



# CLEAN GROWTH IN NOVA SCOTIA

## SUMMARY

A September 2020 report from the Canadian Institute for Climate Choices identified 11 new indicators to define and measure Canada's progress on climate change and clean growth. Drawing on a broad range of publicly available data, the report presents a vision of how Canada can prosper while addressing climate change. The 11 indicators offer data-driven insights on where Canada is making progress—and where more work needs to be done.



This case study focuses on a single province, Nova Scotia, to provide a tangible example of what clean growth means in practice, and how to measure it. Nova Scotia has significantly reduced greenhouse gas (GHG) emissions since 2005, while maintaining steady economic growth through a combination of policy and market-driven shifts in economic structure. Yet it faces considerable challenges in making future progress. The province has set some of the most ambitious climate targets in the country, but also has one of Canada's most emissions-intensive economies. At the same time, the province is grappling with high unemployment rates, high energy costs, and poor air quality in some areas.

This case study draws on a sub-set of the 11 indicators, focusing on the best available data—areas where it is clear that Nova Scotia has made progress and areas where more effort is needed. See the full report for more details on each of the 11 indicators.



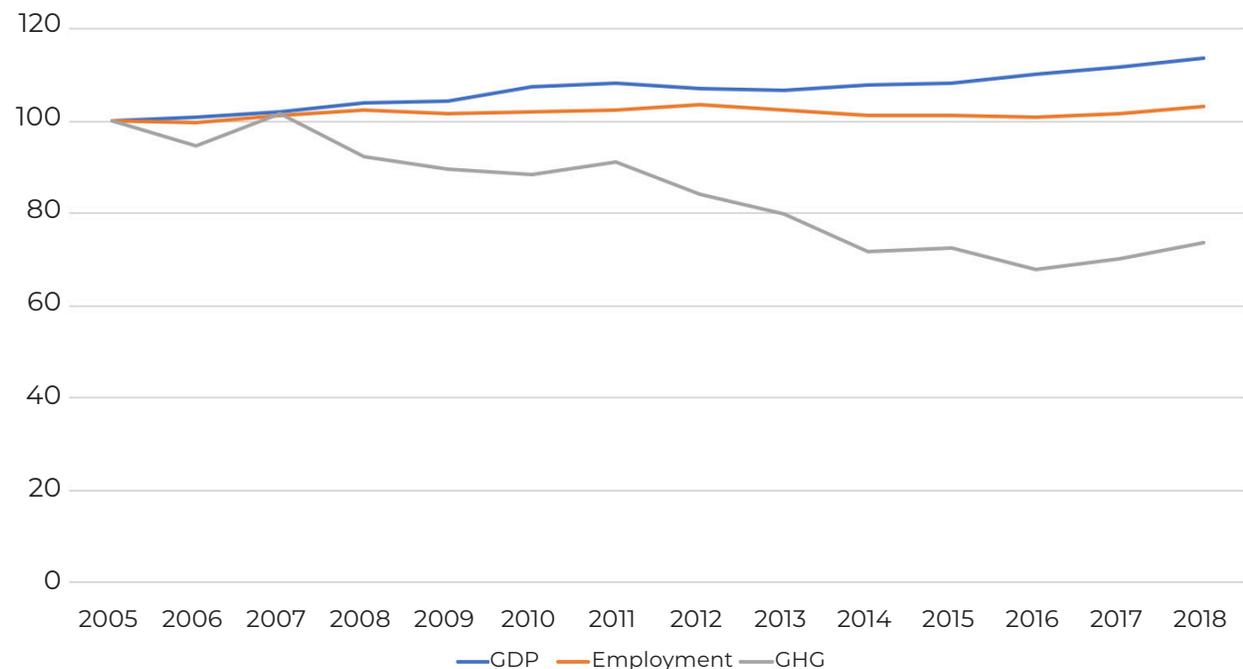
# INGREDIENTS OF CLEAN GROWTH IN NOVA SCOTIA

A fundamental objective of clean growth is separating—or decoupling—economic growth (measured by gross domestic product, or GDP) from GHG emissions. Figure 1 shows an index of Nova Scotia’s GDP, GHG emissions, and employment between 2005 and 2018.

Overall, Nova Scotia has made substantial progress on decoupling economic growth and jobs from emissions trends. Of all provinces and territories, Nova Scotia achieved the second-biggest reduction in GHG emissions between 2005 and 2018, a drop of 26 per cent (New Brunswick reduced emissions by 34 per cent). Meanwhile, provincial GDP (adjusted for inflation) increased by 14 per cent, while job growth increased by three per cent. And while these growth rates are lower than national averages (24 per cent growth in GDP and 14 per cent growth in jobs), Nova Scotia’s job growth remained consistent with population growth, and its overall unemployment levels remained stable (Statistics Canada, 2020b).

*Figure 1: GDP, Employment, and GHG emissions, Nova Scotia, 2005-2018*

Sources: ECCC (2020);  
Statistics Canada (2020a);  
Statistics Canada (2019).





Wages and salaries in Nova Scotia have also increased: median employment income (adjusted for inflation) rose by 22 per cent between 2005 and 2018—which represents the fourth-largest jump among provinces (Statistics Canada, 2020c).

Five drivers underpin Nova Scotia's progress on decoupling its GHG emissions from its economy: 1) fuel switching in the electricity sector; 2) energy efficiency gains; 3) clean tech sector growth; 4) climate-related infrastructure investment; and, 5) a gradual shift toward a services-based economy and away from producing emissions-intensive goods.

## 1. Fuel switching in the electricity sector

In 2007, Nova Scotia generated 89 per cent of its electricity from burning fossil fuels—namely coal and oil. By 2018, the share of fossil fuels in its electricity mix fell to 65 per cent (NSP, 2020a). In particular, coal use fell from 76% of the electricity mix in 2007 to 52% in 2018, while natural gas and oil stayed stable at 13% over the period. Meanwhile, renewable electricity production grew rapidly: wind power, for example, generated 12 per cent of Nova Scotia's electricity in 2018, up from one per cent in 2007 (NSP, 2020a). In total, the emissions intensity of Nova Scotia's electricity grid fell from 880 grams of GHGs per kilowatt hour (kWh) in 2005 to 720 in 2018 (ECCC, 2020).

Government policy has been instrumental in this fuel switching. Nova Scotia capped the total allowable emissions from the electricity sector and implemented a renewable portfolio standard in 2010, requiring Nova Scotia Power (the single, regulated utility in the province) to increase the share of renewable power to 25 per cent by 2015 and 40 per cent by 2020. This policy was accompanied by a community feed-in tariff program, which provided subsidies for renewable power generators from 2011 to 2016. Together these policies reduced electricity emissions by 35 per cent between 2005 and 2018 (ECCC, 2020).



## 2. Energy efficiency gains

Continual improvement in energy efficiency is the second big reason for Nova Scotia's success in decarbonizing its economy. Energy-saving measures cumulatively reduce about 1 million tonnes (Mt) of GHG emissions each year, equivalent to about six per cent of the province's total 2018 emissions (ECCC, 2020; Municipality of Digby, 2020). In 2017, for example, Nova Scotia had the 10th lowest electricity consumption per capita and consumed 24 per cent less electricity per person than the national average (CER, 2020). Electricity demand has fallen seven per cent since 2005, amounting to over \$180 million in energy cost savings for Nova Scotians (Efficiency One, 2019).

Here too, policy has been essential. The province established Canada's first independent energy efficiency utility in 2009, which has spearheaded numerous initiatives. Nova Scotia became the first province, for example, to require LED bulbs in all streetlights, saving an estimated \$18 million in operating and maintenance costs and 30,000 tons of GHGs per year (Government of Nova Scotia, 2012). Initiatives have also helped households adopt more efficient space-heating technologies, such as electric heat pumps; Nova Scotia now ranks third in the country for the number of heat pump installations per capita (CER, 2019). Due to these different policies, Nova Scotia now has the highest concentration of energy efficiency managers and advisors in the country (i.e., number of managers per large business) (Efficiency Canada, 2019).

Many of these initiatives have targeted Nova Scotia's most financially vulnerable households. Nova Scotia is the third-largest spender per household on reducing energy poverty (Efficiency Canada, 2019), helping reduce heating bills by 35 per cent for participating households (Efficiency One, 2018). One program is specifically targeted at improving energy efficiency in Mi'kmaq communities and is helping improve insulation, mitigate moisture, enhance ventilation, and support heat pump installations (Efficiency One, 2020). Although the program is still relatively new, it will cover 2,400 on-reserve homes in 13 Mi'kmaq communities.



### 3. Clean tech sector growth

Although it currently represents just two per cent of provincial GDP, Nova Scotia's environmental and clean technology (ECT) sector is an important source of new growth in the province. In terms of GDP, the ECT sector grew by 31 per cent between 2012 and 2018, compared to 19 per cent nationally, driven primarily by growth in clean electricity, waste management, and environment-related construction. Over this same period, jobs in the ECT sector grew by 27 per cent compared to 17 per cent nationally (Statistics Canada, 2020d).

Nova Scotia has also become a leader in exporting ECT goods and services. Between 2012 and 2018, exports in Nova Scotia's ECT sector grew by 67 per cent, compared to 23 per cent nationally. While imports of ECT fell during this period (by 33 per cent), exports provide new opportunities for employment and economic development. Nearly one-third of Nova Scotia's ECT exports were in complex manufactured goods (Statistics Canada, 2020e). CarbonCure, for example is a Nova Scotia-based company that manufactures a technology that introduces recycled CO<sub>2</sub> into fresh concrete to reduce its carbon footprint. The business was recently named North America's clean tech company of the year and is well poised to capture these growing export opportunities (Cleantech Group, 2020).



The province's mature ecosystem of research and development has provided the foundation for its growing clean technology sector. Nova Scotia outperforms all other provinces—and many international peers—when it comes to public spending on research and development, measured as a percentage of provincial GDP (Conference Board of Canada, 2020). Its high concentration of universities also provides a reliable source of new and innovative research. Researchers at Dalhousie University, for example, have teamed up with Tesla and other industrial partners to improve lithium-ion battery storage (Jarratt, 2020). Acadia University established the Tidal Energy Institute, which is helping advance tidal energy in the Bay of Fundy. Lastly, the Verschuren Centre at the University of Cape Breton partners with industry to develop and deploy technological solutions in renewable energy, among other research areas (Verschuren Centre, 2020).

Some provincial energy policies are aimed at tapping directly into this pool of expertise. In 2015, for example, the provincial government implemented a community feed-in tariff program to help develop and commercialize tidal power technologies, contributing \$420–\$530/MWh for new tidal projects (Government of Nova Scotia, 2020). The provincial utility is also ramping up adoption of key technologies, such as smart meters for households, which will allow it to better integrated small-scale renewables and time-of-use pricing into the electricity system (Lau, 2020; NSP, 2020b).

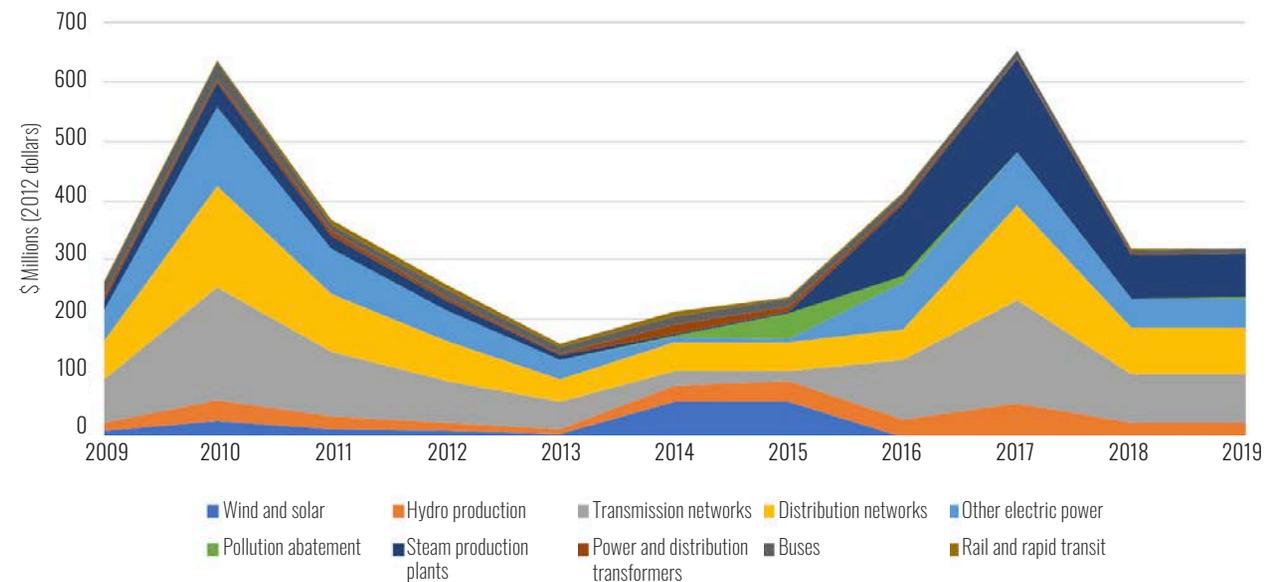
## 4. Climate-related infrastructure investment

Investments in climate-related infrastructure are another important factor in Nova Scotia's success on low-carbon growth. Figure 2 shows investment flows for select infrastructure categories between 2009 and 2019. Overall, the figure shows two large injections of capital in the provincial economy, one in 2010 and the other in 2017. These bulky investments were targeted primarily at expanding and maintaining the province's transmission and distribution infrastructure.

Nova Scotia also saw a burst of investment in renewable power generation between 2013 and 2015, driven by the province's community feed-in-tariff program (which ended in 2016) and expansion of commercial wind turbines. Meanwhile, investments in residential solar have accelerated rapidly (not included in the figure). Installed solar capacity grew from virtually nothing in 2015 to 5.4 MW by 2018. Financial rebates through Efficiency Nova Scotia's Solar Homes Program have helped spur this new investment, along with Property Assessed Clean Energy programs that provide households with accessible financing options for energy efficiency upgrades and solar installations (Nova Scotia PACE, 2020).

Figure 2: Investment Flows for Select Infrastructure Categories (2009-2019)

Source: Statistics Canada (2020f)





As the provincial electricity grid continues to get cleaner, this infrastructure could play a key role in decarbonizing other sectors, such as transportation (e.g., electric vehicles) and buildings (e.g., heat pumps). Nova Scotia Power, for example, is installing a fast charger network for electric vehicles from Yarmouth to Sydney, which will help facilitate trips from the south of the province to its north (NS Government, 2019). Metro Transit (the regional public transit authority for Halifax) has committed to electrifying half of its bus fleet by 2028 and plans to introduce the first electric buses by 2022–23 (Halifax Regional Council, 2020).

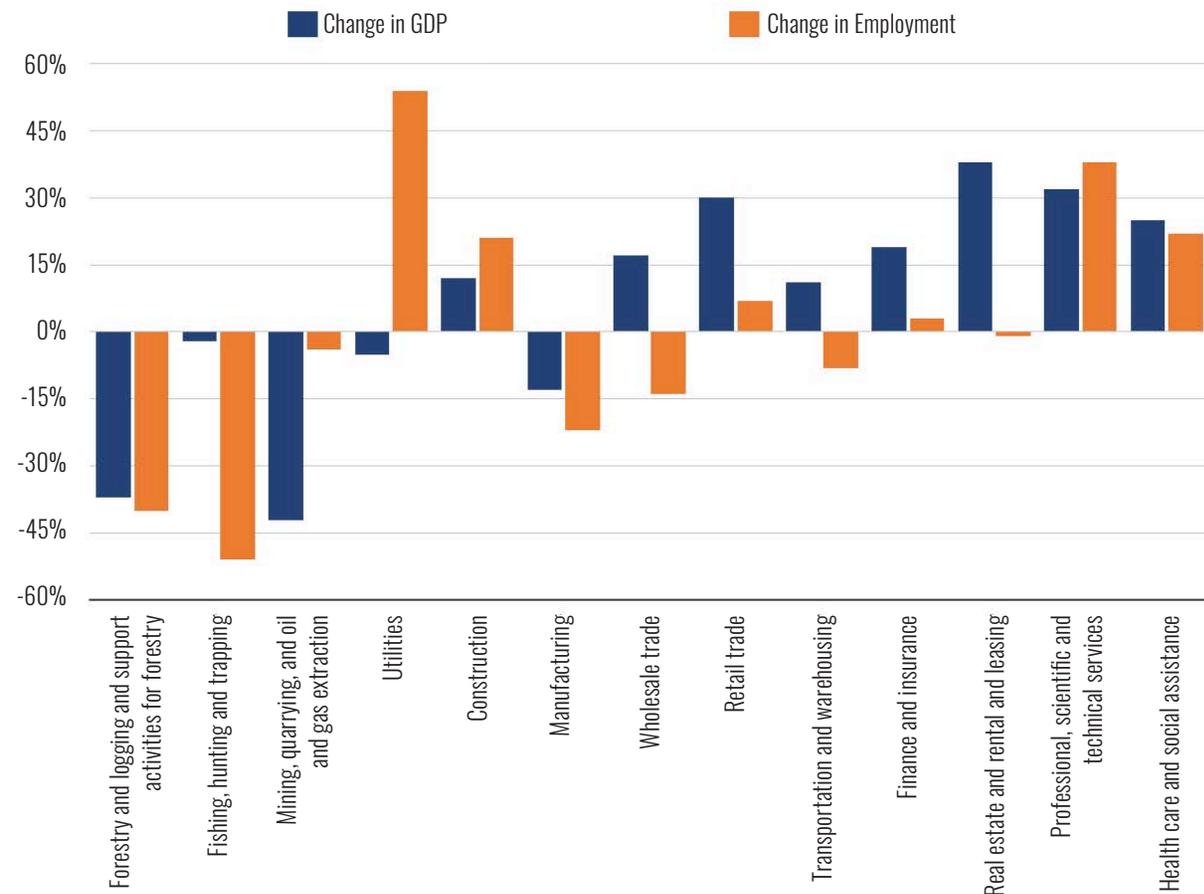
Improving how governments measure the value of these infrastructure investments will be critical in the future. A lack of data and analysis currently prevents us from evaluating the full range of costs and benefits associated with big infrastructure investments. Yet this type of data and analysis is essential to ensure that public dollars are channeled toward investments that achieve Nova Scotia's long-term climate and economic objectives and generate the highest possible societal return. Better historical data can also help inform current gaps and future investment needs.

## 5. A gradual shift from emissions-intensive goods toward services

Finally, the changing structure of Nova Scotia's economy has helped facilitate the province's drop in emissions. Figure 3 shows changes in GDP and employment in several key sectors in Nova Scotia from 2005 to 2018 and illustrates that most of the province's growth in GDP and jobs was in the services sector, which is generally less emissions intensive. At the same time, the province's goods-producing sectors have steadily contracted: between 2005 and 2018, GDP from the oil and gas sector fell by 87 per cent, coal mining by 84 per cent, and forestry and logging by 42 per cent.

Figure 3: Changes in GDP and Employment across Select Sectors in Nova Scotia (2005–2018)

Sources: Statistics Canada (2020b);  
Statistics Canada (2020g).





The figure also shows that some of the strongest growth in both jobs and GDP was in professional, scientific, and technical services, followed by the health care and social assistance sector. Jobs in the utility sector also saw significant growth over the period, which may be due in part to the increase in activity in energy efficiency programming. Based on GDP, services now represent 81 per cent of Nova Scotia's entire economy, up from 74 per cent in 2005.

Most of these structural changes have come from shifts in global market dynamics (e.g., decreased demand for coal, or steel manufacturing moving to lower-cost countries) and were not the result of domestic policy choices. Nevertheless, the gradual shift to a service-based economy has undoubtedly played a key role in the decoupling of emissions from sources of growth in Nova Scotia's economy.

# CHALLENGES IN MAKING FUTURE PROGRESS



Next, we look at four challenges Nova Scotia faces as it approaches the next stage of clean growth. The province has set ambitious climate targets. Achieving them—while creating new employment opportunities, keeping energy affordable for households, and reducing air pollution—will take concerted effort.

## 1. Declining goods-production and high unemployment in small, rural communities

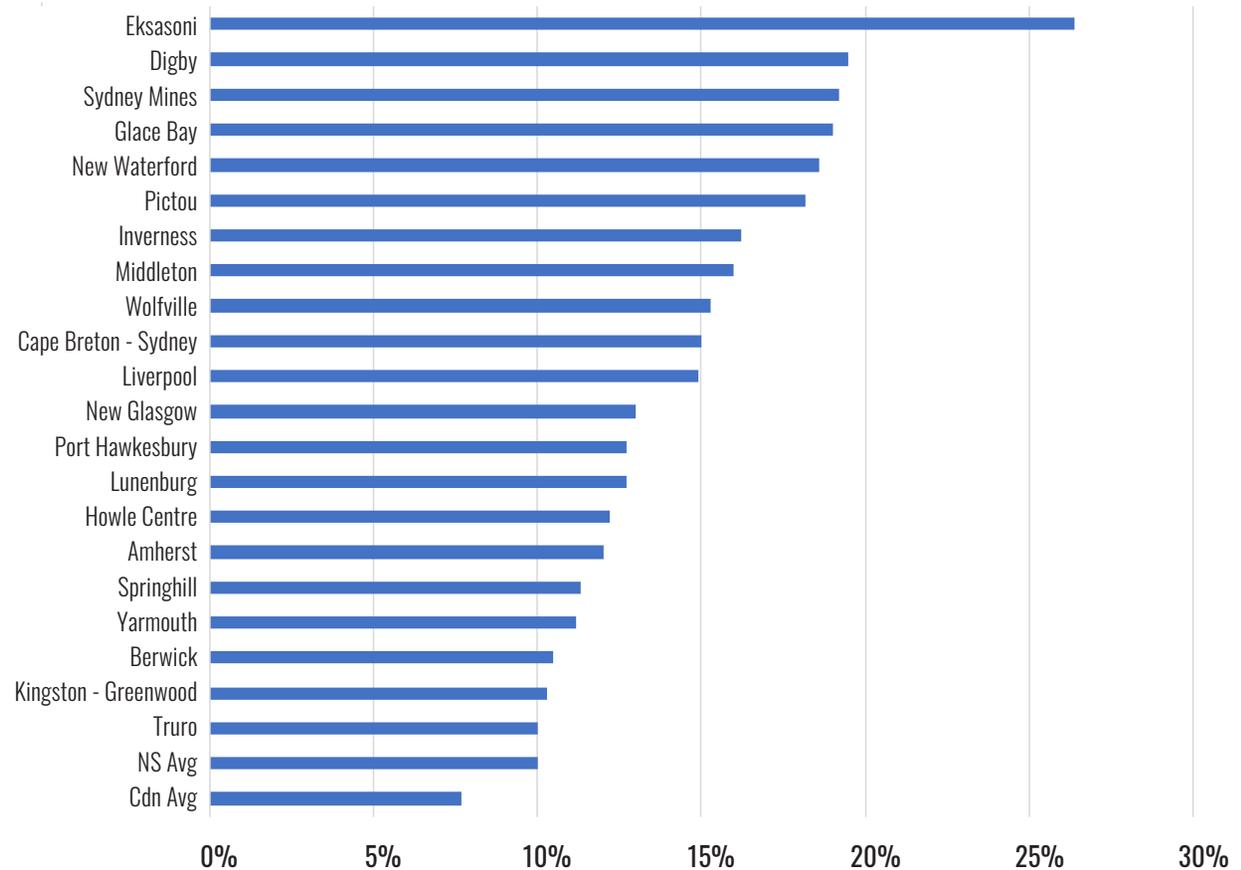
The same shift in market dynamics that helped reduce Nova Scotia's emissions is creating big challenges for small and rural communities where industrial activities have historically provided a key source of income and jobs. As noted above, most goods-producing sectors have shrunk in Nova Scotia.

Competitiveness pressures have played a big role in the closure of several big facilities and projects in Nova Scotia, such as the Irving refinery in Dartmouth, the Sable Island offshore gas project, and pulp and paper mills in Liverpool and Pictou. In many cases—especially where a single facility provided the bulk of employment opportunities in a region—closures have resulted in high regional unemployment rates, declining tax bases, poverty, and health issues (Lionais et al., 2019).

These economic losses highlight the uneven—and often precarious—employment situation in small Nova Scotia communities with few major employers. Figure 4 shows Nova Scotia's population centres with the highest unemployment rates from 2016, along with the average unemployment rates in Nova Scotia and Canada. Nearly half of all population centres with unemployment rates above the provincial average are in Cape Breton—a region that has struggled since the decline of its steel and coal industries in the mid 20th century (see Box 1). Many of these other communities have also faced a gradual decline in key industries, such as fishing, pulp and paper, and iron and steel, with few new sources of growth.

Figure 4: Unemployment Rate by Population Centre (2016)

Source: Statistics Canada (2016)



Unemployment rates are particularly high in Indigenous communities. The Eskasoni First Nation in Cape Breton, the world’s largest Mi’kmaq community, had the highest unemployment rate in Nova Scotia in 2016, at 26 per cent. In the Atlantic Region as a whole, over 18 per cent of Indigenous peoples were unemployed in 2016, compared to 15 per cent nationally (ACOA, 2020).

Addressing this deep-seated problem with structural unemployment will not be easy. In many cases, dedicated retraining and education programs could help. However, retraining only helps if the jobs are there when training is complete. Determining where Nova Scotia has a competitive edge in a low-carbon economy is critical as its economy continues to transition.

Ensuring that existing sources of employment remain competitive is also important to future employment prospects. The paper mill in Port Hawkesbury, for example, located in southern Cape Breton, employs 300 workers—equivalent to about 20 per cent of the town’s labour force—and is the region’s largest source of private investment (King, 2019; Townfolio, 2020). The plant also consumes about 10 per cent of Nova Scotia’s total electricity use (Torrie, 2019). In 2019, the pulp mill signed a memorandum of understanding with the Canada Infrastructure Bank to develop a 112 MW wind farm to generate clean, renewable power (PPC, 2019). Ensuring that Nova Scotia’s remaining goods-producing industries are competitive in a low-carbon economy could be a key part of their future success.

#### BOX 1

### Mobile workers in Cape Breton

Limited job prospects locally have pushed many Nova Scotians to find work in other provinces while still living on the east coast (known as “mobile work”). In particular, Western Canada’s oil and gas industry has helped absorb a substantial portion of Atlantic Canada’s weak labour market, especially for Cape Breton. In 2008, for example, over six percent of Cape Breton’s entire labour force worked in Alberta.

Although mobile work has become an important source of employment income for East Coast communities, it has proven highly unstable. When oil prices plunged from \$US 80 per barrel in 2008 to \$50 per barrel in 2009, the number of Cape Bretoners employed in Alberta fell by one quarter. The most recent drop in oil prices due to the COVID-19 pandemic will likely have a similar impact.

The longer-term prospects for Atlantic Canadians working in Western Canada’s oil and gas sector are even less certain as global markets shift away from carbon-intensive energy. Without a plan to transition its workforce, regions like Cape Breton could again be hit hard by changes in global demand.

*Sources: Lionais et al. (2019); Campbell (2019).*



## 2. Reducing economy-wide emissions and achieving net-zero emissions by 2050

Nova Scotia has set some of the most ambitious climate targets in the country. The recently proposed Sustainable Development Goals Act would commit the province to reducing emissions by 53 per cent from 2005 levels by 2030 and achieving net-zero emissions by 2050.

Achieving these longer-term targets, however, requires a big lift. As of 2018, Nova Scotia reduced emissions by 26 per cent from 2005 levels, putting the province halfway to reaching its 2030 target. Its heavy reliance on coal-fired electricity made initial reductions relatively easy and cost-effective. Making additional gains will be harder.

The electricity sector, for example, is still the largest source of emissions. With less than three per cent of Canada's population, emissions from Nova Scotia's coal-fired units accounted for seven per cent of all GHG emissions from electricity generation in 2015 (ECCC, 2018a). Imports of clean electricity from the Muskrat Falls hydro dam in Newfoundland and Labrador will help Nova Scotia further reduce emissions from its electricity grid. But even if it imports the maximum amount of available energy from Muskrat Falls, more than half of Nova Scotia's electricity could still come from fossil fuels (Torrie, 2019; NSURB, 2019). Based on an equivalency agreement with the Federal Government, coal and other fossil fuels are expected to play a central part of the Nova Scotia grid for the foreseeable future (EAC, 2020; ECCC, 2018).



Reducing emissions from the transportation sector has also proven difficult. Transport emissions fell between 2005 and 2014 but have risen since; sector emissions in 2018 were the same as they were in 2005. On a per capita basis, consumption of refined petroleum products in Nova Scotia was 12 per cent above the national average in 2018 and many areas still rely on heating oil. (CER, 2020). Nova Scotia implemented a cap-and-trade program for GHG emissions in 2018, but the policy is not expected to have a substantial impact on transportation emissions. The government estimates the program will decrease annual emissions by less than two per cent by 2022 (Government of Nova Scotia, 2019). Currently, EVs sales account for just 0.03 per cent of total annual vehicle sales in Nova Scotia, compared to 3.5 per cent of sales nationally (EAC, 2020); it also ranks poorly on EV charging infrastructure relative to other provinces (Efficiency Canada, 2019).

Nova Scotia also has room to improve when it comes to the total amount of GHGs associated with the goods and services consumed in the economy. Nova Scotia had the third-highest consumption emissions in Canada in 2011 (excluding the territories); only Alberta and Saskatchewan ranked higher (Dobson & Fellows, 2017). While consumption-based measures are typically not considered in how countries and provinces report their emissions internationally, they are important to achieving global low-carbon growth.



Nova Scotia will need to make significant progress in each of these areas if it is to meet its ambitious climate goals. In many cases, it will require pushing even harder on energy efficiency, decarbonizing the electricity grid, fostering clean technology and other sources of growth, and investing in more climate-related infrastructure. Reducing emissions from the transportation sector, for example, will require accelerating adoption rates of low-carbon technologies, such as electric and fuel cell vehicles. It will also likely require investments in “enabling” infrastructure—such as charging networks, cycling infrastructure, and public transit. And it will require investments in renewable power generation and efficiency improvements to ensure the province has sufficient clean energy to support the ongoing shift to greater electricity use. In each case, the province should consider how to best align these policies and technologies to achieve potentially transformative change (Haley, 2018).

Efforts are well underway to determine where and how Nova Scotia can achieve its climate goals while also addressing its other important economic and social objectives. The provincial government, for example, has planned consultations with citizens, rights-holders, and other stakeholders on its proposed Sustainable Development Goals Act (delayed due to the 2020 pandemic) and is developing its next climate change plan. The region is also working on the Clean Power Roadmap for Atlantic Canada, which aims to provide a vision for how the shift to cleaner power will fit within the broader energy needs of the region (CICS, 2019). Lastly, the province is awaiting a feasibility study on the potential of hydrogen production, storage, distribution, and use in the Maritimes, expected to be released in late 2020 (OERA, 2020).



### 3. Ensuring Nova Scotia households have affordable energy

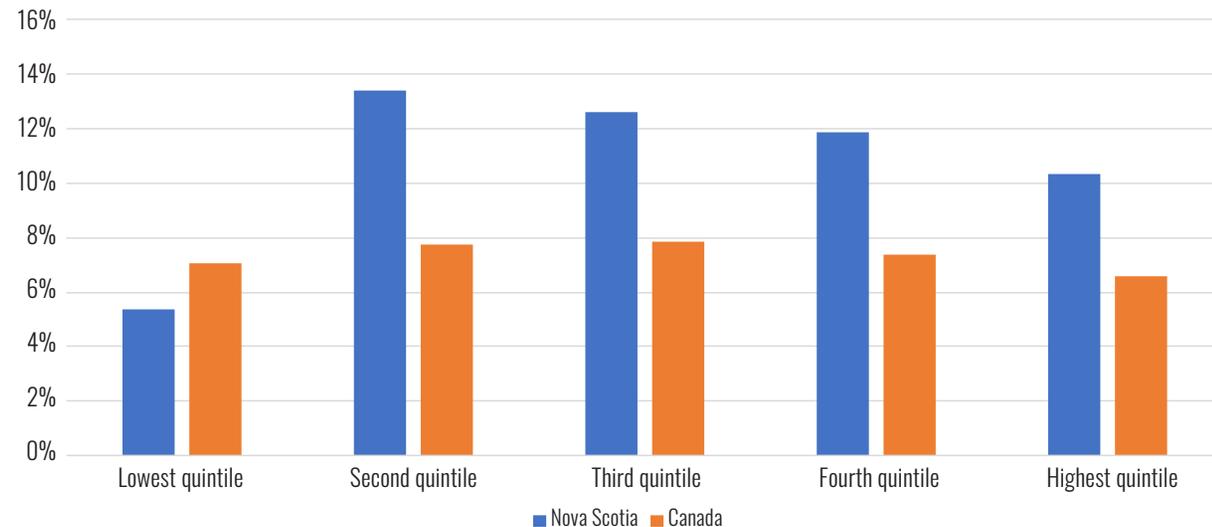
As Nova Scotia looks to implement more ambitious policy to achieve its climate goals, energy affordability is a key consideration. Whether an energy policy reduces the cost of efficient retrofits or raises the price of gasoline to encourage the use of cleaner alternatives, the transition to a low-carbon economy has implications for households and affordability. And while climate policy cannot singlehandedly resolve complex and deep-rooted socioeconomic disparities, policies can and should be designed to keep energy affordable—especially for financially vulnerable households.

Energy affordability is an ongoing challenge in Nova Scotia. Nova Scotia has some of the highest electricity rates in the country, and a large number of households still burn furnace oil or wood to heat their homes, which can be costly and inefficient options (Hydro Quebec, 2019; CER, 2018). At the same time, natural gas prices in the province are expected to climb even higher with the closure of its offshore gas production (Casey, 2019). And while Nova Scotia has made good progress on making energy more affordable for the most financially vulnerable (discussed above), the bulk of Nova Scotians spend more of their household budget on energy than households in other provinces.

Figure 5 shows the average share of household energy expenditures in Nova Scotia and Canada for 2017. Households are broken out into five groups based on their income—called quintiles—ranging from the lowest-income households to

Figure 5: Share of Household Expenditures on Energy (2017)

Source: Statistics Canada (2020h).



the highest. Energy expenditures include home heating and power, along with transportation expenditures (i.e., gasoline, public transit, taxis).

Overall, Nova Scotians spend a larger share of their household income on energy compared to households in the rest of Canada. For example, lower- to middle-class households (i.e., those in the second and third quintiles) spend 60 per cent more of their household budget on energy compared to the average Canadian. These two income brackets include households that, in many cases, have bigger houses than the lowest-earning segment and are more likely to own and drive private vehicles.

Household energy expenditures in Nova Scotia have, however, decreased over time across all income segments. In 2010, for example, households in the second income quintile spent 19 per cent of their total expenditures on energy. By 2018, these same households spent (on average) 13 per cent of their total expenditures on energy. This downward trend also happened during a period where electricity prices and gasoline prices increased, suggesting that improvements in energy efficiency played a key role in reducing average energy expenditures (NRCan, 2020).<sup>1</sup>

<sup>1</sup> Unlike the rest of Canada, average household expenditures in Nova Scotia actually decreased over the 2010–2017 period (by four per cent). This means that the decreasing share of household expenditures on energy in Nova Scotia was not due to households simply spending more on other things, which would (all else equal) push down the average share spent on energy.



Still, scaling up energy efficiency programs for households could help make energy more affordable for those paying a disproportionately high share of their income on energy. Expanding the existing energy efficiency program for Mi'kmaq communities, for example, could help build capacity and allow communities to lead energy efficiency projects themselves.

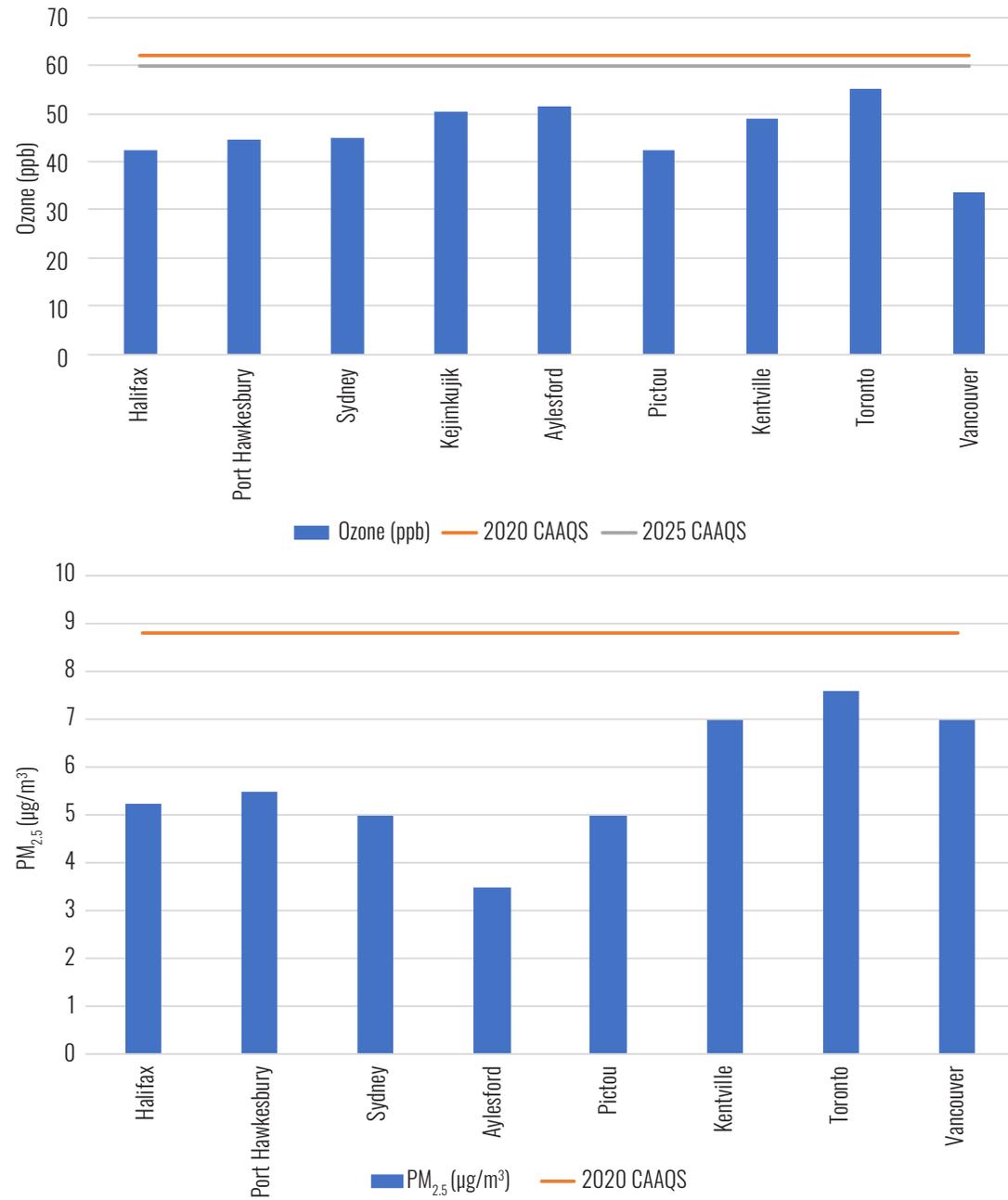
#### 4. Improving air quality in rural Nova Scotia

Clean air is central to the health and well-being of Nova Scotians. And while Nova Scotians generally enjoy clean air relative to other parts of the world, there are still strong links between sources of GHG emissions, air pollution, and risks to Nova Scotians' health. As a result, Nova Scotia has significant opportunities to improve the health of residents as it accelerates action to reduce GHG emissions.

Although Nova Scotia only has a handful of monitoring stations, data from 2017-18 suggest that several rural areas experienced relatively high levels of ground-level ozone and fine particulate matter—central ingredients in smog. Figure 6 below shows annual average levels of ground-level ozone and fine particulate matter for several Nova Scotia municipalities where data is available, along with Toronto and Vancouver for comparison. The figures also include the Canadian Air Quality Standards for reference, which are jointly set by federal and provincial governments.

Figure 6: Annual Average Ground-level Ozone (top) and Fine Particulate Matter Emissions (bottom) (2017-18)

Source: ECCC (2018b)



Overall, six municipalities in Nova Scotia had ground-level ozone levels that were higher than Halifax and Vancouver. Perhaps surprisingly, ozone levels in these mostly small and rural municipalities approached levels found in Toronto. Levels of fine particulate matter tell a similar story, where levels were similar to or exceeded those in Halifax (with the exception of Aylesford).

These high levels of O<sub>3</sub> and particulate matter pose serious health risks to Nova Scotians. Health Canada, for example, estimates that roughly 260 Nova Scotians die prematurely from air pollution each year.<sup>2</sup> When controlling for population, Nova Scotia has the seventh highest risk exposure of premature mortalities when compared to all 13 provinces and territories. Efforts to reduce GHG emissions in the province would have clear health benefits.

Sulphur dioxide emissions in Nova Scotia—although well below national emissions standards—also have health implications for rural communities, with possible connections to the province’s remaining stock of coal-fired electricity facilities. Sulphur dioxide levels in Port Hawksbury, Pictou, and Sydney, for example, are two to three times higher than in Halifax. Each of these three communities have coal-fired electricity generating stations in or near their communities. And while existing regulatory measures to reduce coal-fired generation in Nova Scotia will help prevent 89 premature deaths, 8,000 asthma episodes, and 58,000 days of breathing difficulty (Gunn, 2019), its remaining coal-fired power plants still pose health risks.

Improving air quality in Nova Scotian communities, however, is not entirely within the government’s control. A portion of Nova Scotia’s poor air quality comes from the eastern U.S., where coal-fired electricity is also common. The small Nova Scotia towns of Kejimikujik and Aylesford, for example, are both rural and do not have any major source of industrial emissions nearby. In these cases, efforts to shift to cleaner electricity in the Eastern U.S. could go a long way toward making Nova Scotia’s air healthier.

<sup>2</sup>Based on 2015 population counts and air pollutant concentrations from 2014-2016.

# CONCLUSIONS & LESSONS LEARNED



This case study provides a window into Nova Scotia's journey toward low-carbon growth, looking at both its successes and areas for future improvement. Its provincial context is unique, but many lessons are applicable to other provinces and territories that are seeking their own pathways to cleaner growth:

- ▶ Nova Scotia demonstrates that **it is possible to maintain economic growth while reducing GHG emissions**. The province also managed to keep job growth consistent with population growth and increase wages and salaries faster than in most other provinces.
- ▶ A big reason for the province's success was **reducing GHG emissions from its emissions-intensive electricity sector**. Other provinces with emissions-intensive electricity grids could achieve similar gains.
- ▶ Nova Scotia is the first province with an independent and well-funded energy efficiency utility, helping reduce emissions while generating cost savings. **Energy efficiency improvements have helped keep energy affordable** for low-income households, reduced peak demand and the need for new capital spending, and have created a burgeoning industry with well-paying jobs.
- ▶ Nova Scotia's **mature ecosystem of research and development** has been instrumental in building a successful clean technology sector. Key factors include strong public investment in R&D, a dense network of universities, and policies that leverage these resources.
- ▶ **Investing in low-carbon electricity and renewable power** generation is a critical first step toward the broader switch to clean electricity throughout the economy. All climate-related investments, however, should be accompanied by a full assessment of their economic and environmental value to help prioritize projects with the highest financial and societal return.



While Nova Scotia has been successful in accelerating low-carbon growth, this case studied highlighted several challenges the provincial government will need to confront in the coming years if it is to achieve its ambitious and laudable climate commitments. Here too, insights from Nova Scotia's experience are relevant to other jurisdictions, especially as more governments, businesses, and communities commit to achieving net-zero emissions by 2050.

- ▶ Shifts in global markets have left many small and rural areas in the province with high unemployment rates, particularly in Indigenous communities. **Retraining parts of the labour force while developing new market opportunities** will be essential to achieving inclusive and lasting growth in the future.
- ▶ Additional GHG reductions—and achieving net-zero emissions by 2050—will be a difficult task. Like many other provinces, Nova Scotia is struggling to reduce transportation emissions. **Electrification provides a key opportunity to help decarbonize** this sector, along with buildings and industrial sectors, though it will likely require an expansion in low-carbon electricity production.
- ▶ Although Nova Scotia has done well with keeping energy affordable for those with the lowest incomes, most Nova Scotians spend substantially more on energy than in other provinces. **Keeping energy affordable is likely to be a key consideration** as governments continue to support and build cleaner energy systems.
- ▶ Many small and rural communities—both in Nova Scotia and in the rest of Canada—grapple with levels of air pollution that sometimes exceed urban areas. **Reducing GHG emissions can significantly improve local air quality and generate big health benefits.**

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