

Arctic Energy Summit's Technology Conference Post Conference Report

2007-10-31

Institute of the North

Arctic Council Secretariat

<http://hdl.handle.net/11374/814>

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AES Attachment A

Arctic Energy Summit Technology Conference - Panel Sessions

Panel Session One: Policy Experiences in Developing Energy Assets in the Arctic

**Co-Moderators: President Ólafur Ragnar Grimsson, Republic of Iceland
Dure Pearce, Alaska Natural Gas Transportation Project, United States**

Policy decisions, even more than technical capabilities, have a large influence on the selection of technology, economics and funding as they relate to the development of energy. Policy determines energy security, land use, emissions, project economics, fuel prices, and, in some cases, which communities survive and which communities do not. The development of the Arctic as an energy province versus an exploitable resource will be determined by development of a comprehensive, integrated energy policy. This panel is convened to open a dialogue to share past policy experiences - both positive and negative - among the Arctic communities. Discussion areas will include industry development, environmental concerns and collaborative Arctic policies.

Panel Session Two: Developing Human Resources for Arctic Energy Development

Moderator: Robert Lang, University of Alaska Anchorage, United States

The development and operation of energy facilities in the Arctic will require simultaneous development of human resources in the Arctic, including provision of those skill sets necessary to bring the next generation of energy projects to fruition. Specific attention must be focused on the energy systems required for rural and remote communities. Achieving this new level of competency will require an entirely new curriculum addressing the breadth of Arctic energy including engineering, design, operations, maintenance, management, economics and all aspects of care of the environment. This panel is convened to open a dialogue to identify the key required skill sets and the kinds of curriculum necessary to meet those needs; and to examine new training paradigms, such as distance learning, to deliver those skills to the appropriate areas.

Panel Session Three: Development of Rural Energy in the Arctic

Moderator: George Cannelos, Denali Commission, United States

The Arctic is a region of tremendous energy wealth; however, rural Arctic communities are attempting to exist in spite of tremendous energy poverty. These communities - off the electrical grid, off the road system and populated by predominately indigenous people living a subsistence lifestyle - suffer crippling energy costs threatening their very existence. New approaches are needed to prevent the extinction of these communities and to moderate energy costs for electricity, heating and transportation, using both extractive and renewable energy sources. This panel will open a dialogue on the rural

energy situation, to discuss modern technological approaches and energy sources, as well as approaches to energy efficiency necessary to create an effective rural energy paradigm.

Panel Session Four: Shipping and Transportation Options for the Arctic

Moderator: Lawson Brigham, U.S. Arctic Research Commission, United States

The ability for the Arctic to emerge as a global energy province will be both driven and constrained by transportation. Climate change, while potentially opening up new sea routes, is also changing the structure of seasonal river shipping, weakening existing road systems, affecting runways and shortening tundra travel. More open sea travel will necessitate increased air support (search and rescue). The basic logistics paradigm for the Arctic is changing, and shipping and transportation options will have to change as well. This panel is convened to open a dialogue on the opportunities and challenges that climate change and new shipping routes will present. The discussion will include the impacts on the entire transportation system (marine, ground and air) that extractive and renewable energy development will present.

Panel Session Five: Environmental Concerns in Developing Arctic Energy Assets

Moderator: Donald Cobb, Fisheries and Oceans Canada

The Arctic and its associated cryosphere are home to some of the world's most fragile environments. First and foremost on any energy development endeavor is the requirement to do no harm to the environment. This includes air and water quality, impacts on permafrost and wildlife issues as detailed in any permitting activity, as well as attention to the carbon footprint. Increased offshore exploration and the potential for increased shipping will continue to emphasize the need for improved spill response and for an understanding of the impact these increases will have on fisheries. Renewable energy (battery storage, geothermal impacts, hydro turbines and wind turbines) also presents a variety of environmental challenges that will require a new generation of solutions. This panel is convened to open a dialogue on the environmental challenges and opportunities that will be faced in the continued development of the Arctic's energy assets.

Panel Session Six: Infrastructure and the Impact of Climate Change

Moderator: Peter Larson, The Nature Conservancy, United States

As the Arctic continues its long cycle of warming, the infrastructure developed and built in a colder environment will be impacted. This will include roads, harbors, bridges, foundations, transmission lines, pipelines and airstrips, as well as ice roads and rivers (a traditional Arctic thoroughfare). The damage will be concentrated in places where permafrost thaws, flooding increases and coastal erosion worsens. At a time where the development of the Arctic as an energy province is essential to global and energy security and when energy costs are rising in rural Arctic communities, the infrastructure necessary for these projects is under attack. This panel is convened to open a dialogue on the

various impacts - opportunities and challenges - of climate change on Arctic infrastructure, especially as it relates to the development and deployment of energy resources.

Panel Session Seven: Impacts of Energy Development on the People of the North
Moderator: Patrician Cochran, Inuit Circumpolar Council, United States

The development of energy projects in the Far North have had and will have significant impact on the people of the north, specifically those native or indigenous peoples living a subsistence lifestyle in remote communities. Energy development will have both positive and negative impacts on a community. Extractive development could bring wealth and jobs but impact a subsistence lifestyle. High energy costs drain community resources but the development of new lower cost energy facilities could require a differently trained workforce for operation and maintenance. This panel is convened to open a dialogue on the various impacts - opportunities and challenges - energy development will bring to the people of the north.

Panel Session Eight: Energy Security – The Arctic’s Role in Global Security
Moderator: Peter Sharp, Foreign Affairs and International Trade Canada

The development of the Arctic’s energy resource potential has an impact on how the world defines energy security. Different and changing shipping and transportation routes, new geopolitical boundaries (as evidenced by this summer’s North Pole activities), transnational indigenous organizations, technological advancements, new wealth, sensitive environments - all will have an impact on defining global and energy security. This panel is convened to open a dialogue on the changing face of energy security and the role played by the emergence of the Arctic as an energy province. Discussion areas include energy development (both extractive and renewable), Arctic infrastructure, new political participants and climate change.