

# "EDUCATION, AMBITION AND CHALLENGES: DESIGNING FOR AND OPERATING IN THE ARCTIC ENVIRONMENT"

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15 January 2014

(<http://www.youtube.com/watch?v=R52HoSDtYDs>)


# PURPOSE OF THIS TALK

- ▶ This talk highlights some of the key interests and challenges with the Arctic region and aims to emphasize the opportunities the Arctic presents for people with an educational background in engineering studies and how you play an important role in Arctic politics.



Image from: [www.worldatlas.com](http://www.worldatlas.com) (Retrieved 12 January 2014)

# OVERVIEW OF THE POLITICS OF THE ARCTIC

- ▶ Climate change has been a game changer in how the Arctic is perceived politically and economically
  - ▶ There is much political and commercial interest in the Arctic region
  - ▶ There are still unresolved disputes over ownership in the Arctic
  - ▶ Getting to the opportunities is a challenge
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- A decorative graphic consisting of several parallel white lines of varying lengths and orientations, located in the bottom right corner of the slide.

# SOME ISSUES WITH OPERATING IN THE ARCTIC

- ▶ High Costs of Operation
- ▶ Navigational Aids and Communication
- ▶ Isolation
  - ▶ Access to materials and skilled personnel
  - ▶ Psychological influence
- ▶ Limited Emergency Capabilities
  - ▶ Policing and Search and Rescue capabilities
  - ▶ Pollution response capabilities
- ▶ Darkness
- ▶ Environmental Factors
  - ▶ Temperature
  - ▶ Permafrost
  - ▶ Wind
  - ▶ Ice conditions – sheet ice and icebergs



Shell owned *Kulluk* ran aground in 2012 en-route from the North Slope in the Beaufort Sea to Seattle

Image from: [http://en.wikipedia.org/wiki/File:KullukAground\\_1jan2013.JPG](http://en.wikipedia.org/wiki/File:KullukAground_1jan2013.JPG)

# WHERE DO YOU FIT INTO ALL OF THIS?

- ▶ Engineers are part of the political process!
- ▶ Micro-level:
  - ▶ Entrepreneurial Opportunities
  - ▶ Jobs – Government, Academic, Cooperate, Non-governmental Organizations (NGOs)
    - ▶ Research – e.g. infrastructure design and construction
    - ▶ Consultation – e.g. external reviewers for corporations, NGOs, government departments and agencies, as well as courts and lawyers.
- ▶ Macro-level:
  - ▶ Federal, Provincial, Regional and Local growth potential
    - ▶ Direct taxing and revenue opportunities
    - ▶ Indirect spin-off industries

# SOURCES:

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- ▶ *National Defence*. 2008. “Canada First Defence Strategy.” 1-21.  
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- ▶ *The Economics*. 2012. “Special Report: The Arctic – The Melting North,” 16 June. 1-16.
- ▶ ZumBrunnen, Craig. 2009. “Climate Change in the Russian North: Threats Real and Potential.” In *Russia and the North*, ed. Elana Wilson Rowe. Ottawa: University of Ottawa Press.