

# New modeling shows Canadian decarbonization technically possible

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Canada can make deep reductions in carbon emissions by 2050 while the economy prospers, but doing so will take stronger policies, new regulations and technology innovation, says a report prepared by CMC Research Institutes.

A key benefit of this "deep decarbonization pathway" is the country being able to compete with other nations in a low-carbon or decarbonizing world, including having expanded market access for its energy and other products and exporting innovative, developed-in-Canada technologies.

"Decarbonization is not about shuttering industry but rather using policy and enabling markets to realign investment across Canada's entire economy to compete in a decarbonizing world," says the report, Pathways to Decarbonization in Canada.

## **DECARBONIZATION NOT ALL ABOUT COSTS**

"We have to start looking at decarbonization as insurance against further market access barriers and aggressive geopolitics around carbon - it's not all costs," says co-author Dave Sawyer, development director of CMC Research Institutes' (CMC) Low Carbon Pathways Group. Other authors on the report are Chris Bataille and Noel Melton.

"This report highlights that even really deep decarbonization doesn't bite

the economy that much. We don't have to bring the economy to its knees to achieve deep decarbonization," says Richard Adamson, president of CMC.

Sawyer notes that achieving deep cuts to greenhouse gas (GHG) emissions in the oil and gas sector, for example, would require incremental capital investments of about six per cent annually above historic levels. Significant savings in the household sector can be expected.

Without moving to deep carbonization, "there is a large risk associated with Canada getting caught with a large GHG-intense primary extraction and heavy industry sector that just cannot compete in a world with border tax adjustments based on the GHG intensity of products," the report says.

## **REPORT PART OF INTERNATIONAL EFFORT**

Calgary-based CMC prepared the report as part of the Deep Decarbonization Pathways Project, an initiative of the United Nations Sustainable Development Solutions Network. The Canadian project team is one of 16 country teams exploring national deep decarbonization pathways; their report will be made available to nations' negotiating teams at the UN international climate change conference (COP 21) in Paris in December.

The push for decarbonization has had a significant impact on UN climate change negotiations, culminating in the announcement this June by Canada and other G7 leaders to decarbonize by 2100. The target of the UN Deep Decarbonization Pathways Project is for all countries to hold GHG emissions at 1.7 tonnes per capita by 2050. Canada's current GHG emissions are 21 tonnes per capita.

CMC's report lays out a scenario, based on energy and economic analysis and modelling, for six possible decarbonization pathways in Canada under three themes: Deepening Current Trends, Pushing Towards Next Generation Technologies, and Pathways of Structural Economic Change.

## **BEST IN CLASS REGULATIONS**

The pathways include best-in-class regulations that strengthen existing policies for buildings and transport sectors, as well as a cap and trade system to drive abatement in heavy industry and oil and gas. The policy package also includes a complementary carbon price on the rest of the economy that essentially mops up reductions to reach areas where the regulations do not go, and returns the revenues to reduced income and corporate taxes.

Aligning emission reductions with a deep decarbonization pathway, while achieving Canada's recently announced 2030 target to reduce emissions by 30 per cent below 2005 levels, "would require a significant strengthening of current federal and provincial policies," the report says. "This effort would also have to start effective immediately if costs were to be minimized and effectiveness assured."

## **STRONG POLICY SIGNALS REQUIRED**

Canada is doing well on standards and new technologies in electricity, buildings and personal transport, but policy signals need to be tightened and broadened to achieve zero greenhouse gas intensity in these areas by the late 2030s or early 2040s, the report says. But in heavy industry and the oil and gas sector, "we've got weak policies that are misaligned with the deeper decarbonization trajectories, and critically a lack of innovation signals to deliver affordable technologies," Sawyer says.

Realizing Canada's "enormous opportunities" in biofuel feedstocks and carbon capture and storage (CCS) or conversion/utilization technologies will require coordinated national R&D and deployment support for bulk non-food crop biofuels for heavy freight and aviation, and a clear national framework for deploying CCS and upfront infrastructure support for carbon dioxide pipelining, the report says.

Quebec and British Columbia, with their broad carbon pricing schemes "are probably most prepared" for decarbonization, it says, with encouraging signs from Ontario's planned cap-and-trade system and Alberta's intention to strengthen and broaden its policy to cover more GHG emissions.

"This [report](#) is meant to test the limits of what is technically and economically achievable in terms of decarbonization," Adamson says. "We're not saying this is what should be done or this is what's going to happen. It's intended to find out what breaks and where are the gaps if we really get serious about trying to address these issues."

**More information:** To access the full report go to [www.cmcghg.com/ddp-for-canada/](http://www.cmcghg.com/ddp-for-canada/)

Provided by CMC Research Institutes

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