

# Towards Energy Sustainable Communities: BC Hydro Programs and Initiatives



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**BC Land Summit – Bill 27 workshop**  
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# Integrated Community Energy Systems

[www.questcanada.org](http://www.questcanada.org)

Green Buildings  
(ultra-efficient)

Shared heating,  
multiple inputs,  
“waste” capture  
(District Energy)

Local electricity  
and energy  
generation  
(Distributed  
Generation)

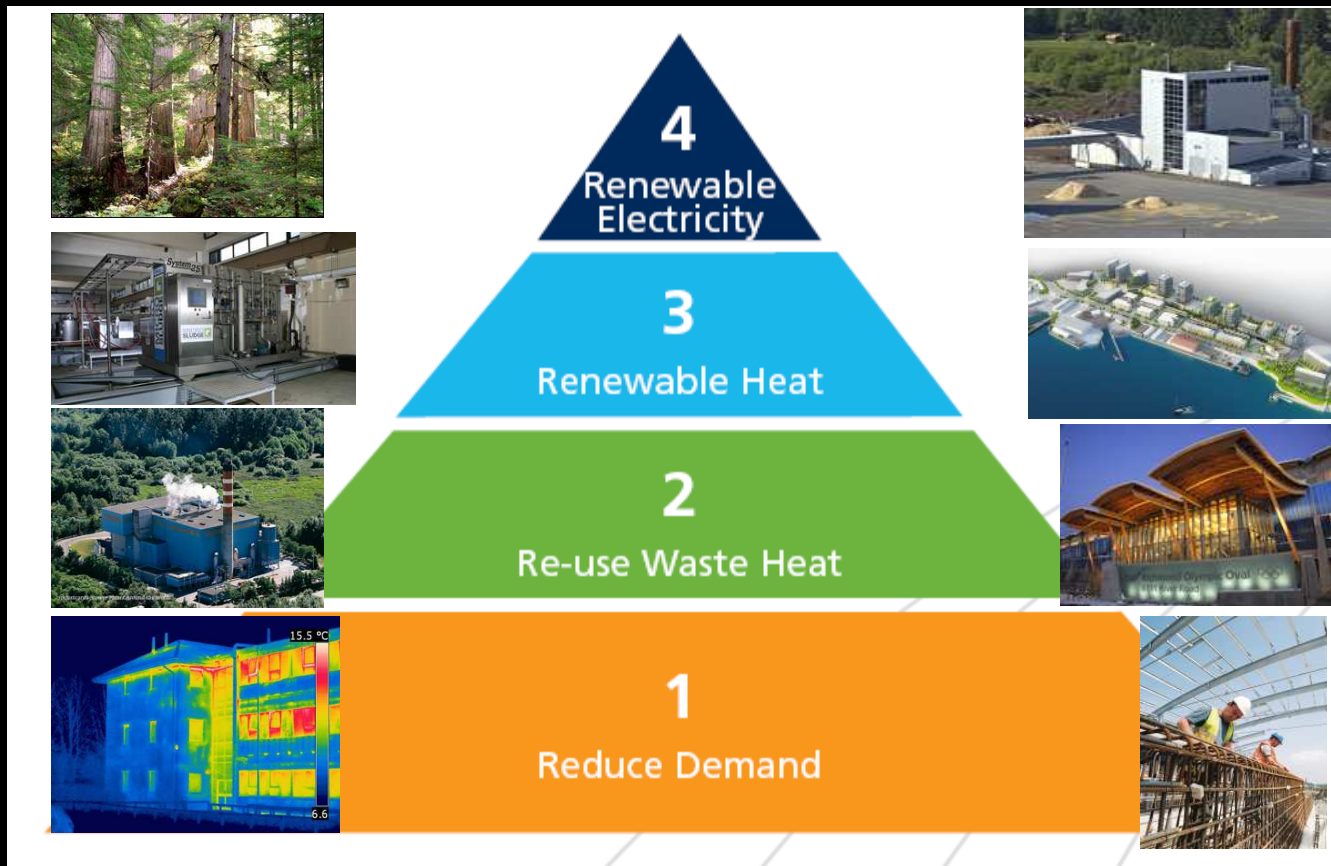


e.g. Copenhagen, Frieberg  
Stockholm, Mannheim

Compact / Mixed Use /  
Smart Growth

Sustainable  
Transportation

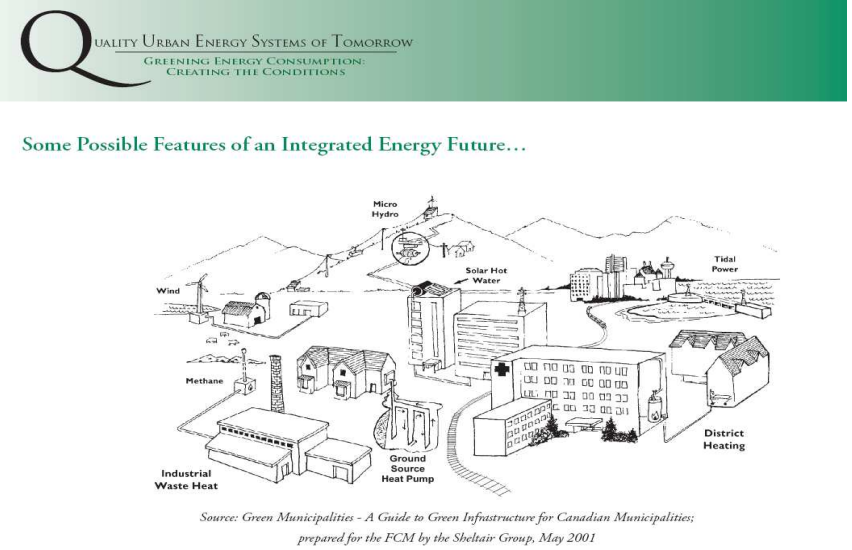
# 4 Rs of Sustainable Community Energy



# How is BC Hydro helping Local Governments build Energy Sustainable Communities?

# Research and Education

- Quantifying and advocating benefits of Integrated Community Energy Systems – QUEST - [www.questcanada.org](http://www.questcanada.org)
- Local Government training needs for Community Energy and Emissions Planning - Survey
- Bill 27 workshops - Setting Energy and Emissions Targets
- Global Benchmarking study
- Technical studies and market promotion



City	Country	Köppen Climate	Population	City GHG mt/capita	Country GHG mt/cap (total)	City Energy MWhe/capita	Country Energy MWhe/cap
Sao Paulo	Brazil	Cfa	10,900,000	1.5	12.80	1.8	
Rio de Janeiro	Brazil	Aw	7,100,000	2.3	12.80	2.7	
Guelph	Canada	Dfa	115,000	12.2	22.60	75.0	
GVRD	Canada	Cfb	2,250,000	5.0	22.60	44.7	
Toronto	Canada	Dfa	2,500,000	8.2	22.60	45.4	
Shanghai	China	Cfa	18,800,000	8.1	3.90	34.2	
Copenhagen	Denmark	Cfb	1,881,000	2.6	12.50	16.0	
Mannheim	Germany	Cfb	327,000	6.0	11.70	26.7	
Freiburg	Germany	Cfb	217,500	8.5	11.70	36.4	
Tokyo	Japan	Cfa	12,800,000	4.8	10.70	23.5	
Seoul	Korea	Dwa	10,400,000	3.8	11.10	19.4	
Barcelona	Spain	Csb	1,600,000	3.4	9.20	17.5	
Stockholm	Sweden	Dfb	1,250,000	4.0	7.50	25.3	
Växjö	Sweden	Cfb	79,000	3.0	7.00	21.6	
Zürich	Switzerland	Cfb	370,000	3.8	7.10	26.8	
London	UK	Cfb	7,500,000	6.2	11.00	26.7	
Boston	USA	Dfa	574,000	14.0	21.70	63.4	
Washington DC	USA	Cfa	600,000	19.7	21.70	89.2	
New York City	USA	Cfa	8,300,000	7.1	21.70	32.2	

*Per Capita Energy and Greenhouse Gas Indicators for Select*



# Energy Conservation Policy Assistance

- Council approved workplan and schedule – we can bring technical resources
- Pilots include:
  - Building code compliance
  - Local improvement charges for energy retrofits
  - Building energy labelling (realtors)
  - Energy requirements for Development Permit Areas (industrial, residential, etc)
  - Sustainability checklists
  - Merton rule
  - Green development feebates
  - Passive design toolkit
  - Expedited permitting
  - Energy advisor service



# Green Buildings Programs

## – New Buildings

- High Performance Building Program (buildings over 50,000 ft<sup>2</sup>) – Integrated Design Process
- PowerSmart Homes

## – Retrofits

- LiveSmart Retrofits
- Product Incentives
- Low-income retrofit kits





# Energy Managers

- Corporate Energy Managers
  - existing program
- Community Energy Managers
  - Not available – 4 pilots underway



Networking and training to share experiences

# Community Energy and Emissions Plans

*Community planning and operations through an energy lens*

- Not available – pilots underway
- Community Energy and Emissions Plans
- Neighbourhood charrettes
- Mayor's Task Forces
- Working across sectors
  - eg health, industry, municipal



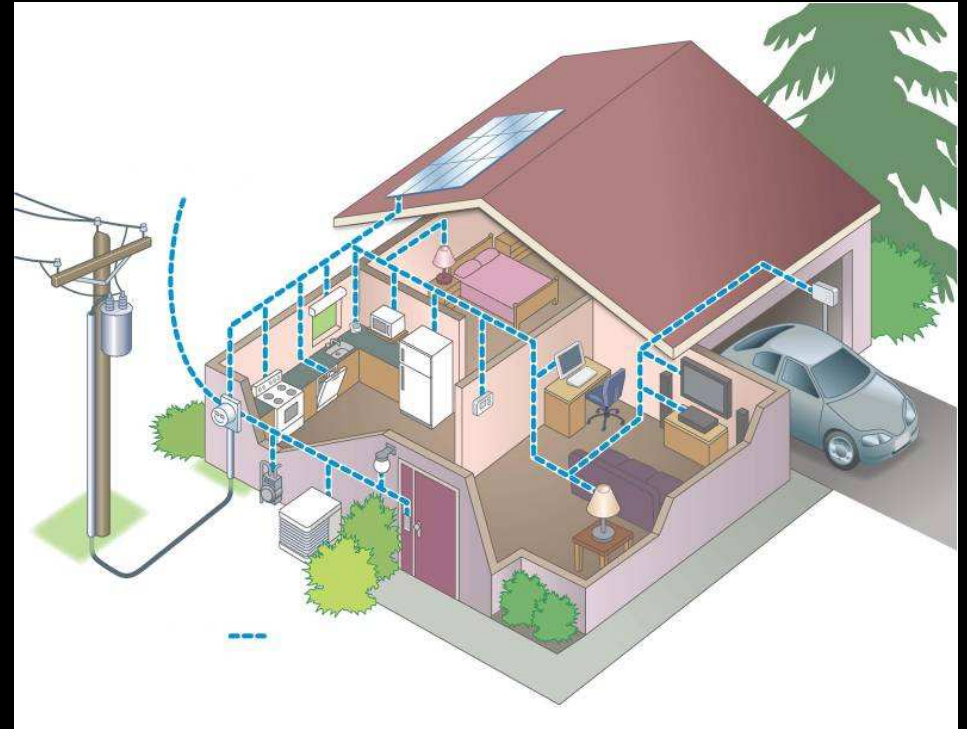
# District Energy

- Not available – pilots underway
- District Energy Mapping
- Waste energy mapping
- District Energy Feasibility Studies
  - 6 pilot projects
- DE Interconnectivity study for existing devt
- Terms of reference for feasibility studies



# Smart Energy – Planning for the Future

- Smart meters
- Smart grid
- Smart homes
- Plug in Vehicles
  - Demos
  - Code standards
  - Utility requirements
- Local electrical generation



# Let's fill in the gap ...

## Technology

Light Bulbs,  
Refrigerator buy-back



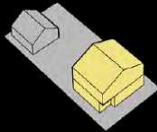
## Province:

Provincial Energy Plan



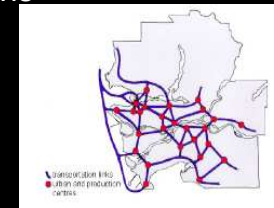
## Site and Building:

Green Buildings  
Energy retrofits



## Region (regional district):

GHG Action Plans  
Regional Sustainability Plan  
Regional Growth Strategy  
Regional Infrastructure Plans  
Intermunicipal plans



## Neighbourhood:

Local area plan  
Integrated energy master plan  
District energy plan  
Design charrettes



## Municipality:

GHG Action Plans  
Official community plan  
Sustainability Plan  
Community Energy Plan  
Green Building Regs

