



The Role of Energy in Community Planning

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Community Energy Association

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Building Sustainable Communities

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Communities and Sustainability

Key Challenges

Climate Change / Air Quality
Fossil Fuel & Energy Supply
Waste / Resource Scarcity
Water Quantity/Quality Supply
Ecosystem Integrity
Food Supply / Quality / Security
Economic Prosperity / Viability
Social and Community Health



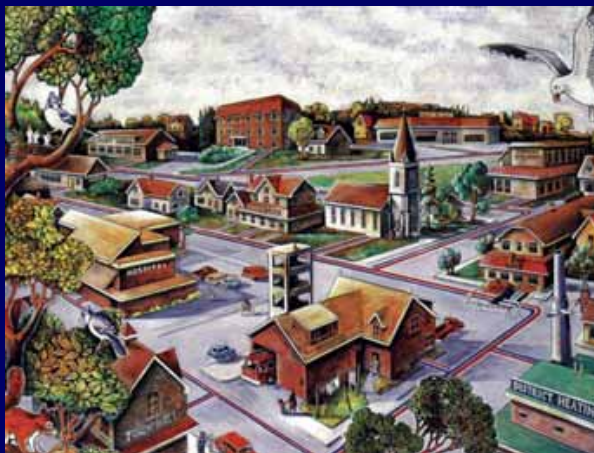
Sustainability Goals

Reduce Emissions
Renewable Energy / Efficiency
Reducing Waste / Recycling
Better Water Management
Ecological Design / Protection
Organic / Local Supply
Diverse / Local Systems
Individual and Community Health

Energy is a critical factor in all sustainability challenges and goals

Obsolescence Cycle of a City

- Systems & Equipment 5 – 30 years
- Infrastructure 20 – 100 years
- Buildings 50 – 100 years
- City structure and layout 75 – 200 years +



Municipalities and Energy

- Canadians are the 4th highest per capita energy users in the world
- ~ \$4,300/person/year on energy
- Municipalities directly account for 7% of GHG emissions, indirectly > 50%



Community Energy Planning

- Consideration of energy supply and demand in community design and development:
 - Land use
 - Transportation
 - Buildings
 - Infrastructure
 - Energy supply



Benefits of CEP



- Efficient communities
 - Reduced costs, efficient land use, reduced travel times
- Economic development
 - Energy \$ remain local, energy security, price stability
- Healthier communities
 - Air quality, livability
- Environmental benefits
 - GHG reductions, healthier ecosystems, air quality

BC Communities Are Getting Involved

- **Kelowna** – CEP underway, sewage heat recovery heating
- **Dawson Creek** – Natural Step framework, CEP, solar ready community
- **Revelstoke** – CEP, district heating
- **Langford** – LEED certified neighbourhood
- **Sparwood** – Biodiesel fleet
- **Lake Country** – Electrical generation from municipal water supply



Community Energy Planning



Planning



Policies



Action

Planning

- A Community Energy Plan can:
 - Clarify goals & priorities
 - Evaluate current energy consumption and forecasts
 - Encourage community engagement
 - Prioritize and coordinate potential opportunities





Planning (cont'd)

- A Community Energy Plan:
 - May be driven by a single issue or project, but should be comprehensive
 - May be integrated with an air quality or overall sustainability plan
 - Scale: Regional, Municipal, or Neighbourhood

Policies

Energy/GHG goals can be incorporated into OCP, bylaws, policies, etc.

- Purchasing policies
- Civic building policies
- District heating service areas
- Density bonusing
- Rezoning applications



Actions

- Smart growth planning
- Transportation demand management
- Civic building retrofits
- Fleet vehicle conversions
- Education campaigns
- Renewable energy supply projects



Revelstoke District Heating

- First renewable-energy district heating system in BC, burning wood waste from local mill
- Hot water heating to downtown buildings, steam for kilns
 - Reduced use of silo burner
 - Lower energy costs for customers
 - City is a partner in Revelstoke Energy Corp.



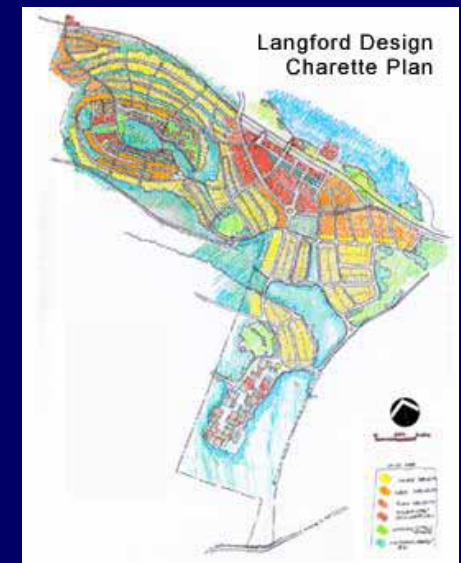
Saanich Municipal Energy Retrofit

- 10 municipal buildings
- Lighting, mechanical and water
- Energy performance contract – guaranteed savings
- \$90,000 in annual savings



Westhills Green Community

- 472 acre sustainable neighbourhood plan
- LEED Neighbourhood Development Standard; all buildings to be LEED certified
- Compact development; all amenities within walking distance
- Local commuter buses, extensive trail network



Solar Energy in Dawson Creek

- Solar water heating in three municipal buildings
- Partnership with BCSEA for promotion and education about solar water heating
 - Solar water heating curriculum introduced at Northern Lights College
 - Developing a model bylaw to require “solar ready” new homes



Wastewater Heat Reclaim, Kelowna

- Wastewater treatment plant discharge used as low temperature heat source
- Heat recovered using heat pumps
- Used as first stage of heating for Okanagan College



Biodiesel Demonstration Program: BC Biofleet - Fleet Challenge BC



- Based on success of pilot project
 - 6 municipalities in Lower Mainland and Whistler
 - Will purchase 80 million litres of biodiesel over 5 years
 - Biodiesel cost can be same or less than regular diesel



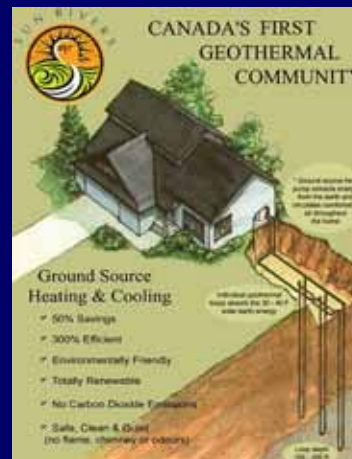
West Vancouver Micro-Hydro

- Hydro-electric generation from municipal water supply
- Partnership with Pacific Cascade Hydro
- 1.2 GWh annual generation
 - \$328,000 capital investment by municipality, 5-year payback



Sun Rivers Geothermal Community

- 2000 home development in Kamloops
- Each home has a closed ground loop
- Ground loops installed and paid for by Corix Utilities, leased back to homeowner
- Homeowner responsible for systems within the house



Hartland Landfill Gas Utilization

- 1.6 MW green power generation
- Privately built by Maxim Power
- 12,274 MWh electricity generated
- \$250,000/year royalty to Capital Regional District



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Helping Communities Benefit From Energy Opportunities

Partners



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Helping Communities Benefit From Energy Opportunities

- First-stop shop for BC local governments:
 - Presentations to council or staff
 - Website – local government energy information
 - Energy planning toolkit
 - Funding guide
 - Information and assistance

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Helping Communities Benefit From Energy Opportunities

- Results
 - Energy awareness taking off in BC communities
 - CEPs complete or underway in 2 dozen BC communities
 - Energy and GHGs playing a larger role in OCPs, bylaws, and policies
 - Twelve submissions for 2006 Energy Aware Award





Thank you

Community Energy Association

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