

How Fossil Fuels Drive Inflation and Make Life Less Affordable for Canadians

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Summary

- Fossil fuel prices are volatile and impact not only the price of energy services but
 also many non-energy items. Energy prices are a key driver in determining the
 inflation rate but are also the most volatile component of Canada's overall inflation.
 From February 2021 to June 2022, energy prices accounted for a third (33%) of
 Canada's overall inflation.
- Oil and gas price shocks are not new, and energy-driven inflation will keep occurring
 if Canada continues to be dependent on fossil fuels. Fossil fuel price volatility will
 continue, driven by geopolitical conflicts, climate-related disruptions impacting both
 supply and demand, and increased integration of regional natural gas markets with
 global liquified natural gas (LNG) markets.
- At the same time, the levelized cost of electricity from renewable energy has
 now dropped below that of fossil fuels, indicating a clear cost savings alongside
 improvements in efficiency. Recent analysis has estimated that Canada could save
 up to CAD 15 billion per year in total energy costs by transitioning its electricity grids
 to net-zero by 2050, saving most Canadian households an average of CAD 1,500
 annually in energy costs.
- Policies that discourage the use of oil and gas (e.g., carbon pricing) and encourage
 fuel switching and improved efficiency (e.g., funding electric vehicles and heat
 pumps) will help Canadians save money and insulate the economy from fossil-fueldriven inflation. Creating favourable investment conditions for renewable energy
 and enhancing the capacity and flexibility of the electricity grid should be a priority



- for federal and provincial governments, as these investments are crucial to support electrification and reduce dependency on fossil fuels.
- Contrary to arguments that climate policy makes life less affordable, it is fossil fuels
 that keep consumers stuck on an energy price rollercoaster. There will be regional
 differences in costs for consumers during the transition from fossil fuels to clean
 energy. It is imperative for governments to recognize this and take measures to
 mitigate impacts on access and affordability in regions negatively impacted by price
 changes. The federal government can play a role in helping minimize any potential
 cost increases for consumers in regions where there is currently strong reliance on
 fossil fuels for electricity.

Introduction

Public discourse in Canada is currently dominated by concerns about affordability. Canadians have experienced historic inflation and price increases in the most essential areas of life—food, shelter, and energy. However, there is a key element to price inflation that often gets overlooked: the significant impact of oil and gas prices. Canada's energy use is highly dependent on fossil fuels, meaning that the price of energy services, such as transportation, home heating, and power, are impacted by international fossil fuel markets. Non-energy items, such as food and various durable goods and services, are all impacted by oil and gas price changes.

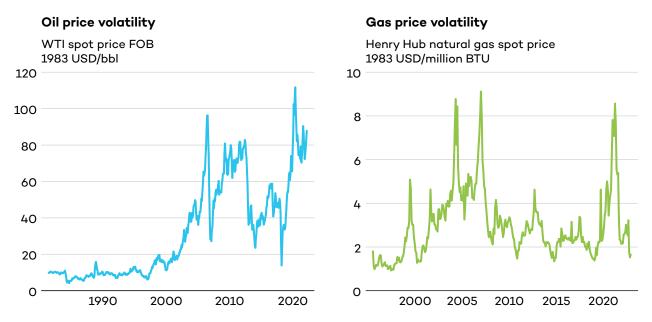
Price spikes for oil and gas are nothing new, but as climate change worsens, risks to fossil fuel assets and supply chains increase. As global demand for fossil fuels declines, market responses, geopolitics, and possible imbalances in supply and demand could all potentially increase oil and gas price volatility. Transitioning energy systems away from fossil fuels can not only insulate against volatile fossil fuel prices and energy-driven inflation, but it can also reduce energy use and overall emissions. Well-designed climate policy can be a win–win for Canadians, supporting affordability while also building a net-zero economy. Given the importance of energy to price stability, governments should enact policies and foster investment climates that support a transition away from fossil fuel energy dependence.

The Fuel Price Rollercoaster

Fossil fuel prices are known for volatility (see Figure 1). This volatility is largely unavoidable as oil and gas are subject to the boom-and-bust commodity cycle. International conflicts further contribute to this volatility, as demonstrated by ongoing conflicts in the Middle East and Russia's invasion of Ukraine.



Figure 1. Oil and gas price volatility over time



Sources: Oil Price Volatility – RI. (n.d.); US Energy Information Administration, 2024a. Gas Price Volatility – RI. (n.d.); US Energy Information Administration, 2024b.

Historically, natural gas markets have been regional and, as a result, better insulated from global price shocks. However, this is changing due, in part, to the growth of transcontinental and international pipelines for exporting natural gas resources. Increased integration between regional natural gas markets and the global liquified natural gas (LNG) market also means that fluctuations in the latter can impact regional prices (Williams-Derry & Institute for Energy Economics and Financial Analysis, 2023). For example, a surge in demand for LNG exports elsewhere in the world (e.g., extreme weather event, geopolitical conflict) could create a price spike in North American gas prices as domestic supply drops to meet export demand (Williams-Derry & Institute for Energy Economics and Financial Analysis, 2023). This would mirror the experiences in the United States and Australia, both of which have seen domestic energy bills climb after natural gas exports increased (Chang, 2022; Energy Innovation & Marcacci, 2024).

In Canada, consumer reliance on fossil fuels magnifies the impact that price spikes and supply disruptions have on the economy. In 2022, the main sources of primary energy consumed in Canada were natural gas (38.1%), refined petroleum products (35.0%), followed by electricity (23.5%) (Statistics Canada, 2023b). Many provinces still rely heavily on fossil fuels for their power production (Canada Electricity Advisory Council, 2024; Canada Energy Regulator [CER], 2023a). While provincial policy and market design drive electricity rates, fossil fuel prices also directly influence the cost of electricity generation.

Mirroring global markets, fossil fuel prices in Canada are susceptible to large fluctuations (Figure 2). Canada's energy reliance on fossil fuels means that energy prices are the most volatile component of overall inflation in the country by a significant margin, noting it far outstrips goods,



foods, services, and shelter by a wide margin both in terms of positive and negative influence on inflation (Figure 3). The impact of energy price volatility is also evident in United States and European Union inflation data (Krahé & Heilmann, 2023; Melodia & Karlsson, 2022), where natural gas, oil, and petroleum products account for approximately 70% of total energy consumption (Energy Information Administration, 2023; Eurostat, 2024).

25 Rate of change, monthly frequency (%) 20 15 10 Natural gas 5 Fuel oil and 0 other fuels -5 Gasoline -10 -15 -20 2020 2021 2022 2023

Figure 2. Fossil fuel price volatility in Canada

Source: Author's calculation based on data from Statistics Canada, 2024a.

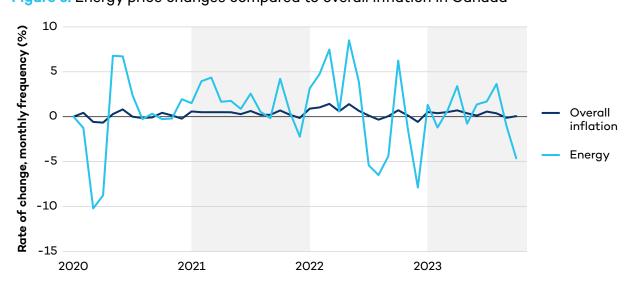


Figure 3. Energy price changes compared to overall inflation in Canada

Source: Author's calculation based on data from Statistics Canada, 2024a.

Additional information and interactive graphics for other inflation categories, including shelter, food, goods, and services, can be found online at: https://www.iisd.org/articles/deep-dive/fossil-fuels-drive-inflation-canada.



Fossil fuel price volatility is expected to continue and worsen as climate-related disruptions impact infrastructure, supply, and demand (Tumala et al., 2023; Xie et al., 2022). For example, the polar vortex of 2021 that reached as far south as Texas and the Gulf of Mexico brought winter storms to regions not equipped to manage sustained freezing temperatures. Texas's electricity grid relies heavily on natural gas, but due to frozen equipment, gas transmission was restricted while extreme cold shut down 25 refineries in the Gulf of Mexico region (Casto, 2023). Increased demand and reduced supply led to gas price spikes in Texas and throughout North America, including Canada (Reuters, 2021).

The Canadian wildfires of 2016 and 2023 also abruptly impacted North American oil prices. In both years, oil prices (West Texas Intermediate) surged due to lowered production levels, although prices fell again when production came back online. Wildfires that disrupt the oilsands can also create price volatility in the other direction. Alberta oilsands operations account for more than 25% of Canadian natural gas demand, and when that demand is disrupted, intra-Alberta natural gas prices drop. For example, the month prior to the 2016 wildfires, intra-Alberta gas traded at CAD 1.08 per gigajoule (G); in May, it dropped to a record low of CAD 0.58 per G before rebounding to CAD 2.77 per G when production recovered (Canada Energy Regulator, 2023b).

Alongside the growing risks of climate events, as global demand for fossil fuels declines, market responses and potential imbalances in supply and demand could increase price volatility (Cosbey et al., 2021). Similarly, ongoing geopolitical tensions and lower levels of global cooperation increase the risk of market disruptions and price shocks (International Energy Agency [IEA], 2024). Shoring up investment in reliable, efficient, and low-cost energy sources is essential to mitigate the impact of inevitable global fossil fuel price fluctuations.

Why Does Volatility Matter?

Consumers can benefit from lower fossil fuel prices during periods of decline, but abrupt price drops can also disrupt the economy, leading to uncertainty and affecting businesses, employment, and productivity. When prices rebound, consumers are often left unprotected, exacerbating difficulties for businesses and households that are unable to hedge against fluctuating energy prices. Another challenge with volatility is that ongoing and repeated fossil fuel price shocks can trigger self-perpetuating price increases. Increasing energy prices causes inflation in other sectors of Canada's economy that are sensitive to energy inputs, such as food and homeownership costs, where prices are slower to fall once elevated (Chen & Tombe, 2023).

The ripple effect of high energy prices should not be underestimated. With ongoing energy price fluctuations and persistent higher prices amongst other key goods and services, central banks look to strategies to counter inflation, typically through interest rate hikes (Brunnermeier, 2023). Higher interest rates, in turn, put a further squeeze on affordability as mortgage and rental costs increase. This highlights the disproportionate and escalating effect that energy price hikes can have on consumers.



The Spillover Effect of Fossil Fuel Reliance

The economic impact of Canada's reliance on fossil fuels was particularly evident during the post-pandemic recovery phase. As COVID-19 restrictions lifted in 2021 and economies started recovering, energy demand grew rapidly. However, supply-side challenges arose due to sluggish oil production in key OPEC-plus countries (Choudhury, 2021; Kennedy, 2022), unexpected outages in LNG supply (IEA, 2022), and Russia's invasion of Ukraine, exacerbating already tight oil and gas markets (Chiwaya, 2022). This combination of demand-side and supply-side pressures led to skyrocketing international oil and gas prices. Global energy consumption expenditures were 20% higher in 2022 than the average from the previous 5 years (IEA, 2024). By June 2022, Canadians were paying on average CAD 2.07 per litre for gasoline, up 55% from a year prior—while diesel fuel prices soared more than 80% in certain regions over the same period (Statistics Canada, 2024c). It is worth noting that although carbon prices in Canada also rose during this period, with a CAD 0.73 year over year increase on gasoline prices, only CAD 0.03/litre was attributed to the increase of the carbon tax. The remaining CAD 0.70/litre impact was driven by international pricing dynamics (Figure 4).

Price at pump in June 2021
133.7 cents/litre

250
Price at pump in June 2022
207.2 cents/litre

Price change due to carbon tax increase 3 cents/litre

Price change due to market price volatility
70.5 cents/litre

Figure 4. Year over year price increase of regular unleaded gasoline (Canadian average retail price)

Source: Statistics Canada, 2024c.

Canadian inflation analysis has determined the majority of Canada's high inflation during the pandemic recovery period stemmed from three specific items: energy, food, and shelter costs (Figure 5). These items contributed more than 60% of Canada's overall inflation in June 2022 and played an even more substantial role in the acceleration observed in the previous year (Chen & Tombe, 2023). From February 2021 to June 2022, energy prices alone accounted for a third (33%) of Canada's overall inflation (Chen & Tombe, 2023). And when energy costs spike, a wide range of other items are impacted.



Items that are energy intensive¹ contributed nearly three full percentage points to Canada's overall inflation in Q3 2022 (Chen & Tombe, 2023). The costs of these items rise and fall with oil and gas prices. Up to 25% of non-energy items within the consumer price index are sensitive to oil prices² (including most food categories and various durable goods), accounting for nearly 60% of Canada's non-energy inflation in July 2022 and over 85% of the increase since February 2020 (Chen & Tombe, 2023). These spillover effects accelerate inflation across the board and become difficult to reverse once they have taken hold.

10 8 Year-over-year change (%) 6 All other items Food (groceries) Accommodation (rented and owned) Energy -2 2017 2018 2019 2022 2023 2020 2021 2024

Figure 5. Key drivers of consumer price inflation in Canada

Note: The accommodation category is primarily owned accommodation. This category excludes household energy costs which are captured in the energy category.

Source: Author diagram based on data from Chen & Tombe, 2023.

¹ Energy-intensive items identified by Chen and Tombe (2023) include fuel and energy products, transportation services, garden supplies, laundry services, postal services, food, clothing materials, repair services, and materials for the maintenance and repair of dwellings, and other products.

² Oil price-sensitive items include homeowners' replacement costs, other owned accommodation expenses, traveller accommodation, air transportation, vehicle rentals, almost all food categories, restaurant meals, rent, and various durable goods including new vehicles, furniture, and most clothing (Chen & Tombe, 2023).



Recognizing the systemic importance that energy plays in maintaining price stability, it is imperative to consider and monitor its price volatility and factor it into monetary policy considerations (Weber et al., 2022). To combat inflation, interest rate hikes have been the preferred policy of central banks (Brunnermeier, 2023). This approach is meant to curb consumer cash flows in demand-driven inflation scenarios (i.e., excess consumer spending). But when supply-side inflation mounts (i.e., rapidly rising energy prices), interest rate changes have little immediate effect on inflation (Weber et al., 2022), and raise loan and mortgage payments for consumers already facing higher prices for energy, goods, and services (Stanford, 2023). In this way, the consequences of combined higher energy prices and higher interest rates are quite costly for consumers. Higher interest rates can also increase the upfront costs of clean energy projects (IEA, 2024) in a feedback loop that slows the energy transition.

Box 1. Interest rates hikes exacerbate affordability pressures

As "fossil-flation" drove up prices, the Bank of Canada responded by raising interest rates, starting in March 2022, after 2 years of holding its key interest rate at 0.25%. By July 2023, the Bank of Canada had increased the rate 10 times to reach 5.0% (Bank of Canada, n.d.). This represents the fastest and largest interest rate increase in over four decades, with serious implications for mortgage holders (Bourassa-Ochoa, 2023). In 2024 and 2025, approximately 2.2 million outstanding mortgages (roughly 45%), will be facing interest rate shock—mortgage holders could see a 30%–40% increase in their average monthly payment (Bourassa-Ochoa, 2023).

In order to provide some immediate energy price relief for consumers, Ontario, Alberta, and Manitoba have provided gasoline tax "holidays" from their provincial fuel taxation programs, temporarily lowering gasoline costs by CAD 0.057/litre, CAD 0.13/litre, and CAD 0.14/litre respectively (Government of Alberta, 2024; Government of Manitoba, 2024; Government of Ontario, 2024). Carbon price "carveouts" for specific consumers have also been attempted, with questionable results, including higher emissions and lower rebates (Canadian Climate Institute, 2023b). This ad hoc price relief is temporary by design, doing little to reduce energy costs in the long term and depriving federal and provincial governments of important tax revenue. These blanket responses are easily deployed but are ultimately expensive and inefficient ways to protect the consumers who are most in need (IEA, 2024). Subsidizing fuel costs keeps prices artificially low, reducing incentives for energy efficiency and fuel switching, and keeps consumers stuck on the fuel price rollercoaster.



Box 2. Carbon tax impact on inflation

Carbon pricing has a minimal (less than 0.3%) impact on the cost of most goods and services (Tombe & Winters, 2023) and, according to the Bank of Canada, contributes only 0.15 percentage points to energy price inflation (Markusoff, 2023). This is before accounting for rebate payments that households receive.

Increasing Affordability With Clean Energy Transition

Canada can mitigate future inflation and help make life more affordable for Canadians by supporting a transition away from fossil fuels. In fact, putting the global energy system on a path to net-zero by 2050 could reduce energy operating costs by more than half by 2035 (IEA, 2024). There is opportunity to lower energy costs by reducing the overall amount of energy used through more energy efficient technologies or by changing behaviour (e.g., driving less). Electrification of transportation, heating, and cooling can also save money. This is in part because electric vehicles and heat pumps provide significant efficiency gains over their fossil fuel counterparts—they use less energy to provide the same service. Therefore, government policies that support and incentivize fuel switching, energy efficiency, and changes in behaviour will help smooth and accelerate the transition away from fossil fuels.

Options for cheaper and cleaner energy are reliant on the availability of infrastructure and services such as efficient public transportation, electric vehicle charging infrastructure, and clean, reliable electricity supply. Although significant investment is required to build supportive infrastructure and services, it is a long-term investment that can both boost Canada's economy and lower the costs that Canadians pay for the services they need. It is also a prudent investment as the costs of clean energy are falling below the costs of fossil fuel energy and are expected to continue falling.

Lower Costs With Clean Electricity

While only 18% of Canada's electricity generation is from fossil fuels, there is considerable variation across the country (CER, 2023a). Provinces with the highest amounts of fossil fuel-generated electricity are Nunavut (99%), Alberta (81%), Saskatchewan (79%), Nova Scotia (59%), Yukon (32%), and New Brunswick (30%) (CER, 2023a). Although coal use has dropped, natural gas use for electricity generation has increased significantly from 3% of total generation in 1996 to 16% in 2022 (CER, 2023b; Statistics Canada, 2023a).

Expanding natural gas generation increases the entire system's exposure to volatile energy sources and risks higher costs for producers and higher prices for consumers (Harland et al., 2024). For example, between 2020 and 2022, the amount of natural gas used for electricity generation in Canada increased by 5%, generating 16% more electricity (due to more efficient technology), but



the cost ballooned by 151%, from CAD 1.9 billion in 2020 to CAD 4.7 billion in 2022 (Statistics Canada, 2023a). These higher operating costs are ultimately covered through electricity rates. When looking at the long-range operating costs of gas-powered electricity, the picture is even more grim. A 2021 study of electricity generation facilities in the EU, United Kingdom, and United States found that due to the volatility of fuel prices and other factors, the economics of gas-fired power generation are growing more fragile. Roughly 31% of U.S. and 22% of European gas-fired power generation facilities are already estimated to be unprofitable, while others are facing increasing risk of becoming stranded assets (Carbon Tracker, 2021).

Conversely, the cost of renewables has dropped dramatically in the last decade (as shown in Figure 6), making it the lowest-cost form of electricity production in most jurisdictions. The levelized cost of electricity (LCOE) dropped 89% for solar and 69% for onshore wind, falling below the fossil fuel cost floor (International Renewable Energy Agency, 2023). The cost of these renewables is projected to continue trending downward and will fall nearly 60% below the cost of natural gas production by 2030 (International Energy Agency, 2023). In 2023, more than 95% of new utility-scale solar installations and new onshore wind capacity had generation costs lower than new coal and natural gas plants (IEA, 2024).

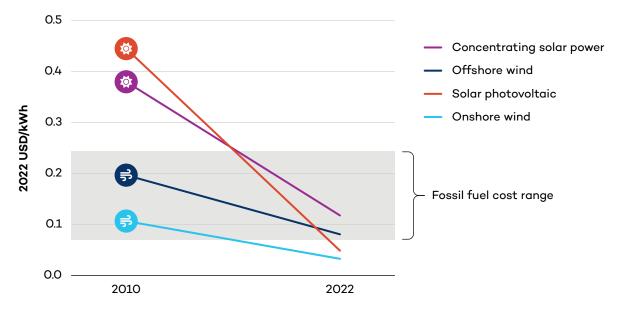


Figure 6. Global LCOE from newly commissioned utility-scale renewable energy

Source: International Renewable Energy Agency, 2023.

Power generation from renewables, specifically wind and solar, can lower and stabilize electricity prices. This is in part because wind and solar electricity does not rely on input fuel to operate. Once built and connected to the grid, renewable energy costs do not fluctuate based on fuel prices. Long-term price stability can be locked in through power purchase agreements that guarantee a price for renewables decades into the future. As a result, integrating renewables can lower electricity prices for consumers. Modelling in Alberta, New Brunswick, and Nova



Scotia shows that clean energy portfolios can provide the same electricity services as natural gas generation but at a lower cost (Gorski & Jeyakumar, 2019, 2022).

Concerns about the variability of renewable sources can be managed—through storage as well as demand-side and grid-side measures—to ensure capacity is there when needed (Canadian Climate Institute, 2022). Modelling has shown that Canada's electricity capacity can grow to the required levels through additional wind, solar, energy storage, and interprovincial transmission without compromising reliability (Thomas & Green, 2022).

Nevertheless, Canada will require 2.6 to 2.9 times its current electricity capacity to meet increased demand by 2050 (Harland et al., 2024). A build-out of this scale will require significant upfront investments. Roughly double the rate of current capital expenditure is required, but the savings to Canadian households of transitioning to a net-zero grid by 2050 is estimated at CAD 15 billion annually and roughly CAD 1,500 annually per household (Canada Electricity Advisory Council, 2024). Investments in transmission infrastructure and interconnectors, flexible generation, and specialized forecasting and planning tools, as well as ensuring access to regional electricity markets, are critical (Eriksen, 2018). Fortunately, Canada is well-placed to perform in all four categories including a high percentage of legacy hydroelectric power that can provide firm, dispatchable power to complement variable generation from wind and solar.

Canada's energy system is diverse, and jurisdictional authority over electricity systems and pricing is largely a provincial matter. Provinces and territories with a large share of fossil fuel generation will face the highest costs in the energy transition (Canada Electricity Advisory Council, 2024). These costs may, to an extent, be passed on to consumer ratepayers, and, in some cases, higher prices will result for some, despite longer-term trends that favour affordability and price stability. Policies and incentives can and should be designed to address these regional challenges, including supports for consumers directly through measures on energy efficiency as well as initiatives such as inter-jurisdictional cooperation on transmission interties (Canada Electricity Advisory Council, 2024). Detailed analysis of who will be impacted by the clean energy transition both positively and negatively should also be a priority to understand the nature of the issue and develop regionally focused responses. With this said, delaying the clean energy transition will only lead to higher production costs and price volatility down the road as fossil fuel-based energy systems become less attractive compared to renewable energy technologies.

Regional challenges have been acknowledged to an extent through the federal government's announced financial supports for provinces to grow their clean electricity grids. The supports were designed so that provinces with emissions-intensive grids would receive the most support relative to the scale of their existing grid, roughly 33% more than hydro-rich provinces (Harland & Dion, 2023). Through these financial incentives, along with its Clean Electricity Regulations, the federal government is aiming to achieve a net-zero electricity grid by 2035 (Environment and Climate Change Canada, 2024). In addition, policies that provide a level playing field for renewable energy technology and investment will ensure that clean energy industries can remain competitive against fossil fuel incumbency (IEA, 2024).



Reduce Household Energy Costs

Household energy consumption in Canada is largely reliant on fossil fuels (Figure 7), primarily for heating, exposing consumers to fossil fuel price volatility. Switching away from fossil fuels will lead to more household electricity use in Canada, but an overall reduction in average energy costs of 12% is expected between now and 2050 (Harland & Dion, 2023). Additional analysis predicts households could save as much as CAD 1,500 annually (Canada Electricity Advisory Council, 2024). One of the most direct ways to improve affordability for Canadians is by lowering household energy costs through fuel switching, efficiency upgrades, and electrification.

British Columbia **Alberta** Saskatchewan Manitoba Ontario Quebec **New Brunswick** Nova Scotia Prince Edward Island Newfoundland and Labrador Canada 60 80 % 0 20 40 100 Electricity Natural gas Heating oil

Figure 7. Household energy consumption by type (excluding transportation), 2021

N Natural gas data too unreliable to be published

H Heating oil data too unreliable to be published

Source: Statistics Canada, 2024c.

Electric air-source heat pumps offer better efficiency and significant cost savings as compared to gas furnaces. Research by the Canadian Climate Institute found that, on average, the lifetime costs of a standard heat pump with electric backup are 13% less than a gas furnace with air conditioning and can cut approximately CAD 55 off the monthly bill of a detached family home in Ontario (Canadian Climate Institute, 2023a). Clean Energy Canada has concluded that air-source heat pumps "are the cheapest option for many Canadian households, even when the costs of installation are included" (Clean Energy Canada, 2023, p. 2). Furthermore, an average of



CAD 328 could also be saved per year by eliminating a home's natural gas hook-up (Canadian Climate Institute, 2023a).

Federal and provincial initiatives exist to help consumers offset the upfront cost of home energy retrofits through rebates as well as low-interest or no-interest financing. The Government of Canada's Greener Homes Grants Program, which was launched in 2021, provided homeowners with up to CAD 5,000 for energy efficiency retrofits (e.g., insulation, windows and doors, heat pumps, and solar panels) and up to CAD 600 to help with the cost of home energy evaluations. The CAD 2.6-billion program was slated to run until 2027, or until funds were depleted, but in spring 2024, the program was paused, citing high demand (especially for heat pumps) and signalling a program redesign (Thurton, 2023). With Natural Resources Canada reporting more than half a million applications over 3 years (Natural Resources Canada, 2024), it is clear that there is high demand and anticipation for the program to continue.

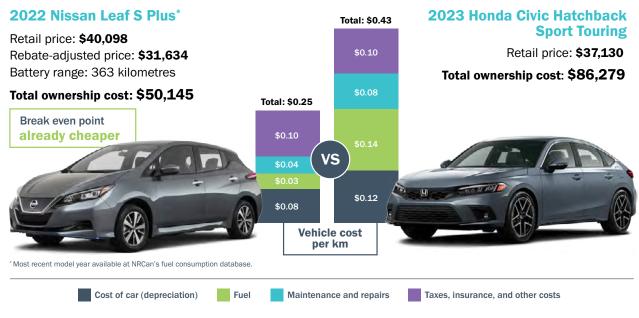
Reducing fossil fuel reliance through targeted home energy retrofit programs improves energy efficiency and can protect consumers from price volatility. Consumer demand for these programs is strong, and the retrofit industry has generated jobs across the country. The Pembina Institute has modelled that up to 200,000 long-lasting, well-paid jobs would be created over 20 years should Canada choose to invest in addressing carbon emissions from homes and buildings through deep energy retrofits (Kennedy & Frappé-Sénéclauze, 2021). Energy savings, job growth, and lower emissions mean a win for both the climate and affordability.

Reduce Transportation Costs

Personal transportation is another area where fossil fuel-free alternatives provide improved affordability for consumers. Transportation costs accounted for 15% of household spending in Canada in 2021, second only to food (15.4%) and shelter (31.4%) (Statistics Canada, 2023c). According to a recent report, Canadian car owners spend an average of CAD 200 per month on gasoline, whereas a comparable electric vehicle (EV) would cost CAD 23–54 per month to power (Lavin, 2024). Clean Energy Canada (2023) compared the lifetime costs (10 years of ownership, 20,000 km per year) between various categories of EVs and comparable internal combustion engine vehicles, and found that EVs cost less in all scenarios across Canada, even without a provincial rebate. The Honda Civic, for example, cost an additional CAD 36,000 over its lifetime than a comparable EV (Nissan Leaf S Plus) (Figure 8). Similar savings were found for hatchback, SUV, and crossover car models as well (based on the average retail gasoline price in 2022—CAD 1.73/litre) (Clean Energy Canada, 2023).



Figure 8. Ownership and fuelling costs for comparable EV and gas-powered vehicle (sedan model)



Source: Clean Energy Canada, 2023.

A 2022 study calculated how much it would cost to charge an EV from zero to full in every province in Canada. The cost of charging the Chevy Bolt ranged from CAD 5.46 in Quebec to CAD 12.61 in P.E.I., but in all cases, was significantly cheaper per kilometre than gasoline (Clean Energy Canada, 2022). That adds up to significant savings over a vehicle's lifetime. As the manufacturing costs of EVs come down over time, retail prices will fall, making the switch to electric even more attractive.

Access to EV options is limited to those who can pay the upfront costs, making them still out of reach for many. Innovation and scaling up of manufacturing will lower retail costs over time. Meanwhile, rebates and incentives can make EV purchases more affordable, and governments can further support EV adoption through the development of charging infrastructure. The federal government's CAD 5,000 rebate on EVs, as well as rebates available from provincial governments in the Yukon, British Columbia, Manitoba, Quebec, and all the Atlantic provinces, have been helping consumers make the switch. More consumers can be reached by ensuring used EVs are eligible for rebates, as they are in many provinces.

While infrastructure investments are necessary, they require sufficient demand to make the investments worthwhile. EV market momentum can be built by better supporting low- and middle-income households through a progressive rebate program that is income-tested, ensuring higher-income households are not the primary beneficiaries (Affordability Action Council, 2024). Making clean transportation accessible is essential to help lower costs for everyone, not just those who can afford to buy an EV. Supporting clean, reliable, and affordable public transportation also increases low-cost options for Canadians while simultaneously reducing transportation-related emissions.



Conclusion

Overdependence on fossil fuels, which are volatile and tend toward high costs, is a problem for Canadian consumers, inflation, and affordability. Record inflation has been driven in large part by oil and gas price increases that have spilled over into other areas of the economy sensitive to energy inputs. By reducing its dependence on fossil fuels, Canada can fight climate change and inflation in a way that supports affordability, shielding consumers from energy price fluctuations by transitioning toward the use of clean and efficient energy sources that have lower and more stable prices.

Governments have a role to play to strategically discourage the use of fossil fuels through policies such as carbon pricing, fuel taxation, and fossil fuel subsidy reform. By doing so, they can generate revenue to further support efforts that enhance affordability and incentivize cost-saving by switching away from fossil fuels and the resulting energy price fluctuations. Contrary to arguments that climate policy makes life less affordable, it is fossil fuels that keep consumers stuck on an energy price rollercoaster. Renewable and electrified energy sources are not only good for the climate, but they also save people money through lower costs and improved efficiency. It is incumbent on governments to champion policies that expedite the transition to more affordable, efficient, and clean energy in a way that focuses on affordability for Canadians, now and for the future.



References

- Affordability Action Council. (2024, January 29). *Rethinking urban mobility: Providing more affordable and equitable transportation options*. Institute for Research on Public Policy. <a href="https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://example.com/https://examp
- Bank of Canada. (n.d.). *Canadian interest rates and monetary policy variables: 10-year lookup.* https://www.bankofcanada.ca/rates/interest-rates/canadian-interest-rates/
- Bourassa-Ochoa, T. (2023, November 9). *Impact of interest rates and housing affordability*. Canada Mortgage and Housing Corporation. https://www.cmhc-schl.gc.ca/blog/2023/rising-rates-homeowners-greatest-shocks-lie-ahead
- Brunnermeier, M. (2023, March). *Rethinking monetary policy in a changing world*. International Monetary Fund. https://www.imf.org/en/Publications/fandd/issues/2023/03/rethinking-monetary-policy-in-a-changing-world-brunnermeier
- Canada Electricity Advisory Council. (2024, May 13). *Powering Canada: A blueprint for success*.

 Natural Resources Canada. https://natural-resources.canada.ca/our-natural-resources/

 energy-sources-distribution/electricity-infrastructure/the-canada-electricity-advisory-council/
 powering-canada-blueprint-for-success/25863
- Canada Energy Regulator. (2023a). Canada's energy future data appendices [Dataset]. https://doi.org/10.35002/ZJR8-8X75
- Canada Energy Regulator. (2023b, November 28). *Market snapshot: Canada's power generation: switching from coal to natural gas.* https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/market-snapshots/2017/market-snapshot-canadas-power-generation-switching-from-coal-natural-gas.html
- Canada Energy Regulator. (2023c, November 28). *Market snapshot: Natural gas plays an important role in Alberta's oil sands.* https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/market-snapshots/2017/market-snapshot-natural-gas-plays-important-role-in-albertas-oil-sands.html
- Canadian Climate Institute. (2022). Bigger, cleaner, smarter: Pathways for aligning Canadian electricity systems with net zero. https://climateinstitute.ca/wp-content/uploads/2022/05/Bigger-Cleaner-Smarter-May-4-2022.pdf
- Canadian Climate Institute. (2023a). *Heat pumps pay off: Unlocking lower-cost heating and cooling in Canada*. https://climateinstitute.ca/wp-content/uploads/2023/09/Heat-Pumps-Pay-Off-Unlocking-lower-cost-heating-and-cooling-in-Canada-Canadian-Climate-Institute.pdf
- Canadian Climate Institute. (2023b, November 10). Removing carbon price from gas heating would increase emissions. https://climateinstitute.ca/removing-carbon-price-increase-emissions-canadians-worse-off/
- Carbon Tracker. (2021). Put gas on standby. https://carbontracker.org/reports/put-gas-on-standby/



- Casto, D. (2023, September 13). *How extreme weather disrupts the oil and gas sector.* DTN. https://www.dtn.com/how-extreme-weather-disrupts-the-oil-and-gas-sector/
- Chang, A. (2022, June 3). *Gas export facts show industry claims full of hot air.* The Australia Institute. https://australiainstitute.org.au/post/gas-export-facts-show-industry-claims-full-of-hot-air/
- Chen, Y., & Tombe, T. (2023). The rise (and fall?) of inflation in Canada: A detailed analysis of its post-pandemic experience. Canadian Public Policy, 49(2). https://www.utpjournals.press/doi/full/10.3138/cpp.2022-068?role=tab
- Chiwaya, N. (2022, February 24). Why Russia's Ukraine invasion spiked energy prices, in 4 charts. NBC News. https://www.nbcnews.com/news/world/why-russia-s-ukraine-invasion-spiked-energy-prices-4-charts-n1289799
- Choudhury, N. (2021, September 20). 4 key reasons why the natural gas market has soared in 2021. Nasdaq. https://www.nasdaq.com/articles/4-key-reasons-why-the-natural-gas-market-has-soared-in-2021-2021-09-20
- Clean Energy Canada. (2022, April). *The true cost.* https://cleanenergycanada.org/wp-content/uploads/2022/03/Report TheTrueCost.pdf
- Clean Energy Canada. (2023, September). A clean bill: Making the switch to clean energy cuts carbon and cost from household energy bills. https://cleanenergycanada.org/wp-content/uploads/2023/09/Report ACleanBill Web.pdf
- Cosbey, A., Sawyer, D., & Stiebert, S. (2021). In search of prosperity: The role of oil in the future of Alberta and Canada. https://www.iisd.org/publications/search-prosperity-oil-alberta-canada
- Energy Information Administration. (2023, August). U.S. energy facts explained—Consumption and production. https://www.eia.gov/energyexplained/us-energy-facts/
- Energy Innovation, & Marcacci, S. (2024, February 11). *U.S. gas prices could spike 14% without Biden's pause on new LNG export terminals.* Forbes. https://www.forbes.com/sites/energyinnovation/2024/02/11/us-gas-prices-could-spike-14-without-bidens-pause-on-new-lng-export-terminals/
- Environment and Climate Change Canada. (2024, March). Clean electricity regulations. https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/clean-electricity-regulation.html
- Eriksen, P. B. (2018). Transition of the Danish power system—from fossil fuels to large scale wind power.
- Eurostat. (2024, March). *Statistics*. https://ec.europa.eu/eurostat/databrowser/view/nrg bal c/default/table?lang=en
- Gorski, J., & Jeyakumar, B. (2019). *Reliable, affordable: The economic case for scaling up clean energy portfolios* [Dataset]. Pembina Institute. https://doi.org/10.1163/9789004322714 cclc 2019-0028-194



- Gorski, J., & Jeyakumar, B. (2022). *Towards a clean Atlantic grid*. Pembina Institute. https://www.pembina.org/reports/towards-a-clean-atlantic-grid.pdf
- Government of Alberta. (2024, March 8). Fuel tax Overview. https://www.alberta.ca/about-fuel-tax
- Government of Manitoba. (2024, April). Fuel tax holiday—Information notice—Fuel 23-01. https://gov.mb.ca/finance/taxation/pubs/bulletins/noticefuel2301.pdf
- Government of Ontario. (2024, March 25). Ontario extending gas tax cuts to keep costs down for families. https://news.ontario.ca/en/release/1004350/ontario-extending-gas-tax-cuts-to-keep-costs-down-for-families
- Harland, K., & Dion, J. (2023, June). Clean electricity, affordable energy: How federal and provincial governments can save Canadians money on the path to net zero. Canadian Climate Institute. https://climateinstitute.ca/wp-content/uploads/2023/06/Clean-Electricity-Affordable-Energy.pdf
- Harland, K., Gibson, S., Dion, J., Gajudhur, N., & Mifflin, K. (2024). Heat exchange: How today's policies will drive or delay Canada's transition to clean, reliable heat for buildings. Canadian Climate Institute. https://climateinstitute.ca/wp-content/uploads/2024/06/Heat-Exchange-Report-Canadian-Climate-Institute.pdf
- International Energy Agency. (2022). *Gas market report*, *Q3-2022*. https://www.iea.org/reports/gas-market-report-q3-2022
- International Energy Agency. (2023). *World energy outlook 2023*. https://www.iea.org/reports/world-energy-outlook-2023
- International Energy Agency. (2024). *Strategies for affordable and fair clean energy transitions*. https://www.iea.org/reports/strategies-for-affordable-and-fair-clean-energy-transitions
- International Renewable Energy Agency. (2023). Renewable power generation costs in 2022. https://mc-cd8320d4-36a1-40ac-83cc-3389-cdn-endpoint.azureedge.net/-/media/Files/IRENA/Agency/Publication/2023/Aug/IRENA Renewable power generation costs in 2022.pdf?rev=cccb713bf8294cc5bec3f870e1fa15c2
- Kennedy, C. (2022, January 5). Average oil price in 2021 was the highest in past three years. OilPrice. Com. https://oilprice.com/Latest-Energy-News/World-News/Average-Oil-Price-In-2021-Was-The-Highest-In-Past-Three-Years.html
- Kennedy, M., & Frappé-Sénéclauze, T.-P. (2021). Canada's renovation wave: A plan for jobs and climate. Pembina Institute. https://www.pembina.org/reports/canadas-renovation-wave.pdf
- Krahé, M., & Heilmann, F. (2023). Fossil fuel to the fire: Energy and inflation in Europe. Dezernat Zukunft. https://www.dezernatzukunft.org/wp-content/uploads/2023/11/Krahe-Heilmann-2023-Fossil-Fuel-to-the-Fire-v1.pdf



- Lavin, J. (2024, January 30). What is the total cost of ownership for a car? Ratehub.Ca. https://www.ratehub.ca/blog/what-is-the-total-cost-of-owning-a-car/
- Markusoff, J. (2023, September 8). Analysis: There's now a Bank of Canada number for carbon tax's impact on inflation. It's small. https://www.cbc.ca/news/canada/calgary/carbon-tax-inflation-tiff-macklem-calgary-1.6960189
- Melodia, L., & Karlsson, K. (2022, May 11). Energy price stability: The peril of fossil fuels and the promise of renewables. Roosevelt Institute. https://rooseveltinstitute.org/publications/energy-price-stability/
- Natural Resources Canada. (2024, February 4). Canada greener homes initiative February 2024 update. https://natural-resources.canada.ca/energy-efficiency/homes/canada-greener-homes-initiative-february-2024-update/25669
- RI. (n.d.). USA historical consumer price index (CPI)—1913 to 2023. https://www.rateinflation.com/consumer-price-index/usa-historical-cpi/
- Reuters. (2021, February 11). U.S. and Canadian natural gas prices soar during Arctic blast. https://www.reuters.com/article/idUSKBN2AB1GH/
- Stanford, J. (2023, June 13). *House of cards: Interest rates, household debt, and the housing crisis.*Centre for Future Work. https://centreforfuturework.ca/2023/06/12/house-of-cards-interest-rates-household-debt-and-the-housing-crisis/
- Statistics Canada. (2023a). *Electric power generation, fuel consumed and cost of fuel by electricity generating thermal plants* [Data table]. https://doi.org/10.25318/2510008401-ENG
- Statistics Canada. (2023b, November 20). *Energy supply and demand*, 2022. https://www150.statcan.gc.ca/n1/daily-quotidien/231120/dq231120c-eng.htm
- Statistics Canada. (2023c, October 18). Survey of household spending, 2021. https://www150.statcan.gc.ca/n1/daily-quotidien/231018/dq231018a-eng.htm
- Statistics Canada. (2024a). *Consumer price index, monthly, not seasonally adjusted* [Data table]. https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000401
- Statistics Canada. (2024b). *Household energy consumption, Canada and provinces*. https://doi.org/10.25318/2510006001-eng
- Statistics Canada. (2024c). Monthly average retail prices for gasoline and fuel oil, by geography [Data table]. https://doi.org/10.25318/1810000101-ENG
- Thomas, S., & Green, T. (2022). Shifting power: Zero-emissions electricity across Canada by 2035.

 David Suzuki Foundation. https://davidsuzuki.org/science-learning-centre-article/shifting-power-zero-emissions-electricity-across-canada-by-2035/



- Thurton, D. (2023, November 17). Ottawa's green grants program for homeowners is running out of money faster than expected. CBC News. https://www.cbc.ca/news/politics/greener-homes-grants-energy-efficiency-1.7029403
- Tombe, T. & Winters, J. (2023, December). *Emissions pricing and affordability: Lessons from British Columbia*. https://www.policyschool.ca/wp-content/uploads/2023/04/EE-Policy-Trends-April.pdf
- Tumala, M. M., Salisu, A., & Nmadu, Y. B. (2023). Climate change and fossil fuel prices: A GARCH-MIDAS analysis. *Energy Economics*, 124, Article 106792. https://doi.org/10.1016/j.eneco.2023.106792
- U.S. Energy Information Administration. (2024a). Cushing, OKWTI spot price FOB (dollars per barrel). Petroleum and other liquids Data. https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=RWTC&f=M
- U.S. Energy Information Administration. (2024b). *Henry Hub natural gas spot price (dollars per million Btu)*. *Natural gas Data*. https://www.eia.gov/dnav/ng/hist/rngwhhdm.htm
- Weber, I. M., Jauregui, J. L., Teixeira, L., & Pires, L. N. (2022). Inflation in times of overlapping emergencies: Systematically significant prices from an input-output perspective. https://doi.org/10.7275/0C5B-6A92
- Williams-Derry, C., & Institute for Energy Economics and Financial Analysis. (2023, November 30). LNG exports have raised natural gas prices for U.S. households. https://ieefa.org/resources/lng-exports-have-raised-natural-gas-prices-us-households
- Xie, Q., Hao, J., Li, J., & Zheng, X. (2022). Carbon price prediction considering climate change: A text-based framework. *Economic Analysis and Policy*, 74, 382–401. https://doi.org/10.1016/j.eap.2022.02.010

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RE-ENERGIZING CANADA

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