OBJECTIVES

The aim of the Northern Panel and Roundtable Discussion was to bring together representatives from local government, utilities and other community leaders to identify risks, success factors and go forward strategies for innovative energy opportunities for Northern and Remote communities and to discuss the potential role for QUEST and its partners.

BACKGROUND

At the 2011 QUEST Conference, representatives from Iqaluit, Whitehorse and Yellowknife participated in a Northern issues and opportunities discussion. They agreed there was merit in working together and expanding the discussion to other Northern communities and organizations with energy and infrastructure interests.

SUMMARY

The session format consisted of a moderated opening plenary panel followed by audience participation in roundtable discussions. Introductory presentations were delivered by experts in the field to provide context regarding current challenges and opportunities in supplying energy to northern communities. During panel and roundtable discussions a number of key messages were identified regarding challenges, opportunities and ways to mobilize QUEST resources to support energy planning in northern communities.

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**KEY MESSAGES**

There was consensus that new energy solutions were required for Canada’s northern and remote communities. A number of key strengths, risks and potential QUEST roles were identified:

**STRENGTHS:**
1. Sense of community creates conditions working closely together;
2. High cost of fuel and critical reliability issues create opportunities for alternatives;
3. Much of the generation infrastructure needs end-of life replacement;

**RISKS:**
1. High transportation and construction costs and extended timelines;
2. Human resources and training challenges to maintain and operate alternative systems;
3. Small market creates difficult economics;

**ROLE FOR QUEST:**
1. Use national and international networks to identify workable technologies and solutions;
2. Use QUEST’s power to convene to provide education and training, information-sharing and knowledge transfer.

**PRESENTATIONS**

- Magdalena A.K. Muir, Research Associate at the Arctic Institute of North America, Associate Professor at Aarhus School of Business, and Social Sciences and Adjunct Professor at John Hopkins University opened the session by presenting integrated community energy solutions case studies from Manitoba, Yukon, Nunavut and the Northwest Territories. Her presentation highlighted the opportunity to integrate waste heat from mining and energy projects and industries into energy systems in the northern communities, identified lower density in many communities as a current challenge to creating integrated systems and emphasized a need for a more integrated framework for policies and system financing.
  *View Presentation at* [www.questcanada.org/panel5/muir](http://www.questcanada.org/panel5/muir)

- Chris Down, Senior Advisor to Energy Secretariat of Nunavut, presented next and emphasized the high costs that are paid by residents and government in Nunavut for energy. He also described the challenges of shipping diesel to remote locations due to harsh climates as well as the challenges posed by having to engage numerous land owners.
  *View Presentation at* [www.questcanada.org/panel7/down](http://www.questcanada.org/panel7/down)

- Finally, Alia Lamaadar, Chief Operating Officer at Cleantech Community Gateway, spoke about biomass and greenhouse projects in Haines Junction, Yukon. She identified a need to change the conversation from energy to heat, the importance of planning for local food security and thinking holistically about energy planning by integrating community input and prioritizing demand management.
  *View Presentation at* [www.questcanada.org/conference/conference2012](http://www.questcanada.org/conference/conference2012)
**ROUNDTABLE DISCUSSION**

After the presentations the workshop participants got into groups for a roundtable discussion. Each table was given a workbook to take notes from the group discussion. After the discussion teams presented their ideas to the room. Comments for the groups and written notes have been incorporated in the summary below.

1. **Identified Strengths:**

   Local technical and human resources
   - R & D resources are available in Universities, need to be brought into the QUEST network – they have expertise as well as established infrastructure for communications and their own networks
   - Human capital is available and many people are very committed to community development
   - Opportunities for local economic development can leverage local HR resources, trades, etc.

   External resources
   - Successful projects have been implemented in the south, the industry is mature
   - Skills and building practices are established and can be transferred from Southern Canada and Scandinavia
   - Canada has a strong communications infrastructure, can mobilize social media

   Local leadership
   - Many northern residents have commitment to community, very well integrated, can identify and support champions to develop locally grounded solutions using tools from other communities
   - Communities have a history of self-reliance and interest in pursuing projects and demonstrating excellence
   - Cultural values support sustainability and ecological values

   Funding
   - Subsidized fuel dollars can be reallocated to improve quality of life measures (from mining, energy)
   - Energy and mining development may be to provide funding or encourage new projects
   - Economics of integrated energy systems make more sense in northern communities due to high energy costs, allows funders to pilot projects that wouldn’t be feasible in the South and test them out under most harsh conditions (living lab of innovation)
   - Boundaries of Northern communities are easier to define

   Synergies
   - Synergies for food production, water and utilization of waste heat can be tapped
   - Status quo is not good enough, there is lot of room for leveraging efforts to improve living conditions
   - Need to improve reliability and quality of infrastructure, DE can help

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2. Participants included local government, utilities, technology/service/fuel providers, provincial/territorial government, researchers, non-profis, and the Federal Government captured the discussion and notes.
2. Risks:

Climate & planning challenges
- Harsh climate creates transportation and planning challenges, need to ship equipment a year in advance in some communities due to very short construction season
- Need to understand climate implications on technology feasibility, e.g., wind turbine icing
- Little room for error in low temperatures, high risk of failure
- High risk creates need for reliability and redundancy, issues with access to parts and repairs compound this challenge

Project financing
- Complex economics and many stakeholders, difficult transportation logistics – need to clarify path for success
- Need to watch out for perverse subsidies that want shovel ready projects in very short time frames but may not be feasible in the long term
- Capital funding from southern communities can be tied to very rigid rules, while building renewables and district energy projects can create dependence on outside resources
- Difficulty accessing operational resources over the long term from government and other funders
- Funding can disallow innovation – often programs won’t fund innovative projects
- Market for industry is not well established

Technical capacity
- Capacity within communities are limited, impacting long term operations
- Skill set available to operate equipment need to be explored, training may be needed
- Trainers from outside communities need to be educated themselves about local conditions and lifestyles
- Need to be careful of vendors pitching technologies, 3rd party verification and/or certification needed (accreditation program)

Responding to local needs & attitudes
- Northern communities are not homogeneous; Boreal forest, permafrost, shield areas will have unique needs
- Sensitive and varying landscapes and interest in local communities need to be protected
- Introducing outside solutions can threaten community independence
- Unclear and overlapping areas of interest (e.g. jurisdictional oversight)
- Local government is responsible to engage the community, need to rally voices
- Education is needed to increase acceptance of new technologies in the population
3. Areas for QUEST mobilization:

Convene
- QUEST can help share “southern” resources where appropriate and engage northern communities
- Pods of expertise (QUEST SWAT teams) could be mobilized to tackle specific issues, need to identify the knowledge resources and make sure that they are maintained through turn over
- Need engagement for community to identify and prioritize needs, QUEST could mobilize resources
- Interactive charette could identify project development lessons, discuss challenges and opportunities, problem solve
- Need to identify key stakeholders and connect to QUEST resources and expertise
- Could establish sister cities partnerships between North and Southern Canada municipalities to share knowledge, create a greater understanding of challenges, could also include communities in Northern Scandinavia – appetite is for proven technologies
- Can use IT to connect northern and remote communities to QUEST conferences (Skype, remote access)
- Pool resources to deliver projects (creation of a group/bulk buy program)

Research
- QUEST could engage universities and industry to establish a sustainability index for communities that can be updated and replicated, could quantify progress and provide lessons learned from failures
  - Mapping resources, potential municipalities, risks, etc.
  - Training and education
  - Exploring pricing and financing options
  - Sponsor a design competition: “extreme habitation”
  - Drill down and lay out a process for engaging with Northern/Remote communities

Advocate
- Leverage funds used to improve living conditions, housing shortage, human health to also improve efficiency
- Maintain policy focus – clearly explain why we need to focus on energy and infrastructure issues in Northern and Remote communities as a national priority
- Tie various programs/organizations working locally/regionally together across Canada - link to all the information and programs - Clearinghouse
- and bridge across provincial/territorial/regional initiatives
- Identify funding
- Identify appropriate technologies
- How can communities take the lead themselves?
**NEXT STEPS**

QUEST is working with session participants and interested parties in furthering the discussion and progress achieved at the QUEST Conference. Specific steps under consideration:

- QUEST to hold a Northern and Remote Caucus meeting/event as part of the Energy and Mines’ Ministers Conference (EMMC) planned for August 2013 in Yellowknife, NWT

- Advance northern community policy/programs by identifying all the innovative energy and infrastructure initiatives in Canadian Northern and Remote communities (e.g. financing models or new technologies, such as combined heat and power biomass systems)

- Work with leading organizations tackling Northern and Remote challenges to scope out how energy and infrastructure policies and programs could improve reliability and economic development while reducing community environmental impacts.

*For more information or to contribute to QUEST’s efforts to improve the quality of life in Northern and Remote Canadian Communities by advancing sustainable energy and infrastructure solutions, please contact:*

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