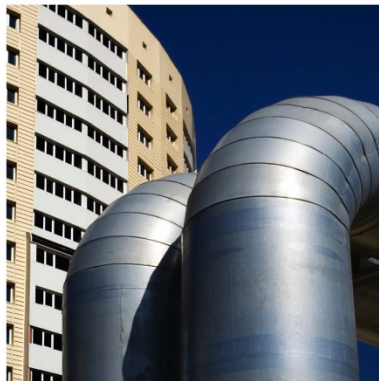
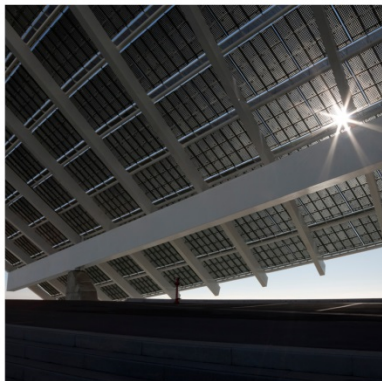


ADVANCING SMART ENERGY COMMUNITIES IN CANADA



QUEST

Quality Urban Energy
Systems of Tomorrow

QUEST - Quality Urban Energy Systems of Tomorrow, is a non-profit collaborative that conducts research, engagement, and advocacy to advance smart energy communities in Canada.

Please visit www.questcanada.org to learn more about what makes a smart energy community.

ADVANCING SMART ENERGY COMMUNITIES IN CANADA

EXECUTIVE SUMMARY

Of the 5,400 communities across Canada, many are making strides towards becoming smart energy communities, and in so doing: improving energy efficiency; fueling economic development; and reducing greenhouse gas emissions.

- Overall efficiency improvements associated with smart energy communities can be realized through the integration of energy systems and through collaboration between diverse stakeholders.
- Smart energy communities lead to improved affordability for households, competitiveness for businesses, healthier environments for communities, and more opportunities for economic development.

QUEST proposes that the Government of Canada consider the following focus areas in order to advance widespread smart energy communities through the reallocation of existing committed funds.

1. Energy Efficiency
2. Smart Energy Utilities
3. Energy in Canada's North

Smart energy communities are all about improving energy efficiency, cutting costs, and reducing greenhouse gas emissions.



ADVANCING SMART ENERGY COMMUNITIES IN CANADA:

1. ENERGY EFFICIENCY

Related Government of Canada

Priorities:

- Innovation
- Trade and Investment
- Economic Competitiveness

Background:

Reliable and efficient energy delivery is fundamental to the economic wellbeing of communities in Canada. Smart energy communities are those that are able to (1) integrate conventional energy systems, (2) make smart land use decisions, and (3) harness local energy opportunities, in a way that improves efficiency, enhances reliability, reduces greenhouse gas emissions, and secures economic competitiveness.

The “smart energy community” model comes at a critical time when communities are facing the challenge of maintaining and replacing overburdened energy infrastructure while managing increased energy demand from a growing Canadian population.

Opportunity:

With estimates of a Canadian infrastructure deficit around \$44B (Federation of Canadian Municipalities, 2007), Canadian communities are in a position to transition to being smart energy communities by investing in planning, implementation, and governance approaches that improve energy efficiency, enhance reliability, reduce greenhouse gas emissions, and secure long term economic competitiveness.

Efficiencies gained from the implementation of smart energy communities were identified by a study commissioned by QUEST as

reducing energy expenditures in the service and construction sectors by \$3 to \$6 billion, and in overall costs to households by \$12.9 to \$31 billion.

The promotion of smart energy communities also fosters Canadian clean technology industry, currently worth \$11B and projected to grow to \$50B by 2022. Implementing smart energy communities contributes to this growth by providing a domestic market for Canadian innovation.

Recommendation:

QUEST recommends that the Government of Canada move to update and revise the ‘*Integrated Community Energy Solutions – A Roadmap for Action*’ (2009), endorsed by the Council of Energy Ministers and Council of the Federation, that supports the development of smart energy communities by reallocating funds to the Office of Energy Efficiency. Potential avenues for budget reallocation include: Canada’s Global Markets Action Plan for identification of new markets, strengths and opportunities; the Expanding Markets Opportunities Program; Sustainable Development Technology Canada; and the New Building Canada Plan.

Benefits:

- Development of Canada’s clean technology industry
- Enhanced economic competitiveness for communities, including businesses and manufacturers
- Increased resource export capacity
- Improved energy affordability and quality of life for families
- More reliable energy, reduced greenhouse gas emissions, and improved air quality

ADVANCING SMART ENERGY COMMUNITIES IN CANADA:

2. SMART ENERGY UTILITIES

Government of Canada Priorities:

- Innovation
- Trade and Investment
- Economic Competitiveness

Background:

Communities across Canada account for 61 percent of all energy end-use and over 50 percent of all greenhouse gas emissions. According to the Canadian Council of Energy Ministers, this could potentially increase by 75 percent by 2050 when compared to 2006 under a business-as-usual scenario. Unchecked, this trend of rising energy use threatens the social, economic and environmental well-being of Canadians and their communities. Managing energy use and efficiently delivering energy services is fundamental to sustainable development and ensuring the competitiveness of businesses and prosperity of Canadians from coast to coast.

Opportunity:

Smart Energy Utilities support the coordination of electric, natural gas, district energy, and transportation fuel services so that Canadians have energy choices and that energy needs are met with the most efficient energy options.

Smart Energy Utilities look to expand market opportunities by supplying new energy services that improve energy efficiency, enhance reliability and resiliency, cut costs, and reduce greenhouse gas emissions. Smart Energy Utilities collaborate with local governments, real estate developers, businesses and other stakeholders on planning, designing and

implementing energy projects, facilitating the adoption of innovative technologies and approaches.

Smart Energy Utilities support the adoption of smart energy networks, distributed generation and other key areas of energy innovation and development being advanced by the Federal Government, including Sustainable Development Technology Canada, National Research Council and Natural Resources Canada, including CanmetENERGY.

Recommendation:

QUEST recommends that the Government of Canada reallocate existing committed funds towards increasing the capacity of energy utilities to plan, design and implement smart energy networks, distributed generation and other key areas of energy innovation and development being advanced by the Federal Government and industry in Canada. Existing funds where this kind of capacity building could be integrated include the *Community Infrastructure Improvement Fund*, the *Green Infrastructure Fund*, or the Communities Component of the *Building Canada Fund*.

Benefit:

- Improved energy efficiency and increased economic competitiveness to local businesses and manufacturing
- Lower energy costs for Canadian families
- Greater access to safer and more reliable energy infrastructure
- Cleaner and healthier community environments

ADVANCING SMART ENERGY COMMUNITIES IN CANADA:

3. ENERGY IN CANADA'S NORTH

Government of Canada Priorities:

- Building Canada's North
 - Strategic Investments in Northern Economic Development
 - Regional Economic Development
- Communities
 - Aboriginal Communities

Background:

Energy challenges are common for many northern and remote communities, including but not limited to First Nation, Inuit and Métis. Unique challenges include high fuel and energy costs (over 10 times higher than the Canadian average per kWh), lack of regional infrastructure, historical management practices small populations, and limited community capacity. As a result, long-term integrated energy planning, and demand side management programs, to reduce energy-use for power and heat have not been extensively implemented.

Opportunity:

Many northern and remote communities are looking for sustainable, safe, reliable and affordable energy sources to reduce dependence on currently widespread diesel generators. Proven opportunities include renewable energy, liquefied natural gas, and biomass among others. Investment in northern and remote smart energy community capacity building would further strengthen and diversify regional economies and reduce cost to established consumers and businesses.

Recommendation:

QUEST recommends that the Government of Canada reallocate funds through the Canadian Northern Economic Development Agency (CanNor) to provide training and support tools that will enable northern and remote populations to plan, implement, and advance smart energy communities. Potential avenues through which reallocation could occur include the *Strategic Investments in Northern Economic Development Program*, and the *Aboriginal Economic Development Program*.

Benefit:

- Stronger, safer, and more secure northern communities
- Improved economic competitiveness in Canada's North
- Increased capacity to access remote coastal and Arctic natural resources
- Greater protection of Arctic environmental heritage
- Empowering people of the North and remote communities with a greater influence over energy affairs