



News Release

Report describes engineering infrastructure challenges in Canada's northern oceans and waters

Ottawa- The Canadian Academy of Engineering (CAE) has released a new report focusing on engineering infrastructure challenges in Northern Waters. These waters cover a vast area stretching from the Labrador Sea to the remote and ice covered Arctic Ocean that extends from the northern coast of Ellesmere Island in the east to the Beaufort Sea in the west. Authored by four distinguished Fellows of the CAE who specialize in Arctic engineering activities, the report outlines the initiatives that Canada must take to fulfil its responsibilities vis-à-vis its people and as a coastal Arctic state.

"As governments grapple with Canadian Arctic domestic and international issues, a strong complement of skilled and experienced engineers are needed to manage in a harmonious way the response to the changes that are buffeting Arctic communities and Arctic Waters", says Pierre Lortie, Past President of The Canadian Academy of Engineering. "At a time when the Canadian government sends a clear signal that it is serious about Arctic affairs, we hope this report will assist federal government policy-makers in the design and implementation of initiatives in the Far North. While many of the recommendations are addressed to the federal government, we strongly urge all governments to consider how the report can guide their efforts as well."

The report, focused on the unique conditions of Northern Waters, describes how ice has always been the major challenge facing Canadians living and working in the Arctic. Aboriginal Canadians have developed a profound understanding of the region and sophisticated ways of dealing with ice and snow. This traditional knowledge has been augmented with scientific knowledge and engineering methods that have enabled modern transportation infrastructure to be built and resource development activities to proceed. With current climate trends, ice may become a less formidable barrier to development, but the report contends that, in Northern Waters and on their shore, ice will continue to represent a major engineering challenge.

The report includes a survey of Canadian expertise in Arctic engineering, as well as an overview of resource development activities that have taken place in the Canadian Arctic. It also includes recommendations for future research toward developments for the benefit of Canada and, in particular, for its Arctic region. Canadian infrastructure to support northern marine activities is sparse in contrast to Russia, which has year round activities and considerable infrastructure in the area and Norway which has extensive activities in Northern Oceans. Both countries continue to expand their capabilities for Arctic marine operations.

Several projects and programs are proposed in the report, including:

- **development of the region's abundant natural gas** as a cleaner, greener fuel for Northern communities;
- **development of an ice-worthy ship** as a Mobile Arctic Engineering Research Platform;
- **construction of a Canadian Arctic Railway** along the McKenzie Valley from Hay River to Inuvik, possibly fueled by liquid natural gas;
- **establishing an International Arctic Ocean-Space Engineering Experimental Station** on Hans Island (in the Kennedy Channel between Canada and Denmark) as a shared facility available to Arctic Council members and observer states to further advance Arctic engineering.; and

- **establishing outreach programs** to raise awareness of science and engineering amongst Northern students and augment traditional knowledge.

The Government of Canada is seeking a new relationship with Aboriginal Canadians, including collaboration with Northern communities for environmentally responsible development of the store of natural resources that lies in the region. The initiatives suggested above and detailed in the report would achieve much towards this end. The Far North is home to a high proportion of young Canadians who are bound to benefit from these developments. With improved access to secondary and post-secondary programs with emphasis on technology and engineering education, Northern youth will be better equipped to make Canada's Arctic a good place to live and prosper.

The report, *Engineering in Canada's Northern Oceans: Research and Strategies for Development*, can be downloaded from the Academy's website <https://www.cae-acg.ca/projects/canadas-northern-oceans/>.

The Canadian Academy of Engineering is an independent, self-governing and non-profit organization established in 1987 to serve the nation in matters of engineering concern.

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