



QUEST

Collaborating to Promote Integrated Community Energy Systems

Presented to the Standing Committee on Natural Resources by:

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Why QUEST?

- Communities represent about 50% of Canadian energy use and greenhouse gas (GHG) emissions.
 - Existing approaches to GHG mitigation by mainly focusing on the energy supply side fall far short of meeting policy targets
- An integrated approach to energy systems in Canada's communities will build a sustainable energy future and deliver GHG reductions.
 - No or low carbon environment.
 - Reduction of other environmental impacts.
 - More affordable energy.
 - More reliable & resilient energy services.

What is QUEST?

The QUEST vision:

- “By 2050 every community in Canada is operating as an integrated energy system, and accordingly, all community development and redevelopment incorporates an integrated energy system.”

The QUEST mission:

- “To foster a community-based integrated approach to land-use, energy, transportation, waste and water and reduce related greenhouse gas, air pollutant emissions and waste.”

Who is QUEST?

- Chair: Michael Harcourt
- Supporting organizations:
 - Federal Government
 - Provincial Governments
 - Municipal Governments
 - Energy Industry
 - Environmental Groups
 - Building Sector
 - Academics

QUEST - Six Guiding Principles

- **Improve efficiency** – reduce the energy input required for a given level of service;
- **Optimize “exergy”** – avoid using high-quality energy in low-quality applications;
- **Manage heat** – capture all feasible thermal energy and use it, rather than exhaust it;
- **Reduce waste** – use all available resources, such as landfill gas, gas pressure drops and municipal, agricultural, industrial and forestry wastes;
- **Use renewable resources** – tap into local biomass, geothermal, solar and wind energy; and
- **Use grids strategically** – optimize use of grid energy as a resource to optimize the overall system and ensure reliability.

The Building Blocks of Integrated Energy Systems

- **Integration** of land-use, transportation, energy, water and waste systems planning.
- An **enabling platform** of higher density, mixed use developments of energy efficient building.
- A **backbone** of smart district energy/utility grids, allowing best management of available energy.
- **Distributed** smaller scale, local energy systems.
- Using local **renewables** - solar, geothermal, wind & biomass.

Building Momentum

- 2006 – Inception through dialogue between Canadian Gas Association and Pollution Probe.
- 2007 - Formal launch with Ontario workshop.
 - To confirm the potential of the concept.
- 2008 – Scenario Development with British Columbia workshop.
 - Alternative scenarios planning for a sustainable energy future for Canada.
- 2009 – Moving to implementation.
 - Demonstration projects – removing barriers; proving the potential.
 - Third workshop planned for Quebec City in November 2009.

Bringing People Together

- **Federal Government**
 - Natural Resources Canada
 - Industry Canada
 - Infrastructure Canada
 - National Research Council
 - National Round Table on the Environment and the Economy
 - Transport Canada
- **Provincial Governments**
 - Agence de l'efficacité énergétique du Québec
 - Alberta Climate Change Central
 - Government of British Columbia
 - Government of Nova Scotia
 - Ontario Power Authority
 - Saskatchewan Office of Energy Conservation
- **Municipalities**
 - City of Calgary
 - City of Guelph
 - City of Vancouver
 - City of North Vancouver
 - City of Dawson Creek
 - City of Malmo, Sweden
 - District of Saanich
 - Resort Municipality of Whistler
- **Associations**
 - Canadian Electricity Association
 - Canadian Gas Association
 - Canadian GeoExchange Coalition
 - Canadian Natural Gas Vehicle Alliance
 - Canadian Petroleum Products Institute
 - Canadian Urban Institute
 - Net-Zero Energy Home Coalition
- **Buildings Sector**
 - Canada Green Building Council
 - Windmill Development Group
- **Consultants**
 - Enerlife Consulting
 - Lawson Research
 - Marbek Resources Consultant
 - MK Jaccard and Associates Inc.
 - ICF International
- **ENGOS**
 - Canadian Energy Efficiency Alliance
 - IVEY Foundation
 - Pembina Institute
 - Pollution Probe
 - Sustainable Cities Foundation
 - WADE Canada
- **Academics**
 - Processus International Research Network
 - Royal Roads University
 - Seneca College
 - Simon Fraser University
 - University of British Columbia
 - University of Michigan
 - University of Ontario Institute of Technology
 - University of Toronto
- **Energy Industry**
 - Veridian Corporation
 - Terasen Gas
 - Union Gas
 - New Brunswick Power
 - BC Hydro
 - Hydro-Québec
 - Toronto Hydro
 - Enbridge Gas Distribution
 - Gaz Métro
 - CORIX Utilities

What does the Federal Government need to do?

- Support to move the QUEST Vision from the fringe to the mainstream.
- Ongoing support for building further momentum.
- Ensure technology funding supports the development of integrated community energy systems.
- Ensure program funding supports integrated systems.
- Ensure infrastructure funding is directed at sustainable green integrated infrastructure.

QUEST

To ensure an efficient, resilient, robust and sustainable energy system for Canadians in the future.