Spatially Enabling the Community Energy and Emissions Inventory
Context

Future

Summary

CEEI

TaNDM
Climate Change

The Greenhouse Effect

When the sun’s energy reaches earth most of the energy warms the atmosphere and the earth’s surface. The earth then radiates some of this energy back into space as infrared rays. Greenhouse gases in the atmosphere trap some of the infrared rays before they escape resulting in additional warming of the earth.

Burning fossil fuels, and other human activities, have increased levels of greenhouse gases in the atmosphere. This has increased the atmosphere’s capacity to trap energy by accentuating the greenhouse effect and raising global temperatures.
Why are we working on this?

- Landslides and floods
- Infrastructure damage
- Loss of life
- Natural Resource Disruption
Community Actions

- Land use
- Transportation
- Buildings
- District energy
- Waste
Legislation and Policy

BIG PICTURE: Reduce energy use and GHG emissions

• **2007 Greenhouse Gas Reduction Targets Act**
  – 33% reduction in GHGs by 2020
  – 80% reduction in GHGs by 2050

• **2007 Climate Action Charter (voluntary commitment)**
  – Includes commitment to Monitor and Report on community GHG emissions profile

• **2008 Bill 27 Green Communities**
  – Requires Local Governments to set GHG Reduction Targets in their Official Community Plans by 2010; in Regional Growth Strategies by 2011
**CEEI:** Community Energy and Emissions Inventory

**PURPOSE:** to provide a provincial solution for tracking and reporting energy and greenhouse gas (GHG) emission indicators at a community (municipal or regional district) level.

**CEEI GOAL:** continuous improvement
Project Partners

- Climate Action Secretariat
- Community, Sport and Cultural Development

MOE
- MCSCD
- IMB
- GeoBC

- Data modeling
- Architecture
- Database & Infrastructure

- Data providers
- ICBC
- Utilities
- BC Assessment

Project Sponsors

- Geological Survey of Canada

CEEI Working Group

- Spatial views
- GIS analysis
- Data management and loading

Data management, infrastructure
- Business area experts
- Transportation
- Buildings
- Outreach

GeoBC

- Business area experts
- Transportation
- Buildings
- Outreach

Information Management Branch

- GeoBC

Consultants

- ICBC
- Utilities
- BC Assessment

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- Data providers
- ICBC
- Utilities
- BC Assessment
Project Cycle

- Data Acquisition
- Data Management
- GIS Analysis
- Data Loading
- Reporting
- Publication
CEEI Report Content

Core Sectors
- Buildings
- Transportation
- Solid Waste

Memo Items
- Agriculture
- Deforestation
- Large Industrial Buildings

Supporting Indicators
- Housing Type
- Commute Mode
- Commute Distance
- Residential Density
- Parks and Protected Areas
Change legend to simple 3 colour bar. Match both maps to same colour.
limitations of the community and regional reporting approach
Using CEEI Data for Modeling

Measured Data (present)

Modeling future scenarios

Emission reduction by strategy
- Business as Usual
- 33% Reduction Target

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PURPOSE: explore opportunities and challenges for mapping CEEI at the neighbourhood (census tract) scale, focusing on building indicators.

• 3 Project goals
• 4 Project requirements
• 6 Pilot communities
Big Concept: scalable analysis
Parcel Data Method

**CURRENT CONDITIONS**
assigned to parcels

- **category** e.g. single family, apartment, commercial
- **attribute** e.g. age, floor area
- **measured baseline** for electricity and natural gas

parcel ID (PID)
e.g. 009734286
BC Assessment Building Information Report

<table>
<thead>
<tr>
<th>Major Category</th>
<th>Category</th>
<th>Sub-category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial</td>
<td>Retail</td>
<td>Shopping centre</td>
</tr>
<tr>
<td></td>
<td>Accomodation</td>
<td>Big box</td>
</tr>
</tbody>
</table>
Integrate and Categorize energy data for reporting
Utility data
Deliverable: methodology
Deliverable:
building categories reporting (maps)
Deliverable:
neighbourhood energy reporting (maps)
Relationship Building

Win-win opportunities

Strengthen new and old relationships

Learn who’s doing what

Collaborative spirit

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Data Sharing Protocols

- Reduce effort with standardized request
- Align data acquisition with business cycles
- Keep methods consistent
- Respect privacy
Local Government Collaboration

Local government needs
TaNDM
Standardized data request

Potential benefits
Less effort and time
Consistent methods
Comparison
Healthy competition

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Future Plans

Context

CEEI

TaNDM

Summary
Potential Applications

Best practice

- Business improvement for CEEI
- Local governments
- Provincial governments
- Assessment authorities
- Power authorities

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Research Raises More Questions

• Data sharing protocols
• <5 rule needs sorting out
• Data acceptance and integration with CEEI
• Definition of “neighbourhood”
  – Test at local government level
Thank You for listening

Questions?

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