CANADIAN CLIMATE INSTITUTE

BRIEFING NOTE

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How policy can ensure affordable and reliable building heat in Canada's net zero transition

OVERVIEW

Any viable path to net zero for the building sector must ensure that Canadians maintain reliable access to affordable heating and cooling. Achieving this will require not just changes in how individual buildings are heated and cooled, but also changes to energy systems more broadly and to the regulatory frameworks that govern them.

A new Canadian Climate Institute report, *Heat Exchange: How today's policy choices will drive or delay Canada's transition to clean, reliable heat,* explores the role of decarbonizing buildings in reaching net zero while protecting affordability and reliability. Achieving net zero in Canada in a cost-effective way will require a significant increase in the use of electricity for building heat, and a declining use of gas. Yet gas systems continue to expand across the country and the buildings sector is not on track to meet greenhouse gas reduction targets.

The report presents a case for adjusting energy system infrastructure planning to better protect the public interest, now and into the future. Absent policy action, provinces risk missing climate targets and ending up with underdeveloped or unbalanced energy systems that are unprepared for the energy transition, straining affordability and system reliability.

KEY FINDINGS

The report outlines four takeaways for decarbonizing building heat in Canada:

- **On a cost-optimal pathway to net zero, electricity will power most space heating in Canada.** The details vary from province to province, but the pattern of electrification is consistent across all regions and in all sensitivity scenarios. Managing peak demand to reduce the scale of the necessary electricity system build-out will likely emerge as the central challenge facing electric utilities in the clean energy transition.
- **Even with low-carbon gases or hybrid heat, continued expansion of the gas network is inconsistent with cost-effectively reaching net zero.** Amid falling gas demand, provinces that continue to expand their gas distribution networks risk locking in higher costs or stranded assets. Hybrid heat (the pairing of heat pumps with gas furnaces) does not justify continued expansion of gas networks. Because hybrid systems would only switch to gas in the coldest days or months, overall demand for gas would still fall dramatically, so expansion still poses the same risks for ratepayers. Hydrogen and biomethane will not serve as a cost-effective replacement fuel on a scale that can justify continued gas network expansion.
- **A business-as-usual approach to utility regulation is not in the interest of ratepayers.** Future demand for electricity and gas diverge dramatically on a cost-

effective path to net zero. But electric utilities have only just begun to plan for a doubling or tripling of capacity. And gas networks continue to grow, since gas utilities have a direct incentive to pursue new customers and expand gas infrastructure, even if the long-term usage case is uncertain. Utility regulators make decisions about infrastructure that will affect ratepayers' costs for decades to come, but are not currently equipped to address the new challenges and risks that the energy transition poses.

- **Provincial and territorial policy is the missing piece for achieving climate goals while protecting reliability and affordability.** If utility regulators are to continue delivering on their mandate of providing safe and reliable energy at just and reasonable rates, provincial governments must equip them to face the new challenges of the energy transition head-on.

RECOMMENDATIONS

Supporting long-term affordability and reliability requires near-term policy action. Because of the long lifespan of energy infrastructure, the decisions that policymakers and regulators make today will either constrain or facilitate the energy transition in building heat to 2050 and beyond. The Institute makes the following policy recommendations:

1. **Provincial governments should equip regulators, system operators, and utilities to make decisions consistent with net zero.**
    - Legislate a target for net zero by 2050 as well as interim milestones, update mandates to include achievement of these climate targets, and equip regulators with the necessary financial and human resources.
    - Commission and regularly update independent pathway assessments that clarify a jurisdiction's options for reaching net zero economy-wide.
    - Produce energy roadmaps that present the government's vision for how the jurisdiction's technology and energy mix, and the infrastructure it will require, should evolve in line with net zero.

    Provincial governments can and should undertake these actions in parallel.
2. **Provincial governments should stop treating gas system expansion as the default option, and equip regulators to consider alternatives.** In most contexts, and particularly for new developments, electrification should be the default, unless there is a specific local alternative such as a thermal energy network.
3. **Provincial governments should require gas utilities to provide maps of their networks to facilitate a managed transition that protects ratepayers.** Provincial governments, regulators, and gas utilities should use these maps to start laying the groundwork for the gradual, managed contraction of gas networks.
4. **All orders of government should strengthen policies to support building electrification, peak management, and energy efficiency.** This includes building codes and appliance standards; direct financial support for energy retrofits, smart electrification, and peak management; implementation support; and carbon pricing.
5. **All orders of government should centre equity in policy design and provide targeted support to the most affected.** As governments and regulators act to limit the extent of the infrastructure liabilities facing ratepayers, provincial policy must still determine who bears the unrecovered costs of stranded or underused energy infrastructure, and how.