



Natural Gas Ban Mandate Evaluation Report

Prepared by
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Prepare to
City of Vancouver

IN THE FOREFRONT OF ELECTRIFICATION



PURPOSE

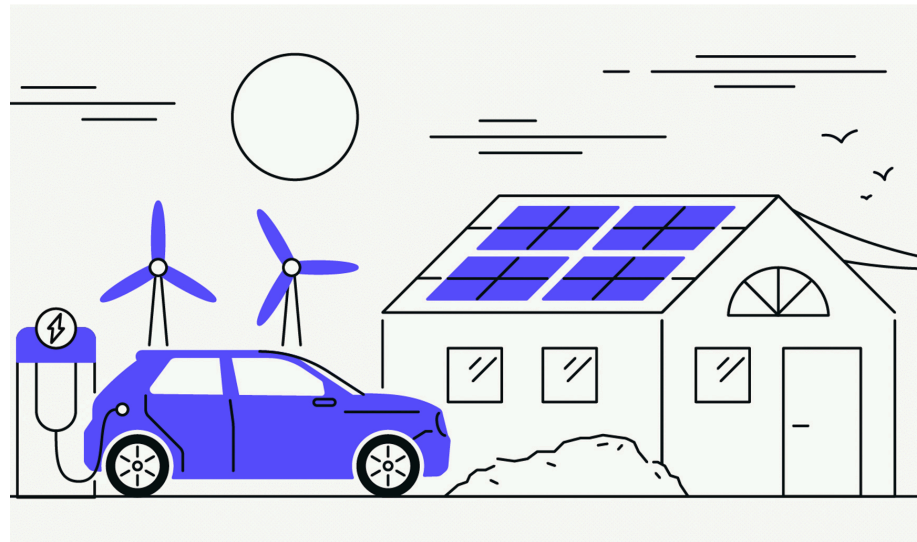
This report is a strategic document providing a forward-looking comparative analysis of the implications of the natural gas ban introduced in November 2024.[1] Its primary purpose is to assess and plan the electrical infrastructure required to meet the City of Vancouver's goal of halving its carbon pollution by 2030. The analysis focuses on ensuring that this significant environmental mandate is not only effective in achieving its carbon reduction targets but also makes sound economic sense for the city and its residents.

LEGISLATIVE CONTEXT

Vancouver City Council voted in November 2024 to uphold its limit on natural gas heating in new buildings, which was initially put in place in 2016 to address climate change and urban air pollution, with implications including the continued promotion of all-electric, heat-pump systems and potential cost savings for homeowners due to lower operating expenses compared to natural gas.

SIGNIFICANCE

This forward-thinking approach ensures that Vancouver's electrical grid can accommodate the increasing prevalence of electric vehicles and widespread electrification technologies to meet the expectations of environmentally conscious citizens. Moreover, this report facilitates strategic planning and investment in city-wide electrical infrastructure, enabling the municipality to enhance its value, appeal, and compliance with ambitious environmental standards. Ultimately, this report serves as a roadmap for the City of Vancouver to achieve energy efficiency, reduce its carbon footprint, and contribute to a cleaner, more sustainable future.



EXISTING INFRASTRUCTURE

To properly assess the impact of the natural gas ban, it is critical to first establish a baseline of the city's current energy consumption and emissions. This section provides a statistical snapshot of Vancouver's residential energy landscape as of 2024.

HEATING SYSTEMS AND MARKET SHARE

In 2024, the majority of residential homes in Vancouver continue to rely on natural gas for space and hot water heating. While precise city-wide data is still being compiled, reports indicate that natural gas remains the primary heating source for a significant portion of the city's building stock. The adoption of all-electric solutions, particularly in new construction and retrofits, is gaining momentum. For instance, the Building Benchmark BC Annual Report 2024 shows that in a sample dataset of multi-family buildings, approximately 29% were identified as all-electric. [2] This suggests a growing, albeit still minority, trend toward electrification.

ENERGY CONSUMPTION AND COST

The economic analysis of this transition must consider the current cost of energy. As of 2024, the cost dynamic in British Columbia shows that electricity is approximately 2.7 times more expensive per unit of energy than natural gas. However, this comparison overlooks the critical factor of efficiency. Modern electric systems, such as heat pumps, can achieve efficiencies of over 300%, while gas furnaces are limited to a maximum of 97% efficiency. [3] This efficiency gain can offset the higher per-unit cost of electricity. A 2022 analysis by BC Hydro found that for an average B.C. household, operating an electric heat pump costs approximately \$642 per year, compared to about \$731 for a natural gas furnace, showcasing a clear long-term operational savings potential. [4]

EMISSIONS DATA

The most compelling environmental argument for the natural gas ban is rooted in current emissions data. The burning of natural gas in Vancouver's buildings is the single largest source of carbon pollution in the city, accounting for roughly 60% of all community-wide emissions. In stark contrast, BC's electricity grid is exceptionally clean, with approximately 98% of its power generated from renewable or clean resources. [5] This means the transition to electric systems will have a direct and substantial impact on Vancouver's overall carbon footprint. Reports indicate a downward trend in average emissions intensity for participating multi-family buildings, from 17.0 kg/CO₂e/m² in 2021 to 16.7 kg/CO₂e/m² in 2023, reflecting early successes in reduction efforts. [2]

NEW INFRASTRUCTURE

Building on the current state of Vancouver's energy landscape, this section presents two distinct projections for newly built residential buildings to provide a comprehensive comparative analysis of the natural gas ban's long-term implications. These scenarios, a 100% Electric Scenario and a Business-as-Usual Scenario, highlight the environmental and economic outcomes of Vancouver's policy direction.

SCENARIO 1: THE 100% ELECTRIC FUTURE

This projection assumes that all newly built residential buildings from this point forward will utilize 100% electrical systems for heating, cooling, and hot water, aligning with the city's mandate.

Energy Consumption and Cost: Under this scenario, the city's overall electricity consumption will see a significant increase. While the total energy consumed for heating may rise, the operational cost for residents is projected to decrease over time due to the superior efficiency of modern heat pump systems compared to gas furnaces. Although the per-unit cost of electricity is higher than natural gas, the substantial increase in efficiency of heat pumps (up to 300%) results in lower total annual energy bills for the average household. The initial capital cost of installation for these systems may be higher, but this is increasingly offset by government rebates and long-term savings.

Emissions: The environmental benefits of this scenario are profound. As BC's electricity grid is powered by 98% clean or renewable sources, a transition to 100% electric buildings will effectively eliminate on-site carbon emissions from space and water heating in new construction. The carbon footprint of these buildings will be near zero, with only minimal emissions from the upstream electricity generation process. This move is crucial for Vancouver to meet its 2030 carbon reduction targets.

SCENARIO 2: THE BUSINESS-AS-USUAL TRAJECTORY

This projection serves as a counter-scenario, assuming that all new residential buildings continue to be built with the current energy usage ratio (the 70% gas to 30% electric split).

Energy Consumption and Cost: In this scenario, energy consumption would continue to be divided between natural gas and electricity. While this would avoid the initial infrastructure costs of a full-scale electrification, it would maintain a reliance on a volatile energy source. Residents would continue to face rising natural gas costs, and the long-term operational savings associated with high-efficiency electric systems would not be fully realized.

Emissions: The environmental impact of this scenario is one of continued carbon pollution. With natural gas being the single largest source of Vancouver's community-wide emissions, maintaining the current usage ratio would prevent the city from achieving its carbon reduction goals. The city would continue to generate a significant amount of its building-related emissions, making the 2030 target of halving carbon pollution nearly impossible to achieve. This scenario highlights the environmental risk of inaction and the need for a decisive policy shift.

To effectively guide Vancouver towards its 2030 carbon reduction goals, the natural gas ban must be supported by a robust framework of legal and mandated measures. These pathways are designed to assist and aid decision-makers in navigating the transition, ensuring compliance, and accelerating the adoption of sustainable practices.

Strengthening the Regulatory Framework

The city can leverage its existing legislative authority to tighten the Zero Emissions Building Plan (ZEBP) and the Zero Carbon Step Code (ZCSC). While the ban on natural gas in new construction is a significant first step, further mandates can ensure compliance and expand the scope of the policy. This could include:

- **Phased-in Retrofit Mandates:** Implementing a staggered timeline for the phase-out of natural gas systems in existing buildings, particularly large commercial and multi-family structures, by a certain year. This would create a predictable market for electrification technologies and allow for strategic infrastructure planning.
- **Performance-Based Targets:** Shifting from prescriptive rules to performance-based targets for building emissions. This would give developers and building owners the flexibility to innovate while still meeting strict carbon reduction goals.
- **Mandatory Audits and Reporting:** Requiring all buildings, both new and existing, to undergo regular energy audits and publicly report their energy consumption and greenhouse gas emissions. This transparency would allow the city to monitor progress, identify areas for improvement, and hold non-compliant parties accountable.

INCENTIVES AND FINANCIAL TOOLS

Beyond mandates, a comprehensive suite of incentives can be used to motivate compliance and lower the barrier to entry for homeowners and developers. These financial tools can make the transition to electric systems more economically viable:

- **Enhanced Rebate Programs:** Increasing the value of existing rebates for the installation of heat pumps and other all-electric systems, particularly for low-income households or older buildings where retrofitting costs may be higher.
- **Carbon Pricing and Levies:** Implementing a tiered system of carbon levies on buildings that continue to use natural gas beyond a certain threshold. This would create a financial disincentive for non-compliance, with the revenue generated being reinvested into electrification programs.
- **Green Building Bonds:** Issuing municipal bonds specifically to fund the necessary upgrades to the city's electrical grid. This would provide a dedicated and low-cost source of capital for infrastructure improvements, without placing the full burden on taxpayers or utility customers.

PUBLIC AND PRIVATE SECTOR COLLABORATION

Achieving the 2030 goal requires a collaborative effort between the city and private industry. The municipality can facilitate this by:

- **Streamlining the Permitting Process:** Creating a fast-track permitting system for all-electric and zero-emission building projects. This would reduce bureaucratic hurdles and incentivize developers to choose the more sustainable option.
- **Training and Education:** Investing in programs to train the workforce in the installation and maintenance of electric systems. This ensures that a skilled labor force is available to meet the increasing demand for heat pumps and other technologies.
- **Public Awareness Campaigns:** Launching public-facing campaigns to educate homeowners on the long-term cost savings and environmental benefits of switching to all-electric systems. This would address misconceptions and build public support for the ban.



CONCLUSION

Vancouver's natural gas ban is not merely an environmental policy but a foundational step towards a more sustainable and economically resilient future. This report has demonstrated that the transition to a 100% electric building future is not only necessary to achieve the city's ambitious carbon reduction targets but is also economically advantageous in the long term for residents and the municipality alike. By establishing a clear baseline of current energy use, projecting the tangible benefits of an all-electric trajectory, and outlining a strategic framework of legal and mandated pathways, this document provides a comprehensive roadmap for decision-makers. The successful implementation of these measures will ensure that Vancouver remains a leader in climate action, providing its citizens with a cleaner, more efficient, and more sustainable urban environment for generations to come.

SOURCES

- [1] <https://council.vancouver.ca/20241126/documents/r1.pdf>
- [2] <https://buildingbenchmarkbc.ca/assets/2025-BBBC-Annual-Report.pdf>
- [3] <https://www.bchydro.com/news/conservation/2022/heat-pumps-explained.html>
- [4] https://www.bchydro.com/news/press_centre/news_releases/2022/report-heating-costs.html
- [5] https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/community-energy-solutions/backgrounder - bcs_energy_system.pdf