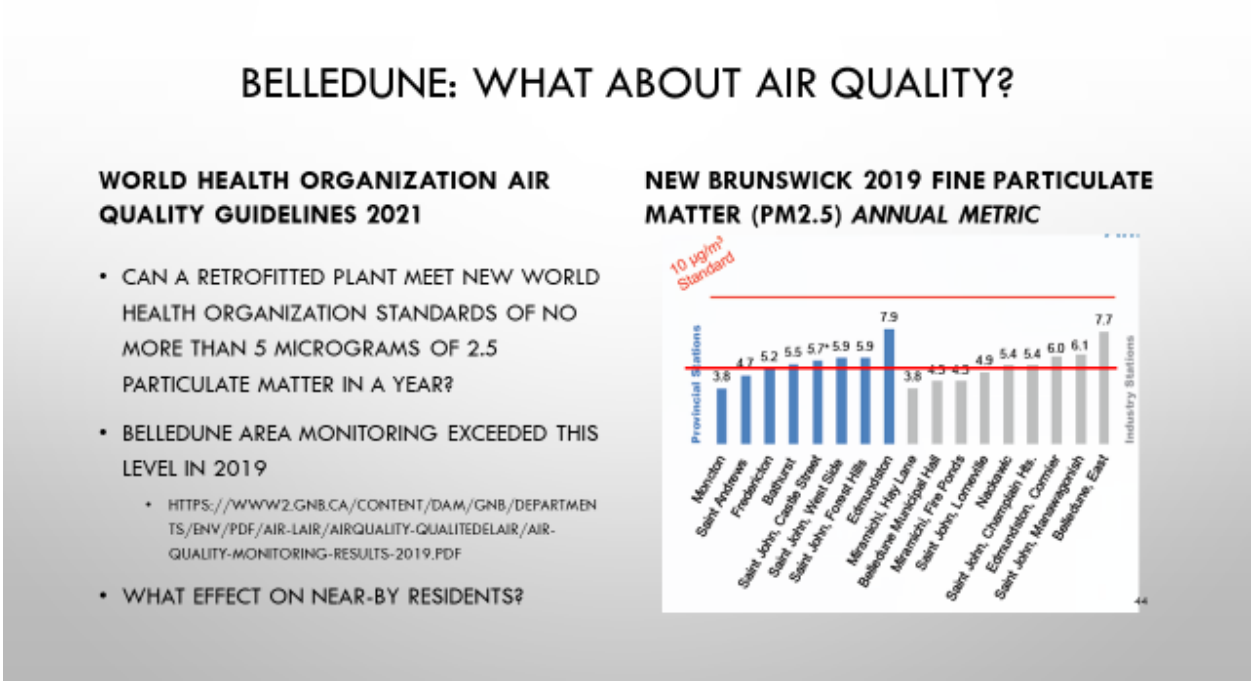


Figure 4. World Health Organization standards for PM2.5 are half NB's current standard.

What effect on near-by residents?

In addition to air quality effects of the plant itself, we need to consider the air and noise effects on near-by residents from increased truck traffic delivering wood pellets.

- The 60-MW generator in Port Hawkesbury: up to 50 tractor trailer trucks a day deliver up to 2000 tonnes of biomass (http://www.trepa.com/?p=2097)

- New world health organization air quality guidelines are half NB's for particulate matter: need options with least environmental and health effects

Finally, we need to consider potential opportunity costs. Converting Atikokan and Port Hawkesbury cost about $200 each. What are the implications for other electricity related investments if NB Power invests up to $200 million at Belledune to convert to biomass or to allow for burning of renewable gas?

Small Modular Nuclear reactors: Post 2035 wildcard

The Province is investing money and political capital on its bet that small modular nuclear reactors will work, be affordable, and delivered in the timeframe needed for deep emissions reductions. Studies done by reputable institutions like the IEA, however suggest that in the near-term the most cost-effective solutions are efficiency and renewable energy technologies ("Nuclear power and dispatchable low emissions capacity, such as hydropower, biomass and geothermal are important elements of the picture, but capacity additions are dominated by solar PV and wind," (p. 39)).

CCNB also finds through its own research that public opinion favours renewable energy, and that there is a strong anti-nuclear sentiment among Francophone population.

CCNB is concerned that there is not enough independent review of proposals for small modular nuclear reactors here in New Brunswick. It is critical the province has an open, and transparent conversation about the potential for new technologies, and their appropriate and realistic role in generating electricity in the province. It is important that government listen to many perspectives because there are legitimate questions that need to be answered about design proposals for a technology that are only at the research or early stage development. We don't yet know whether the technology will work or be affordable. We should recall that more than half of NB Power's debt stems from the construction and refurbishment of the Point Lepreau generating station.

The Small Modular Nuclear Reactor Roadmap has a preliminary cost assessment ranging from a low of $68/MWh, medium cost of $90/MWh and a high cost of $118/MWh. Wind power on the other hand now supplies power at costs ranging from $60/MWh to even lower prices. Recent bids in New England came in at $30-$40/MWh. Lazard, an industry power analysis firm suggests new nuclear could costs even more than suggested in the SMR Roadmap.

The Pembina Institute recently modelled a portfolio of options available to New Brunswick to replace Belledune power. The analysis used the SMR Roadmap cost estimates, as well as known costs for natural gas power plants and compared these costs to a portfolio of renewable energy, efficiency and demand response measures. The outcome of the analysis shows that a renewable energy/efficiency/demand response portfolio is the most cost effective and reliable for ratepayers.

Even if SMRs work, it is highly improbable that a plant would be licensed, built and operational before 2030 or even 2035. The Canadian Nuclear Safety Commission says that its approval times are at least nine years. SMR technology proposals also would generate new liquid nuclear waste which we are not prepared for. Work today to approve a site for underground burial are all designed to manage solid radioactive waste. Non-proponent researchers have summarized concerns about industry claims which government should consider to reduce risk to ratepayers and taxpayers.

Decisions about the Belledune plant and the use of small modular nuclear reactors are only one in a series of decisions required about the provincial electricity system that will be required over the next few years. In making decisions about electricity options, CCNB strongly believes that citizens should have a say. In a survey of 952 Atlantic citizens in June 2021, CCNB found a strong preference for renewable energy to supply our future electricity system, and low levels of support for nuclear.

Citizens define clean electricity as being based on solar, wind, and hydro rather than being based on nuclear, natural gas or biomass, although nearly half of Francophones believe biomass can be a clean source of electricity. Importantly, citizens also want in-province renewables built first and then for the province to connect regionally to hydro power in Quebec and Newfoundland and Labrador. Figures 5, 6, and 7 and 8 summarize citizen perspectives on power sources.

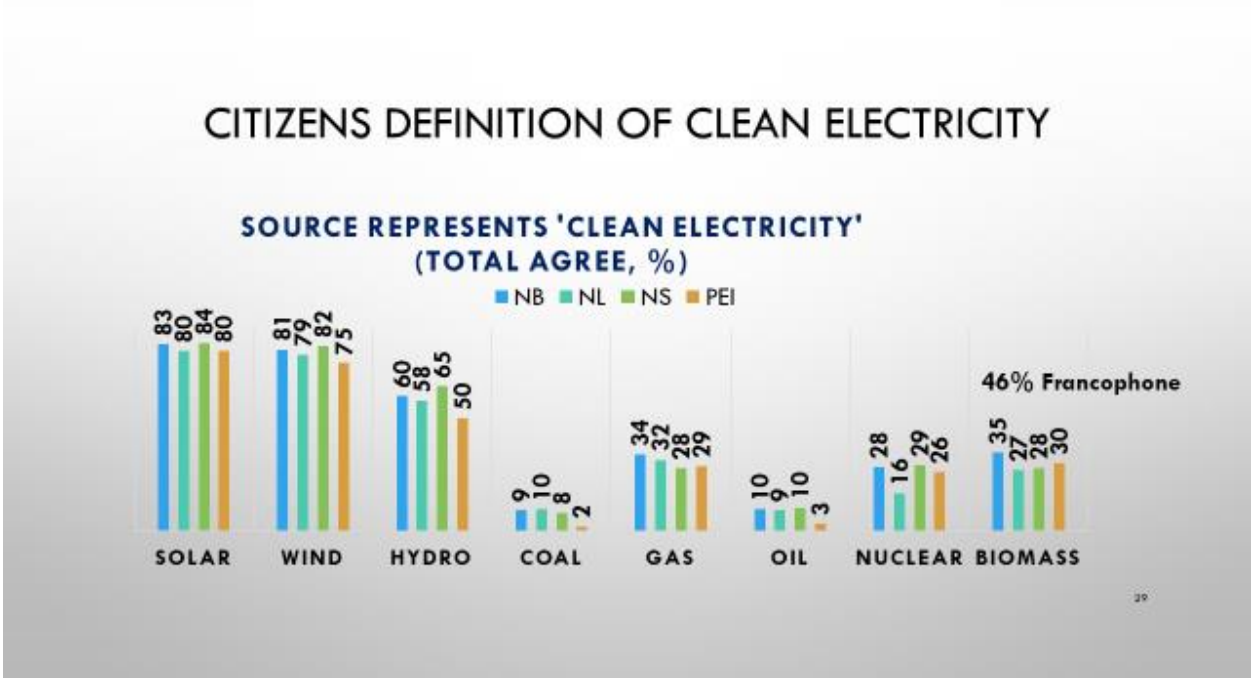


Figure 5. Atlantic Canadians believe solar, wind and hydro best define clean electricity.

Coal and oil are not considered clean sources of electricity; natural gas, nuclear and biomass are clean for about a third of Atlantic Canadian survey respondents, about six in 10 say the same for hydro and eight in 10 consider solar and wind the most consistent with clean electricity.

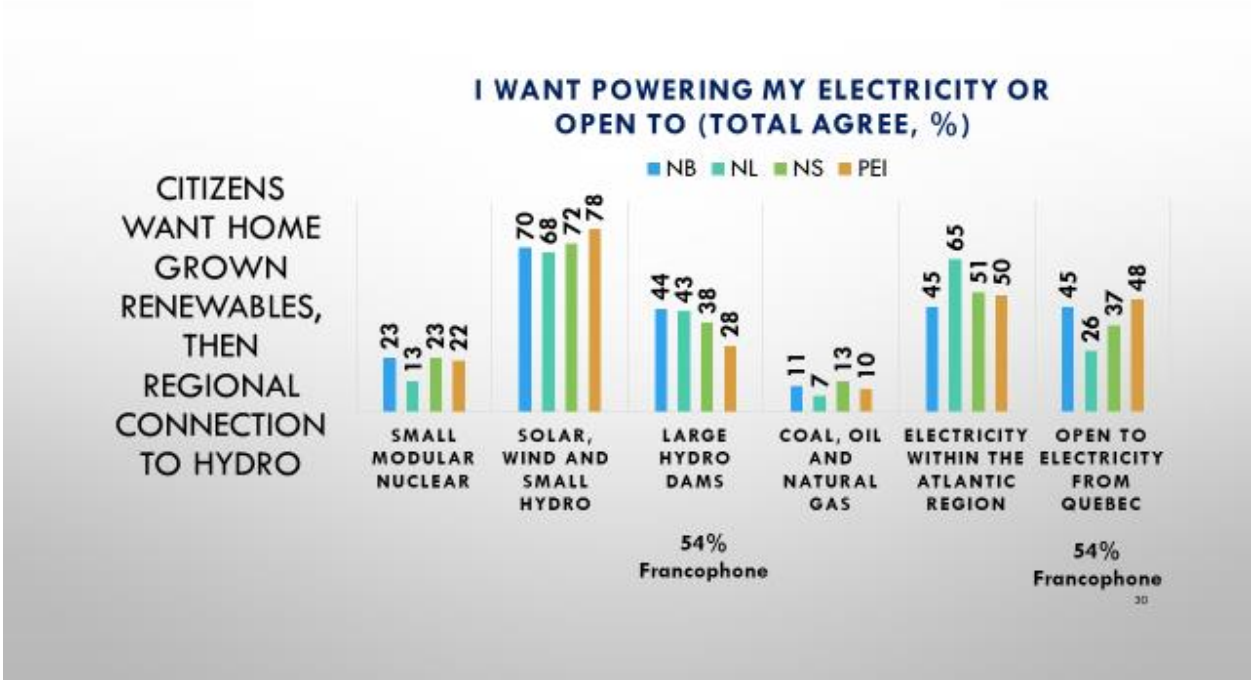


Figure 6. When asked what sources people want powering their electricity, wind and solar rank highest followed by electricity within the Atlantic region. Hydro from Quebec and Newfoundland and Labrador is part of this mix.

When asked how provinces like Nova Scotia and New Brunswick should respond to federal coal phase-out regulations, citizens (Figure 7) consistently prefer renewable energy options, but also strongly dislike options like carbon capture and storage or finding offsets elsewhere in the region.

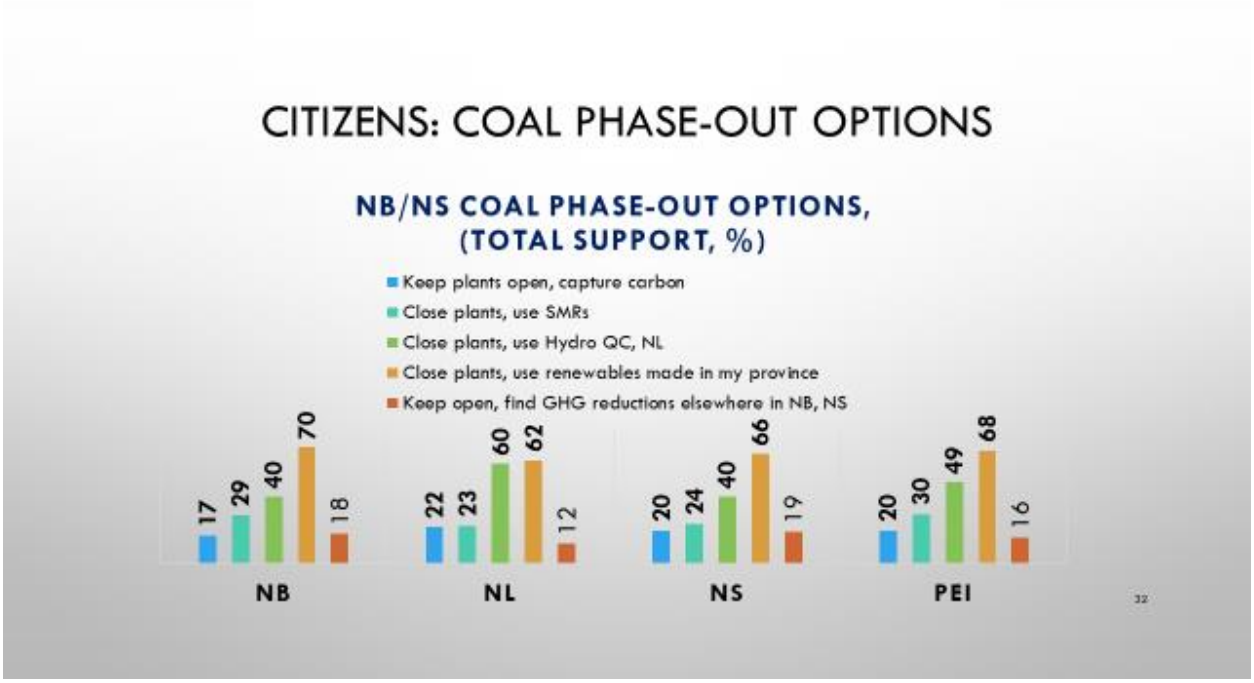


Figure 7. Coal phase-out should favour renewable energy, according to Atlantic Canadians.

Figure 8 summarizes Atlantic Canadians' views on whether nuclear is clean or emissions-free. CCNB asked this survey question because proponents of nuclear power often claim that nuclear is a climate change solution because it is clean and emissions free.

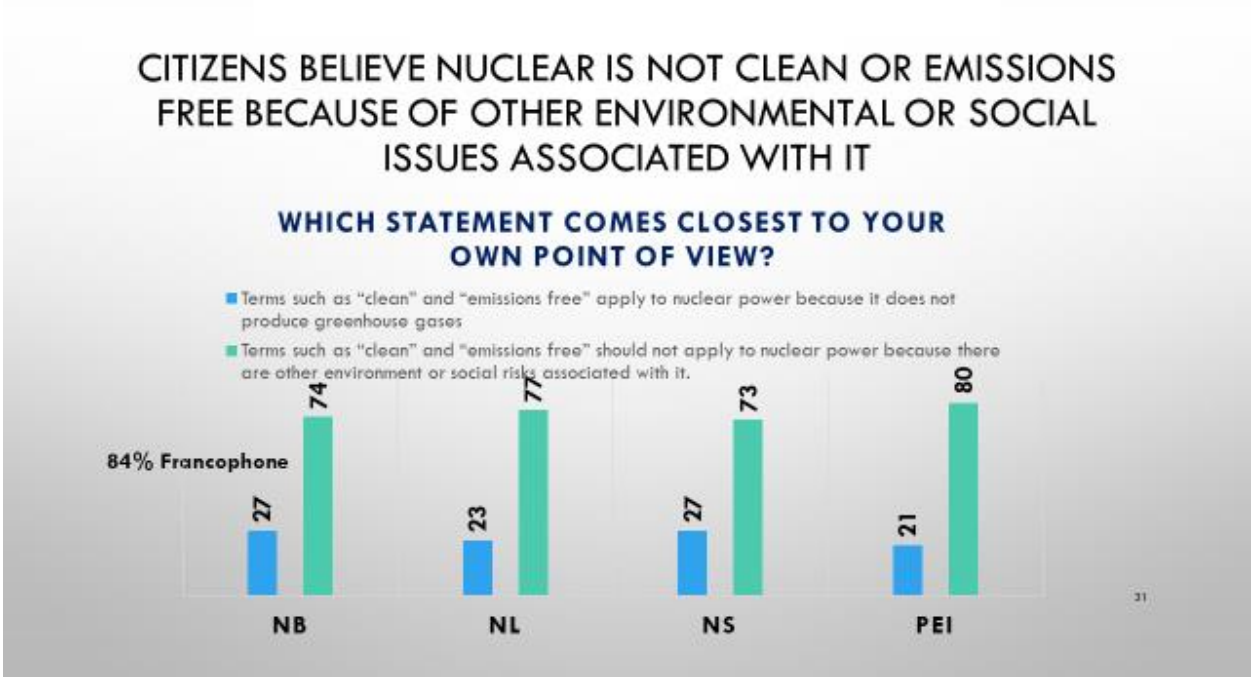


Figure 8. Nuclear is often proposed as a non-greenhouse gas emitting option. Atlantic Canadians, however, do not agree, with three-quarters of respondents indicating that other environmental and social issues mean nuclear should not be considered clean or emissions free.

Three-quarters of respondents indicate that other environmental and social issues mean nuclear should not be considered clean or emissions free; about one-quarter of survey respondents believe that these features do make nuclear clean and emissions free.

Listen to and engage citizens

CCNB is concerned that our failure to engage citizens in making decisions about our electricity future risks generating opposition to proposed solutions. Social scientists studying the social determinants of success have identified some key features required to build new projects, including the need to ensure procedural justice, meaning that citizens have full access to decision making and that their participation influences decisions, including on where projects are sited. Attention is also required to ensure communities have a say in the kind of benefits their citizens and governments receive. Critical to these benefits include community participation in projects, whether through cooperatives, local municipal utilities or other structures.

Electrification is not only an issue of policy, technology and engineering. Successful transformation of the electricity and energy sector requires an engaged, and involved citizenry. The International Energy Agency in its World Energy Outlook-2021 notes the importance of engaging the public:

> "Energy transitions do not mean an end to large infrastructure projects… all which can face opposition from local communities. Ways need to be found to engage those concerned and assuage their concerns. A clear and engaged social debate on the case for change is vital," (p.57).

Taking the advice of the IEA and social scientists seriously, suggests a strong need for less performative consultation, and more participatory engagement where stakeholders affect decisions like siting. Community concerns have already been a factor in New Brunswick where local opposition to the location proposed for a wind project in Anse Bleu lead to that project not proceeding.

Summary

The winds of change are blowing more intensely every day because of a changing climate and because of increasing global and national pressure to achieve deeper emissions reductions. New Brunswick needs to think about systems change instead of reacting to individual federal regulations (e.g., Belledune).

The province needs to balance its focus on small modular nuclear reactors with less costly, near-term options to manage risks, take advantage of safe bets, and lower household costs. CCNB strongly recommends the province do more to bring citizens into the discussion, to

educate them about the issues we face and the solutions we are considering. We need to engage and listen to our citizens.

In conclusion, we recommend that New Brunswick focus its Climate Action Plan update on three priority action categories, with electrification the top priority, followed by a stronger focus on health and safety through investments to reduce hazards and increase preparedness. Finally, the day-to-day business of running government should prioritize the need for a more strategic approach to climate policy, legislation and management, including green procurement.

Appendix

References

Resources on electricity options

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Resources on global trends

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- UNEP Emissions Gap report: https://www.unep.org/resources/emissions-gap-report-2021
- Hot or Cool Institute report: https://hotorcool.org/1-5-degree-lifestyles-report/
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