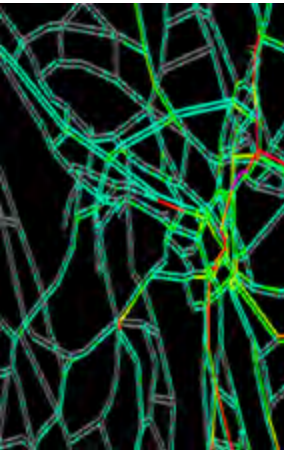


# Digital Tools for Participatory Energy Modeling / Mapping



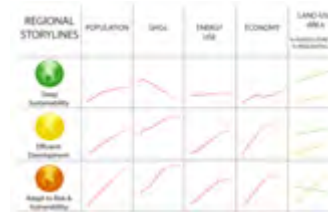
Duncan Cavens

# Our Approach

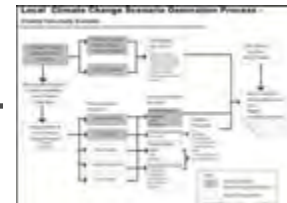
Participation ....



Scenario Building



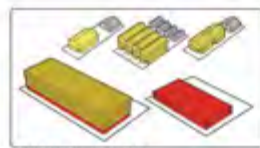
Modeling / Integration



2/13/11 3D and 4D Visualizations

# Pattern Based Approach

## Pattern based approach



PARCEL CASES

+



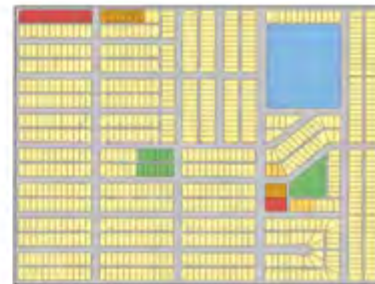
STREET CASES

+



OPEN SPACE CASES

=



PATTERNS



PATTERN A

+



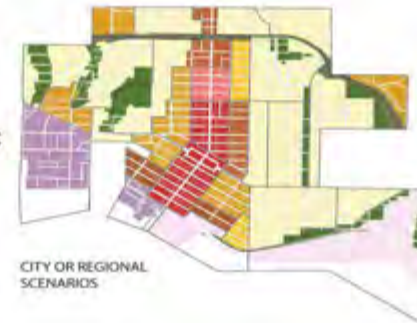
PATTERN B

+



PATTERN C

=



CITY OR REGIONAL SCENARIOS

18



Natural Resources  
Canada

Ressources naturelles  
Canada

Canada

2/13/11

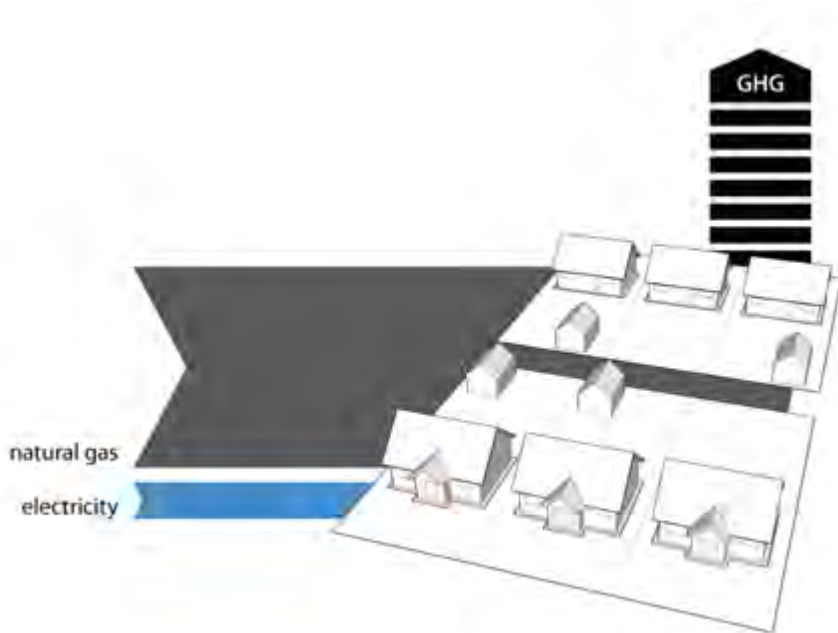


Current

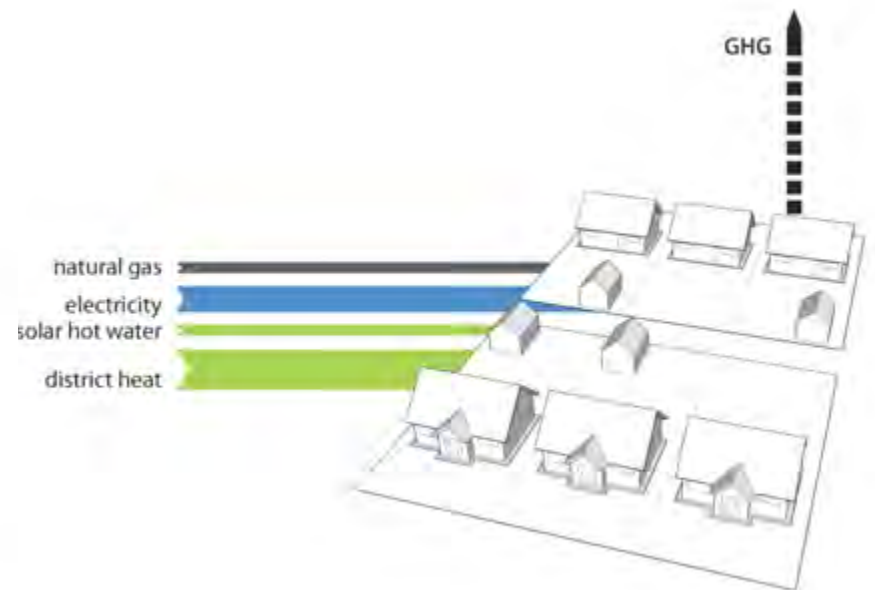


2050

# Energy Retrofits In Residential Neighbourhoods



Baseline energy use and emissions



With energy retrofits, renewables, and district heating.

# Centre for Interactive Research on Sustainability (CIRS) BC Hydro Theatre





## Experimental Space for Prototyping Digital Workshops

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## Experimental Space for Prototyping Digital Workshops

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## Experimental Space for Prototyping Digital Workshops

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Hardware | Software | Processes

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Scenario Strategies (2030)

Strategy	Description	Image
Residential Retrofit - Moderate	Require any residential renovation to achieve EnerGuide 80	
Mandatory Hookup to District Energy Systems	Require all buildings within District Energy System (DES) service area to connect to the system.	
Parking Restrictions / Limits	Limit new construction to one parking space/residence. Set absolute limit on commercial parking spaces downtown.	
Sever Heat Recovery	Install Sever Heat recovery systems at key points as part of regular infrastructure renewal.	

Scenario Assumptions (2030)

- Residential Retrofit Uptake: 70%
- Transit Trip Share within 400m of major Transit Route: 15%
- Households in Ground-Oriented Housing: 80%
- Connection Rate to District Energy System: 95%
- Personal Vehicle Electrification Rate: 1%

## GHG Emissions By Sector





## Portable Lab In Communities

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## GHG Emissions By Sector



## Scenario Assumptions (2030)

Rate of Growth: 1.1%

Retrofit Uptake: 15%

Vehicle Electrification Rate: 8%



### GHG Emissions By Sector



### Scenario Assumptions (2030)

Growth: 1.1%

Uptake: 15%

Electrification Rate: 8%



## GHG Emissions By Sector



## Scenario Assumptions (2030)

Growth: 1.1%

Uptake: 15%

Electrification Rate: 8%



## GHG Emissions By Sector



## Scenario Assumptions (2030)

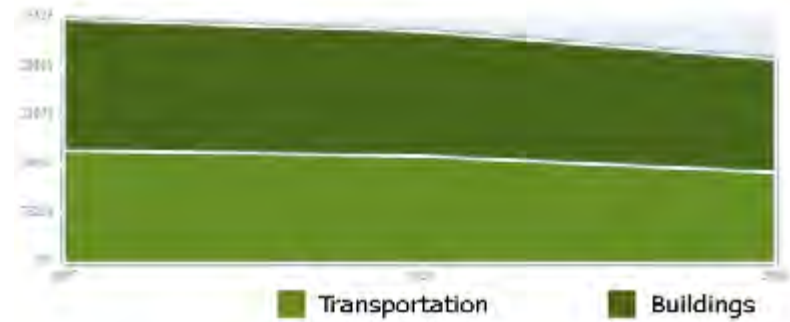
Growth: 1.1%

Uptake: 15%

Electrification Rate: 8%



## GHG Emissions By Sector



## Scenario Assumptions (2030)

Rate of Growth: 1.1%

Retrofit Uptake: 15%

Vehicle Electrification Rate: 8%



Opening September 2011

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CALP

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