



# Roadmap to Resilient, Ultra-Low Energy Buildings in the Pacific Northwest

PNWER Economic Leadership Forum  
Energy and Environment Working Group  
Yellowknife, Northwest Territories  
November 17, 2015



# Roadmap to Resilient, Ultra-Low Energy Buildings



- › New Construction: net zero emissions, including an energy efficiency target and use of clean energy (including renewable natural gas) after 2030
- › Existing Private Buildings: "deep" energy retrofits at the time of major renewals; optimizing economics of upgrades for future costs (including externalities)
- › Existing Public Buildings: achieving previous goal for 100% of public sector stock by 2030

Focuses on collaborative measures

# Benefits of Ultra-Low Energy Buildings



- Affordable
- Durable
- Comfortable
- Healthy
- Energy efficient
- Low-carbon
- Resilient to climate change impacts and seismic events
- Increased value

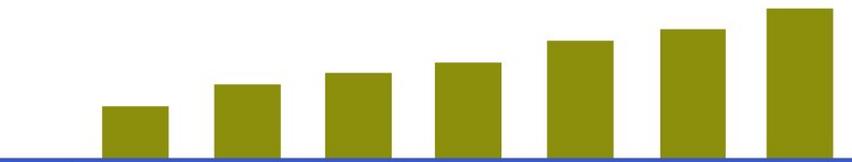




# Benefits of Ultra-Low Energy Buildings

- Promote local job creation
- Increase affordability
- Improve business competitiveness
- Increase resilience

→ **Energy Benefits:** Energy savings  
30%+ greater than code



→ **Installation Costs:** Incremental costs  
for energy efficiency measures



**Figure 1:** Total Net New Full-Time Equivalent Jobs by sector (2010-2020).





# Net-Zero Roadmap White Paper



- Provides the information needed to develop roadmap with stakeholders
- Evaluates current market conditions
- Reviews case studies to determine best practices
- Defines goals, targets and scope for Roadmap
- Evaluates impacts on consumers and society
- Forecasts new jobs in PNWER constituent areas

# Policy Review

- Information
- Financing
- Public Sector Leadership
- Capacity Building
- Market Stimulus
- Fiscal Policy
- Regulation



# Case Study Overview



Building Name	Building Type	Construction Type	City	Jurisdiction
Factor 9 Home	Home	New	Regina	SK
Discover 3 House	Home	New	Red Deer	AB
Rainbow House	Home	New	Whistler	BC
Harmony House	Home	New	Burnaby	BC
Northern Sustainable House	Home	New	Inuvik	NWT
Hutshi House	Home	New	Haines Junction	YK
CoSI HS&HS Building	Educational	New	Twin Falls	ID
Hood River M.S	Educational	New	Hood River	OR
Zhome	MURB	New	Issaquah	WA
Belmont Building	MURB	Retrofit	Vancouver	BC
Bullitt Center	Office	New	Seattle	WA
Home on the Range	Office	Retrofit	Billings	MT
Lovejoy Building	Office	Retrofit	Portland	OR
Rice Fergus Miller Office	Office	Retrofit	Bremerton	WA
Painter's Hall	Office, Mixed-use	Retrofit	Salem	OR
Beardmore	Office, Mixed-use	Retrofit	Priest River	ID



# PNWER Net-Zero Networks



- State/provincial/territorial governments
- Construction industry associations
- Professional associations
- NetZero developers/builders/contractors
- Energy efficiency agencies
- Local governments
- Public utilities
- Public interest organizations

5 founding sponsors sought to prepare “White Paper”

Foundation for PNWER Roadmap to be presented at  
PNWER Annual Summit in July 2016

# PNWER Roadmap Next Steps



- Engage with other related initiatives & incorporate feedback from private sector
- Identify ten PNWER Resilient Buildings “Networks”
- Develop White Paper with case studies and policy options
- Prepare PNWER “Roadmap”
- Present at PNWER Summit (Calgary), seek endorsement
- Conduct in-depth consultations, develop model policies



November  
2015

February  
2016

April 2016

July 2016

December  
2015

# Action Item



- In consultations with private and public sector energy stakeholders, the Energy and Environment energy efficiency initiative will be retitled “Roadmap to Resilient, Ultra-Low Energy Buildings in the Pacific Northwest.” The Roadmap will focus on collaborative measures, emphasize opportunities in retrofitting existing building stock, and promote ultra-low energy goals in addition to net-zero targets. The three focus-areas are:
  - New Construction: net zero emissions, including an energy efficiency target and use of clean energy (including renewable natural gas) after 2030
  - Existing Private Buildings: "deep" energy retrofits at the time of major renewals; optimizing economics of upgrades for future costs (including externalities)
  - Existing Public Buildings: achieving previous goal for 100% of public sector stock by 2030