Minimum RE Standard

Stakeholder Design Workshop
March 2, 2011

Claire Beckstead and Josha MacNab
The Pembina Institute

the PEMBINA institute
Sustainable Energy Solutions

Mission

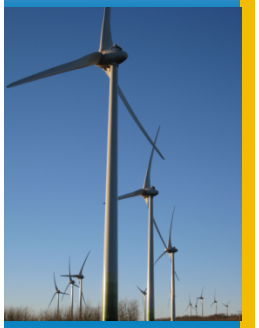
To advance sustainable energy solutions through innovative research, education, consulting and advocacy.

Vision

The Pembina Institute envisions a world in which our immediate and future needs are met in a manner that protects the earth's living systems; ensures clean air, land and water; prevents dangerous climate change, and provides security, justice and equal opportunity for all.

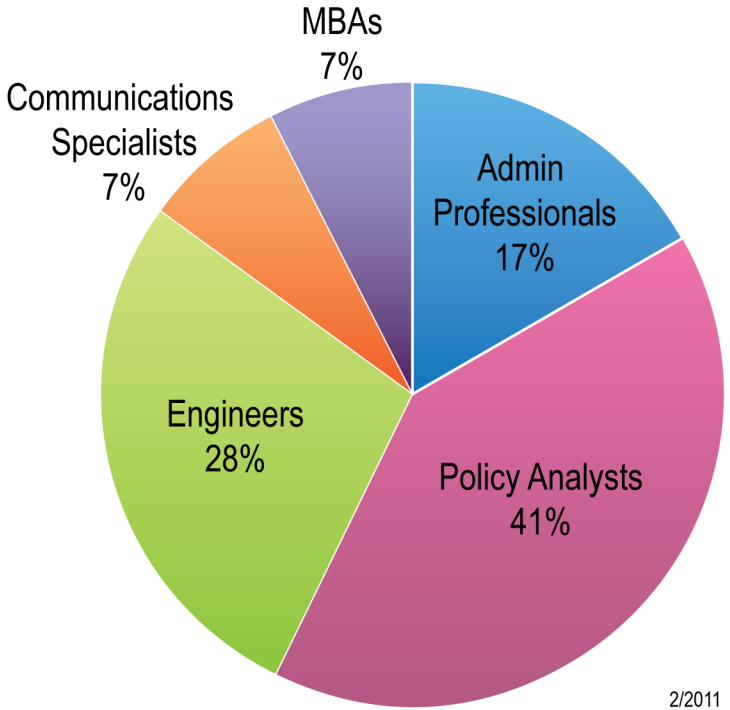
the PEMBINA institute

Sustainable Energy Solutions

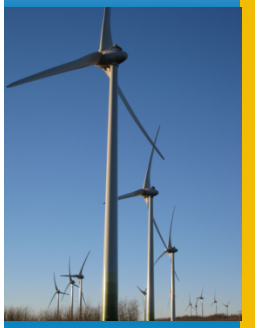


The Pembina Institute

The Pembina Institute is an environmental nonprofit think tank with ~55 staff in eight offices. We work to advance sustainable energy solutions through innovative research, education, consulting and advocacy.



2/2011

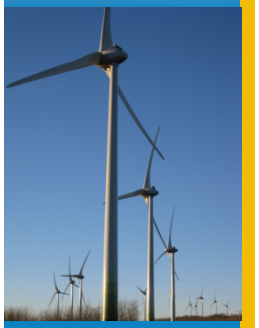


Pembina's Work with Communities

- 15 years, 80 communities
- Climate and energy planning
  - Buildings
  - Infrastructure
  - Transportation
- Climate and energy policy
  - Energy/GHG targets
  - Green building/fleet policies
  - Offset purchasing policies

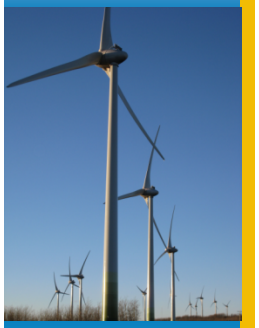
Agenda

- Project Objectives
- BC building policy context
- Overview of renewable energy requirement
- Key design questions
  - Performance vs. Prescriptive?
  - Exemptions?
  - Compliance?
  - Barriers?
- Next steps



Project Objectives

1) Work collaboratively with leading local governments and other stakeholders to assist in the design of a Renewable Energy Requirement (RER), and
2) Set the stage for the adoption of the RER policy framework in B.C.

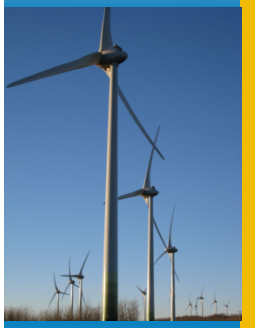


Green Building Leaders Partner Communities

- **Campbell River**
- City of North Vancouver
- Cowichan Valley Regional District
- **Dawson Creek**
- Delta
- District of West Vancouver
- Fort St. John
- Prince George
- Regional District of Nanaimo
- Terrace
- Tofino
- Whistler

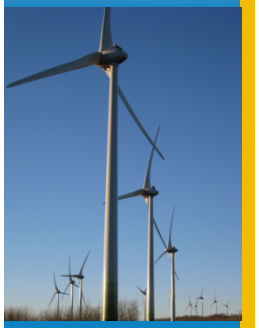
BC Building Policy Context

- In the past, Building Code updates happened with respect to health and safety
- 2007 Energy Efficient Building Strategy
- 2008 Building Code
  - Part 9: Prescriptive Req's (or EG 77)
  - Part 3: ASHRAE 90.1 2004
- Forthcoming Building Code
  - Part 9: Prescriptive Req's (or EG 80)
  - Part 3: ASHRAE 90.1 2010 or NECB 2011
- 2010: challenge to building industry to build net zero energy homes



Net Zero Energy

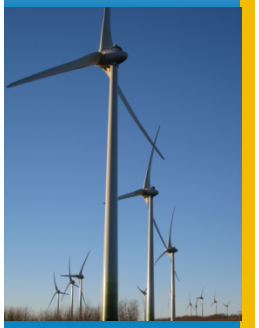
- Aspirational goal for BC
- Buildings/communities are generating more energy than they need
  - Increase energy efficiency
  - Meet remaining energy needs through on-site renewable energy generation



What is a on-site Renewable Energy Requirement?

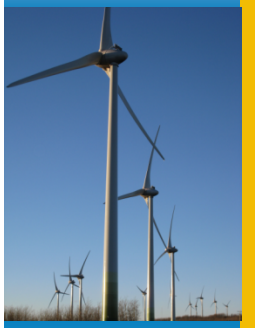
Example:

- Merton Rule: The council will encourage the energy efficient design of buildings and their layout and orientation on site. All new non-residential developments above a threshold of 1,000sqm and MURBS above 10 units will be expected to incorporate renewable energy production equipment to provide at least 10% of predicted energy requirements.
- Also in Spain, Israel, East Gwillimbury (ON)



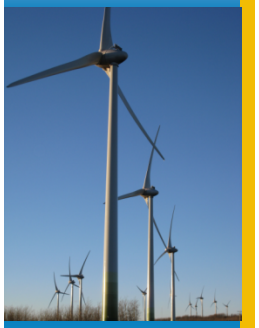
Working Definition of on-site RER

- **Building site or community-wide**
- **Renewable Technologies:**
  - Ground or air- source heat pumps
  - Solar Thermal
  - District Energy Systems
  - Distributed Generation Systems (e.g. building site or community-based solar PV, wind, biomass, etc)



Key benefits of RERs

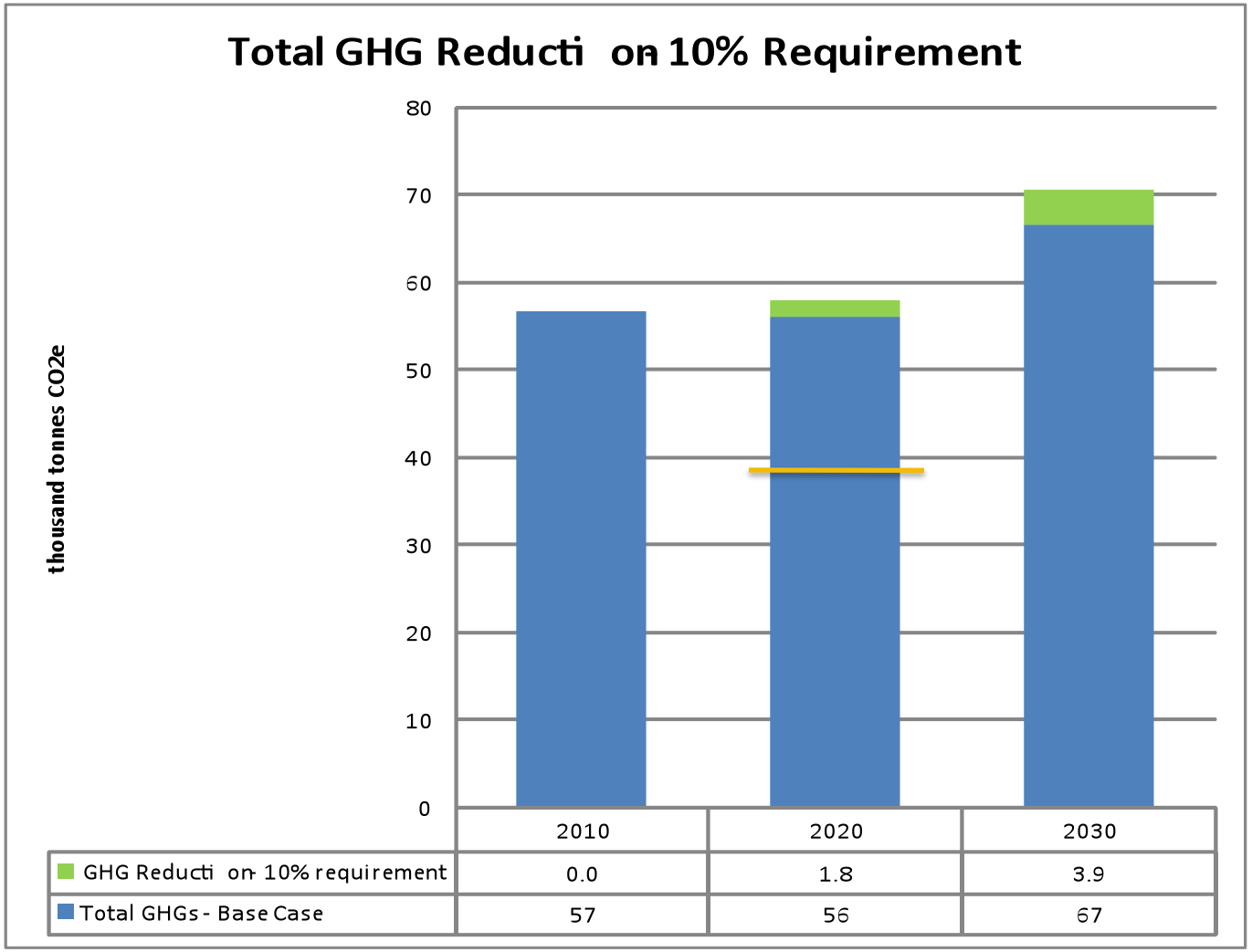
- Reduced greenhouse gas emissions and energy use in communities throughout BC
- Progress towards net-zero energy/emissions homes, buildings and communities
- Potential to encourage further energy efficiency
- Economic growth and job creation

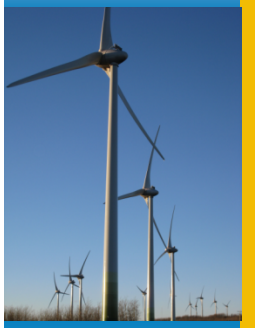


Impact of RER in Merton:

- Combined impact of Merton's policy has been a 26% reduction in greenhouse gas emissions - even though the policy only requires a 10% reduction.
- Costs have been lower than anticipated.
- The pace and scale of development hasn't changed.
- The administration's workload has remained relatively unchanged.
- Significant growth has been spurred in the renewable technology economy.
- Energy efficiency investments have increased.

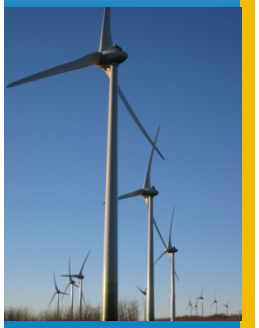
Renewable Energy Requirement





Costs and Savings

- *See handout*

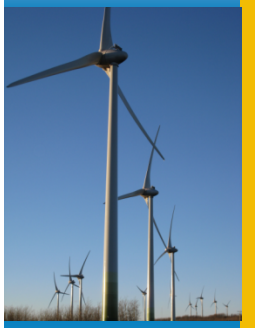


RER Policy Framework

Phase 1 of Green Building Leaders Project jurisdictional analysis revealed that local government have limited tools to implement a RE requirement

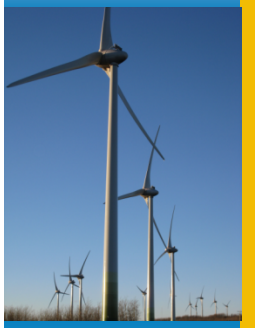
Proposed approach:

- Develop a province-wide renewable energy requirement with an option for local governments to opt-in

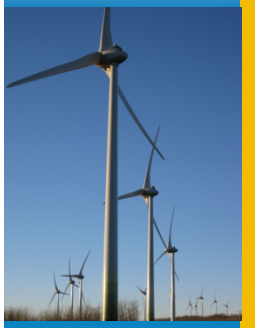


Today's Workshop Objectives

- Address the key RER design questions
- Address key issues within the RER design process

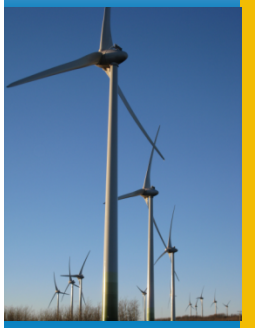


FEEDBACK ON KEY DESIGN QUESTIONS



What we need from you…

Your experience and knowledge of the city and building sector to help us to draft a requirement that works for the City, for developers, and for the residents of Campbell River.



Question #1

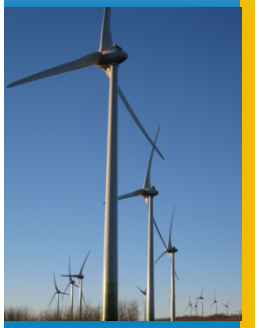
How should a BC renewable energy requirement be articulated?

Question #1 :

How to Articulate a Renewable Energy Requirement?

- Two main approaches:

Performance-based requirements (Merton Rule)	*How it works:* - Developers are required to use on-site renewable energy to produce enough energy to cover a specified percentage of the building's anticipated energy use (e.g. 10%). - Applicable to new construction and major renovations. - Provides a high degree of flexibility in how a developer wants to meet the requirement (different types of renewable energy, energy efficiency, district heating systems). *Examples:* Merton, London
Prescriptive requirements	*How it works:* - Developers are required to install a certain capacity or meet a certain amount of a building's demand with a specified type of on-site renewable energy. - Most frequently used for solar energy. - Often applies developments of all sizes. *Examples:* Spain, Israel



Question #1 :

How to Articulate a Renewable Energy Requirement?

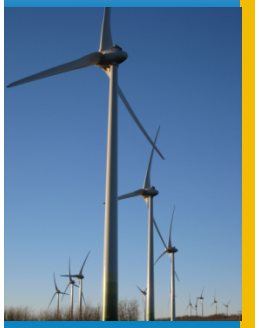
Pembina's Best Thinking:

Performance or Combination Approach

10% of a building's energy use must come from renewable energy

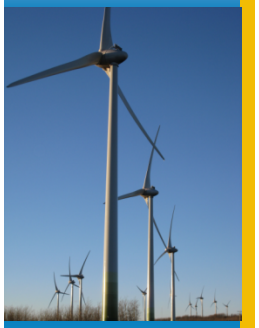
OR

10% of a building's energy use must come from renewable energy OR all buildings must have a SHW



Question #2

Should there be exemptions?



Question #2:

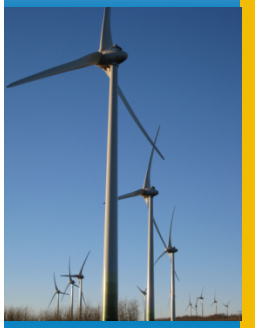
Should there be exemptions?

Building Size Exemptions:

- East Gwillimbury:
  - New residential developments less than 6 units, Non residential development under 1000 sq.m

Building Cost Exemptions:

- Merton:
  - If a developer can prove incremental costs above 5% of building costs, a lower RE target may be negotiated

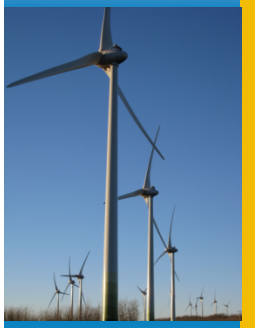


Question #2:

Should there be exemptions?

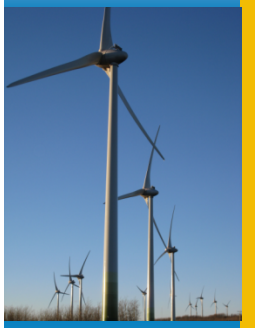
Pembina's Best Thinking:

- No building size/type exemptions
- Cost exemption above % incremental building cost



Question #3

How do you ensure compliance?

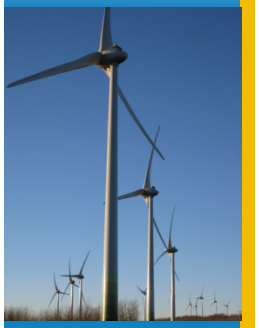


Question #3

How do you ensure compliance?

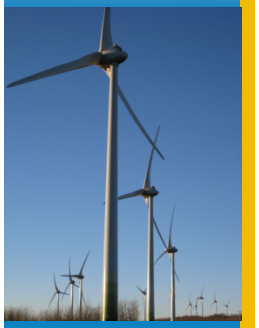
Pembina's Best Thinking:

- Require that anticipated energy savings be modeled using nationally available tools as a condition of a building permit.
- Compliance audit as a condition of the occupancy permit (if appropriate)



Question #4

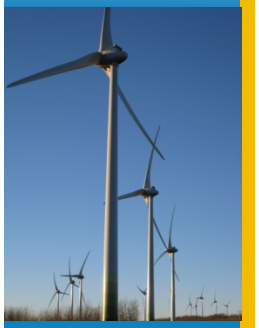
Are there other barriers to the successful implementation of a renewable energy requirement?



Question #4

Are there other barriers to the successful implementation of a renewable energy requirement?

- *Can the barriers be addressed through the policy design, complementary programs or incentives?*



Next Steps

Phase 1 - Research

Complete

Staff and Council Workshop

Complete

Key Community Stakeholder Workshop

Campbell River – March 2, 3
Dawson Creek – March 10

Council approval of draft policy

Stakeholder Workshop in 3 - 6 additional communities

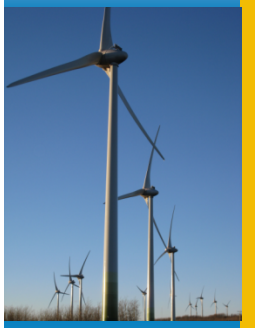
TBD

Final presentation to Council

Propose fi nal policy design

TBD

Feedback from provincial gov't



Thank You

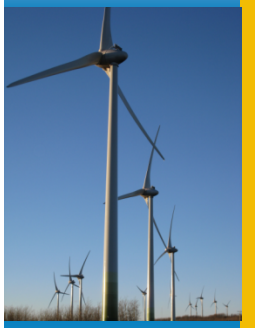
BC hydro powersmart

SolarBC

real estate foundation BRITISH COLUMBIA

the City of Dawson Creek BRITISH COLUMBIA "the Capital of the Peace"

City of Campbell River



Thank you!

Questions?

Claire Beckstead *claireb@pembina.org*

Josha MacNab *josham@pembina.org*

www.greenbuildingleaders.org

www.pembina.org/community-services

the PEMBINA institute

Sustainable Energy Solutions