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Action on Climate Change - What can Township of Esquimalt do?

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Community Energy Association

Presented to:

Conversations on Climate Change, Victoria
April 18, 2007

Outline

- Climate change imperative
- GHG / Energy planning
  - Overview, CRD history, other communities, CRD now
- Taking action & examples
  - Land Use
  - Transportation
  - Buildings
  - Infrastructure
  - Renewable energy supply
  - Municipal operations
- About the Community Energy Assn

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Climate Change Imperative

- IPPC: Need to reduce global GHG to well below half of 2000 levels to avoid dangerous climate change
  - Target: 2-3 degrees warming @ 450 ppm, 20-30% species extinction
- Time frame for stabilization: 25-40 years
- Global target: 0.5 tonnes per person by 2030
  - assuming population growth and equity
- BC is currently 16 tonnes per person; 80-95% reduction
- BC municipalities share of BC GHG emissions:
  - indirect ~ 45%
  - direct > 9%
- We currently spend ~ $4,300/person/year on energy

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Obsolescence Cycle of a City

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

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GHG and Energy Planning

- Establish a team to develop, implement & monitor a GHG reduction strategy
- Evaluate GHG/energy trends
- Encourage community engagement
- Set goals, targets & priority actions
- Coordinate opportunities
- Take action to achieve goals
- Monitor & evaluate
- Benefits include:
  - Air quality
  - Energy security
  - Economic development

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GHG Planning - History 101

- 1992 Capital Regional District Healthy Atmosphere 2000
  - Targets:
    - 20% reduction from 1990 levels by 2000
    - 60% reduction by 2020
  - Actions: Land Use, Transport, Buildings, Waste & Landfill
  - Lack of regional and municipal support; no regional “function”
  - Some items implemented: Landfill gas capture, building retrofits
  - Most recommendations still relevant
- 15 years later; less time to do the same work
- More public will now??

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Other BC GHG/Energy Plans

- Complete
  - Kamloops – 1997
  - Revelstoke – 1997
  - Bowen Island – 2003
  - Quesnel – 2003
  - Whistler - 2004
  - City of North Vancouver – 2005
  - Vancouver – 2005
  - Prince George – 2006
- Provincial target to have 50 GHG/Energy Plans by 2010

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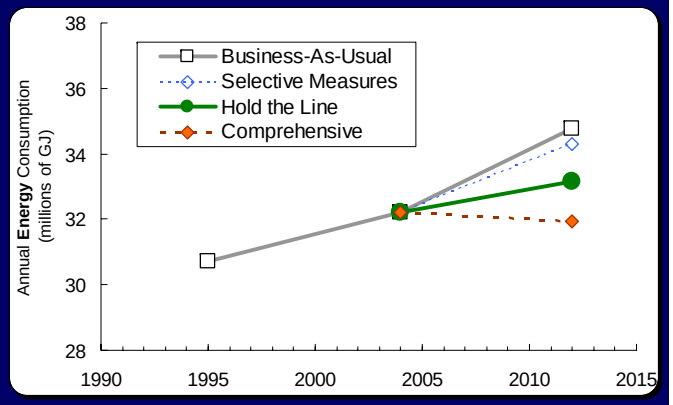
Capital Regional District Climate Change Initiatives 2007

- Draft released – Envt Cttee Apr 25
- Energy use scenarios 1995 - 2012:
  - BAU: increase 13%
  - "Comprehensive" action: increase 4%
- GHG emissions 1995 – 2012:
  - BAU: - 7.2% (due to landfill gas capture)
  - "Comprehensive" action scenario: - 15.6%
- No long-term targets/scenarios
- Seeking regional GHG mgmt function for coordination
- Each municipality is key for local implementation



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Actions

- Develop a plan, set targets & monitor
  - Land Use
  - Transportation
  - Buildings
  - Infrastructure
  - Renewable energy supply
  - Municipal operations
- Education & community engagement

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Land Use

GHG/Energy goals incorporated into OCP, bylaws, policies

- GHG/energy targets
- Densification, focused development supporting transit
- Smart growth guidelines
- LEED ND
- Density bonusing
- Rezoning applications
- District heating service areas

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Dockside Green, Victoria

- Complete sustainable community
- GHG neutral
- Key energy features:
  - High density, mixed use development
  - Transportation demand strategy
  - LEED platinum for buildings
  - District heating from:
    - wood waste
    - heat recovery from on-site sewage treatment plant and city sewage trunk line
  - Demonstrations of other renewables (eg. solar hot water, photovoltaics)

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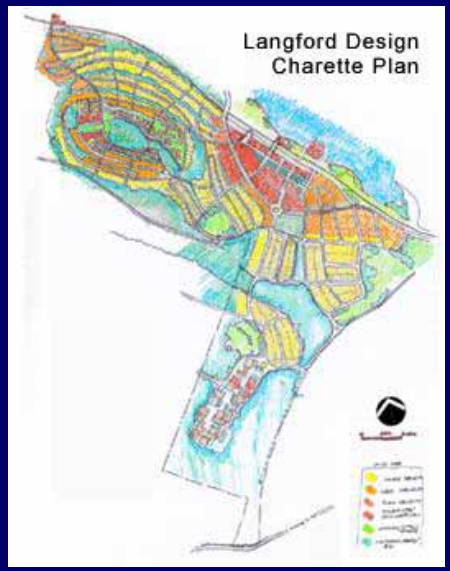
Westhills Green Community, Langford

- Comprehensive Development Zoning
- 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



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Transportation

- Transportation demand management
  - Transit, pedestrian & cycling amenities
  - Transit priority over traffic
  - Improved transit service
  - Greenways
  - Bicycle Master Plan
- Green fleets
  - Efficient sizing
- Fuels
  - Biofuels, electric, hybrids

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Buildings

- New buildings
  - Energy efficiency standards
  - Toward net zero
  - Passive solar – easing bylaws
  - 100,000 Solar Roofs
  - Microgeneration
- Retrofits

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Bowen Island

- Energy performance standards via rezoning
  - Developing a rezoning policy
  - Rezoning applicants expected to achieve Built Green™ “Gold”, and EnerGuide for New Houses 80 for new residential development
  - Extensive developer consultation and committee referrals

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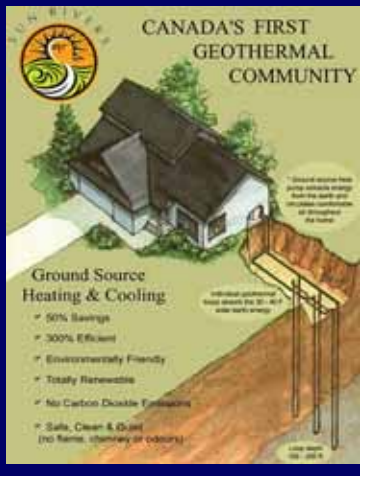
Sun Rivers Community: Ground-Source Heating

- 2000 home development, outside 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



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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

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Infrastructure

- District heating systems
  - Biomass, ground source, co-gen, landfill gas, waste heat
- Waste heat recovery
  - From sewage treatment, ice rinks, industrial
- Landfill & sewer gas capture and utilization
  - For electricity, vehicle fuels, heating
- Solid waste reduction
- Water conservation
  - Low-flow
  - Storm water mgmt
  - Grey water
- Green power from municipal water supplies

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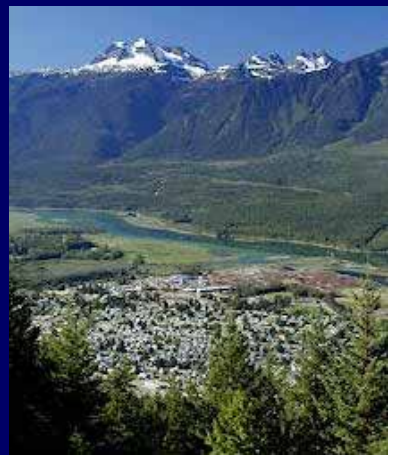
Revelstoke District Heating

- 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.



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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

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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
- Can we capture more?

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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

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Municipal Operations

- Procurement
- Municipal Buildings
  - Standards for new buildings
  - Retrofits
  - Renewable energy for pools, rinks
- Fleets
  - Right-sizing
  - Biofuels

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City of Richmond

- Sustainable High Performance Building Policy
  - Projects will be evaluated based on life cycle costing
  - LEED Gold standard for buildings >2000 m²
  - LEED Silver for buildings < 2000 m²

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Saanich Municipal Energy Retrofit

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

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Biodiesel Demonstration Program: BC Biofleet - Fleet Challenge BC

- Based on success of pilot project
  - Several municipalities
  - Will purchase 80 million litres of biodiesel over 5 years
  - Biodiesel cost can be same or less than regular diesel

- BC Transit switching to 5% biodiesel blend for all Victoria Regional Transit System vehicles

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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

Partners

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Thank you

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