

# Intelligence MEMOS



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From: A.J. Goulding

To: Provincial Ministers of Energy

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Re: **AFFORDABILITY, PRACTICALITY, AND REALITY: THE ROCKY PATH TO NET ZERO**

A recent Canadian Electricity Advisory Council report emphasizes that affordability is critical to the success of the energy transition; affordability is possible, “but the path is narrow” and “pragmatic, thoughtful measures will be needed.”

I outline just how narrow this path is in my recent C.D. Howe Institute [paper](#). Ontario alone faces a nearly \$15-billion gap between annual funding for its net zero plans and its goals. While compared to the \$205-billion 2023 Ontario provincial budget, the gap is not huge – 7.2 percent – a confluence of events will be needed to prevent the gap from growing.

The challenge is not simply finding the funding, but whether the political will for aggressive electrification exists. The council report highlights the fact that energy transition affordability relies on savings from electrification. My modeling assumed more than \$6 billion per year from such savings is available to fund the energy transition; others have higher estimates. But these savings only arise if high levels of electrification actually occur. If the system is built out for anticipated demand that does not materialize, consumers face the worst of all possible worlds: More emissions, and higher costs.

Reaching high levels of electrification may require a greater degree of coercion than is politically feasible. My estimates are based on vehicle electrification of 80 percent, consistent with the share of urban population in Ontario, and 50 percent electrification of the existing housing stock. It is unclear, however, that penetration of electrification will reach even these levels without significant regulatory intervention. As customers perceive their choices being narrowed, “fuel freedom” may become a rallying cry, resulting in reversal of EV or electrification mandates for buildings. One need only consider the sudden halt to congestion pricing in New York City, or the increasingly precarious Canadian federal carbon tax, to understand that politicians are sensitive to voter concerns about affordability and choice.

While the general population may be broadly supportive of net zero initiatives, global warming competes with concerns about housing availability, healthcare costs, education, and population aging for attention and funding. The assertion that achieving net zero requires electrification of “everything, everywhere, all the time” could lead to wasteful spending if least-cost planning principles aren’t followed. The urgency of climate change demands that rigorous cost-benefit analysis be performed on each energy transition expenditure. Among the worst outcomes for climate change policy are start-stop initiatives (those started with great fanfare and then later modified or paused due to a backlash). Restarting initiatives often poses greater cost than if projects had proceeded without interruption. Funding volatility often relates directly to perceptions about affordability.

Policy initiatives should not be implemented without assessing the per-unit cost of their expected emission reduction or avoidance, and how this cost compares to alternatives. Growing rejection of market-based approaches to controlling carbon emissions is unfortunate, as they provide the most transparent and cost-effective way of incentivizing behaviours leading to net zero. However, if the policy is essentially to regulate and subsidize, rigorous analysis must be performed before implementation. A handbook of least-cost approaches to carbon emissions reductions should be developed for use by all levels of government when developing and sequencing policies. Given continued technological change, policymakers consider how to stage investments to retain the option to take advantage of potential future cost declines.

Considering its scale, “getting nuclear right” will be key to managing energy transition costs. Nuclear announcements to date do not appear to be part of any fully costed plan tested against alternatives, nor does it appear that they will be subjected to independent review. Just as claims that renewables are cheaper need to be tested against the costs of intermittency associated with wind and solar, the potential for nuclear cost overruns and loss of optionality must be carefully monitored. Avoiding “first of a kind” installations, introducing competition among operators, and ensuring suppliers share risk can help contain costs. These precautions also apply to small modular reactors.

The “net” part of net zero is also important. A clear framework for permitting and monitoring carbon capture and storage projects in each province will enable their inclusion in the portfolio of activities to address climate change. Phasing out natural gas raises reliability and resiliency concerns; being able to offset judicious continued gas usage with carbon capture may contribute to a more affordable and durable energy transition.

Despite the magnitude of the climate change challenge, resources are finite. The fact that a resource is zero emitting is not sufficient to justify buying it; it needs to fit within a least-cost, long run approach. Pursuing industrial policy in the guise of green initiatives, and favouring megaprojects at the expense of smaller scale resources and load flexibility, may make it more difficult to cost effectively meet climate goals.

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