

We come to bury carbon, not to praise it

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Globe and Mail - July 24, 2007

With the recent announcement that Canada has joined other G8 nations in a plan to cut greenhouse-gas emissions in half by 2050, it is time to act. Carbon capture and storage, endorsed by organizations as diverse as the World Wildlife Fund and the United Nations' Intergovernmental Panel on Climate Change, must be given priority as Canada considers its approach to the global issue of climate change.

Canada, as a significant emitter of carbon dioxide with world-leading potential for large-scale implementation of carbon capture and storage technology, can take an international leadership role in developing this solution. As Prime Minister Stephen Harper has said, Canada must demonstrate leadership when it comes to protecting and enhancing the environment — not merely as an energy superpower, but a clean energy superpower.

Carbon capture and storage involves trapping carbon dioxide from industrial sources before it is emitted and storing it in deep geological formations. A coalition of 14 Canadian corporations — Agrium, Air Products Canada, Canadian Natural Resources, ConocoPhillips, EPCOR, Husky Energy, Keyera, Imperial Oil, Nexen, Shell Canada, Sherritt International, Suncor Energy, Syncrude and TransAlta — has already invested two years in exploring a major application of this technology.

The proposed Integrated CO₂ Network (ICO₂N) can be built in phases and holds the potential of reducing carbon dioxide emissions by as much as 20 million tonnes a year — the equivalent of taking four million vehicles off the road.

Successful implementation of the ICO₂N concept at targeted sites in Western Canada — where ideal conditions exist in the form of clusters of large carbon dioxide emitters in close proximity to prime geological injection

and storage sites — is just the beginning. Expansion of the ICO₂N approach on a national scale would result in globally significant emission reductions.

By leveraging the expertise that already exists here to develop the technologies, infrastructure and regulatory models necessary for the creation of a large-scale carbon capture and storage network, Canada would become a global leader in addressing climate change.

Industry is in agreement that carbon capture and storage must be considered in conjunction with other measures such as energy conservation and investments in renewable energy. But, as indicated by last year's report of the National Advisory Panel on Sustainable Energy Science and Technology and Canada's National Round Table on the Environment and the Economy, carbon capture and storage has the potential to be Canada's single largest carbon dioxide mitigation option.

The basic technology for carbon capture and storage is already proven and safe. The practice of injecting carbon dioxide into oil fields for enhanced oil recovery has been going on for more than three decades in the United States. Deep geological carbon capture and storage projects currently operating in Norway, Algeria and Saskatchewan are each eliminating about one million tonnes of emissions annually.

The Integrated CO₂ Network would capture carbon dioxide from sources in north-central Alberta, including Fort McMurray, Fort Saskatchewan and the coal power plants near Wabamun Lake. The carbon dioxide would then be gathered and transported by pipeline to suitable geological sites elsewhere in Alberta. About 1,000 kilometres of main pipeline and 400 kilometres of small collector lines would be needed for this system, which could be built up over five to 10 years.

Although the initial ICO2N proposal focuses on Alberta, it is by no means a solution targeted only at reducing emissions from that province's industries. Greenhouse-gas reduction is a national issue, and the ICO2N approach can work anywhere where there are large carbon dioxide emitters and suitable geology. The initial advantage to using Alberta to model a carbon capture and storage solution is that a market already exists for the use of carbon dioxide in enhanced oil recovery, which will help offset the initial costs of developing the network. But far more carbon dioxide will be captured than can be used by industry.

Long-term carbon dioxide storage and monitoring will require the kind of visionary government policies and funding mechanisms required for other historic Canadian infrastructure projects such as the Canadian Pacific Railway and the trans-Canada pipeline system. In terms of its potential for transforming industrial activity, creating a national carbon capture and storage infrastructure could be no less significant.

As evidenced by its support for the ICO2N initiative, industry is prepared to step up and contribute its share to the substantial capital and operating costs of this infrastructure. For a long-term vision such as ICO2N to advance in a timely and effective manner, however, industry and government must work together in new and creative ways. A strong public-private partnership is needed.

In March, the federal government took a step forward with the announcement of its \$1.5-billion fund aimed at supporting greenhouse-gas reduction projects, including carbon capture and storage. Together, Ottawa and the government of Alberta took another step in the right direction with the creation of the industry-led, joint ecoEnergy Carbon Capture and Storage Task Force.

Supported by a cross-section of industry and backed by authoritative engineering and economic analysis, ICO2N builds on more than two years of discussion with governments and is central to a made-in-Canada carbon capture and storage solution.

With expanding international endorsement of carbon capture and storage as a critical tool in the world's carbon dioxide reduction kit and our unique geological advantages, there should be no debate about whether Canada should move forward with a national carbon capture and storage program. The environmental and economic benefits are simply too important.

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