

Pacific Carbon Trust's Role in the BC Offset Market

FCM Sustainable Communities Conference

February 9, 2011

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Overview

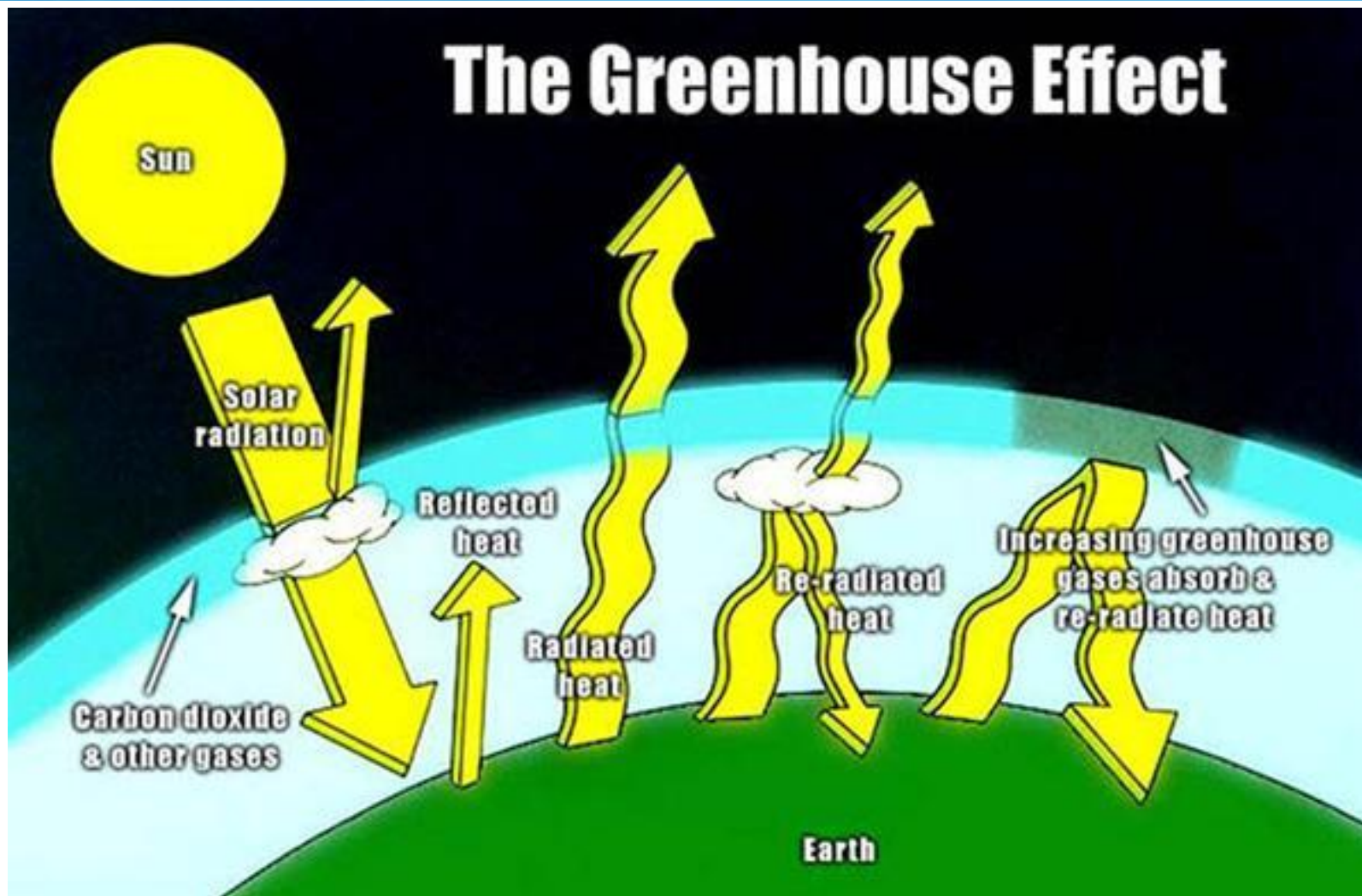
Carbon Emissions 101

Climate Action Plan

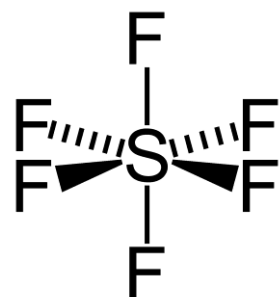
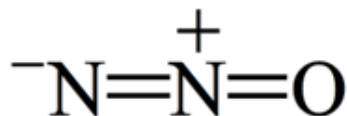
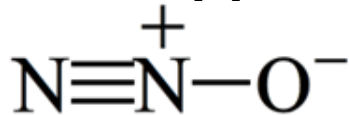
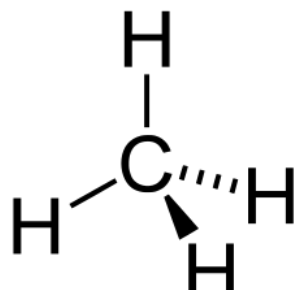
Carbon Offsets

Climate Charter

Opportunities



GHGs & Global Warming Potential



Hydrofluorocarbons & Perfluorocarbons

Carbon Emissions



1 Tonne CO₂e is equal to:

6,100 Km



3,000 Km



Vancouver to
Toronto Return

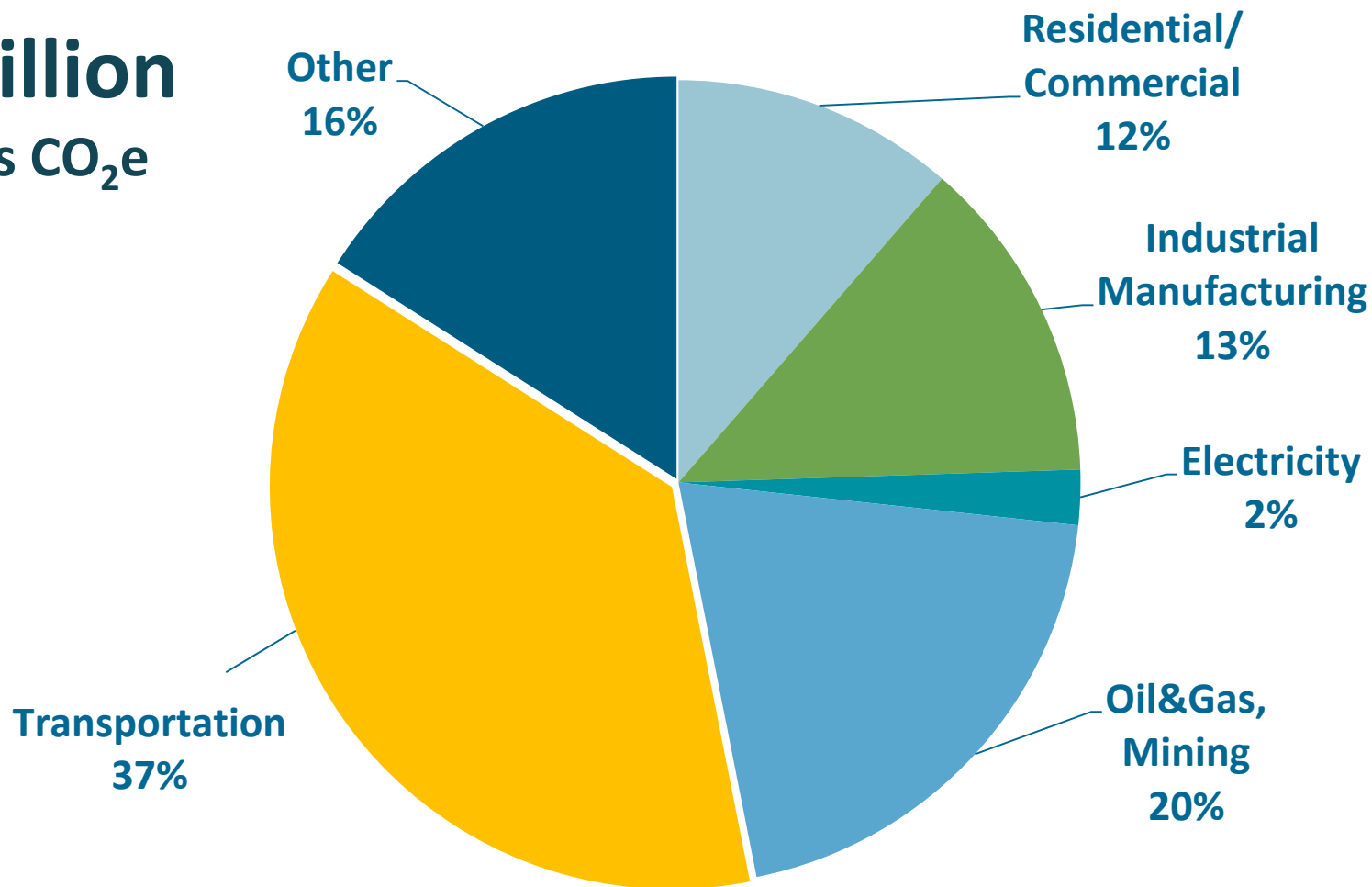


Hot
water
for
one
year

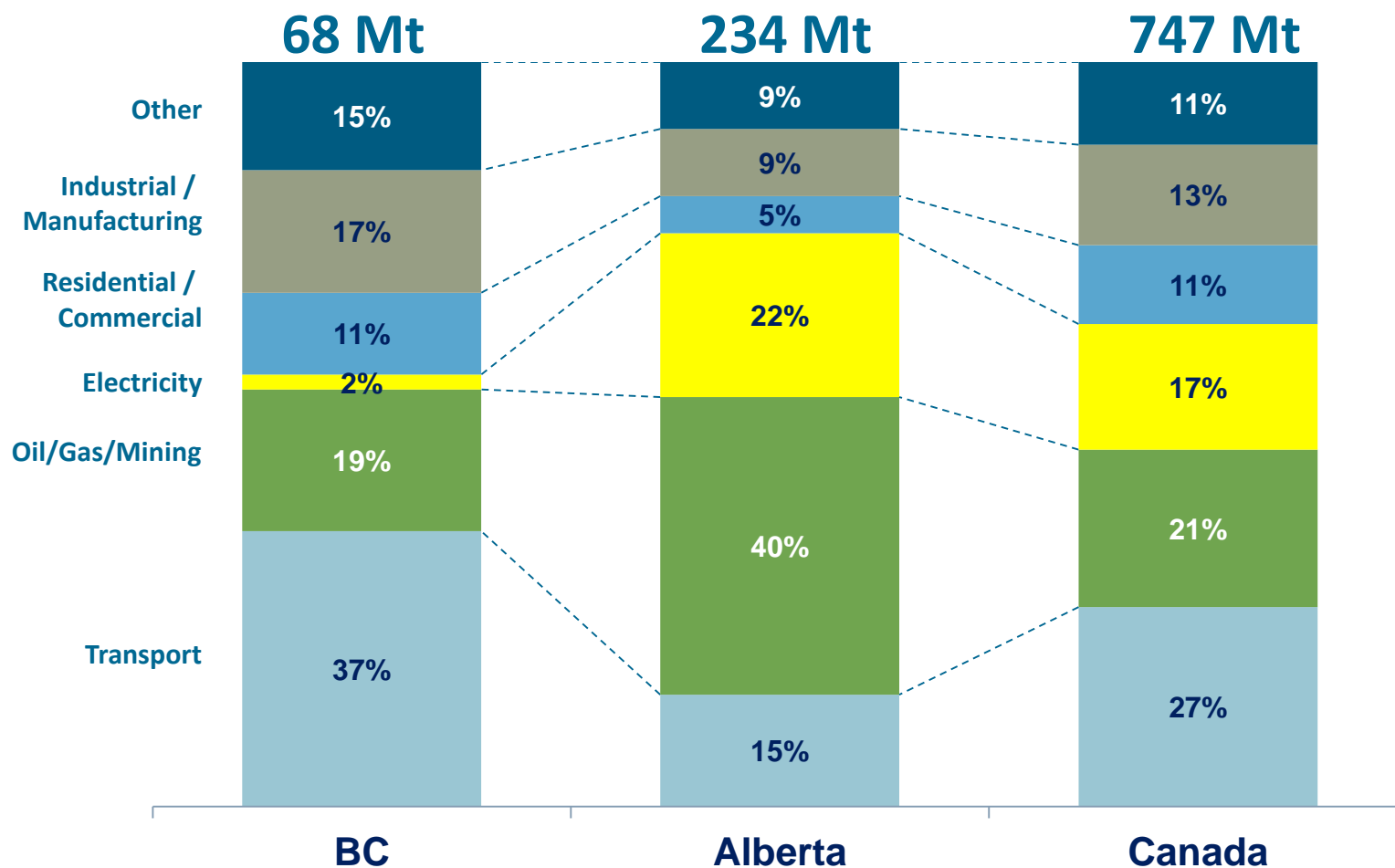


BC Emissions

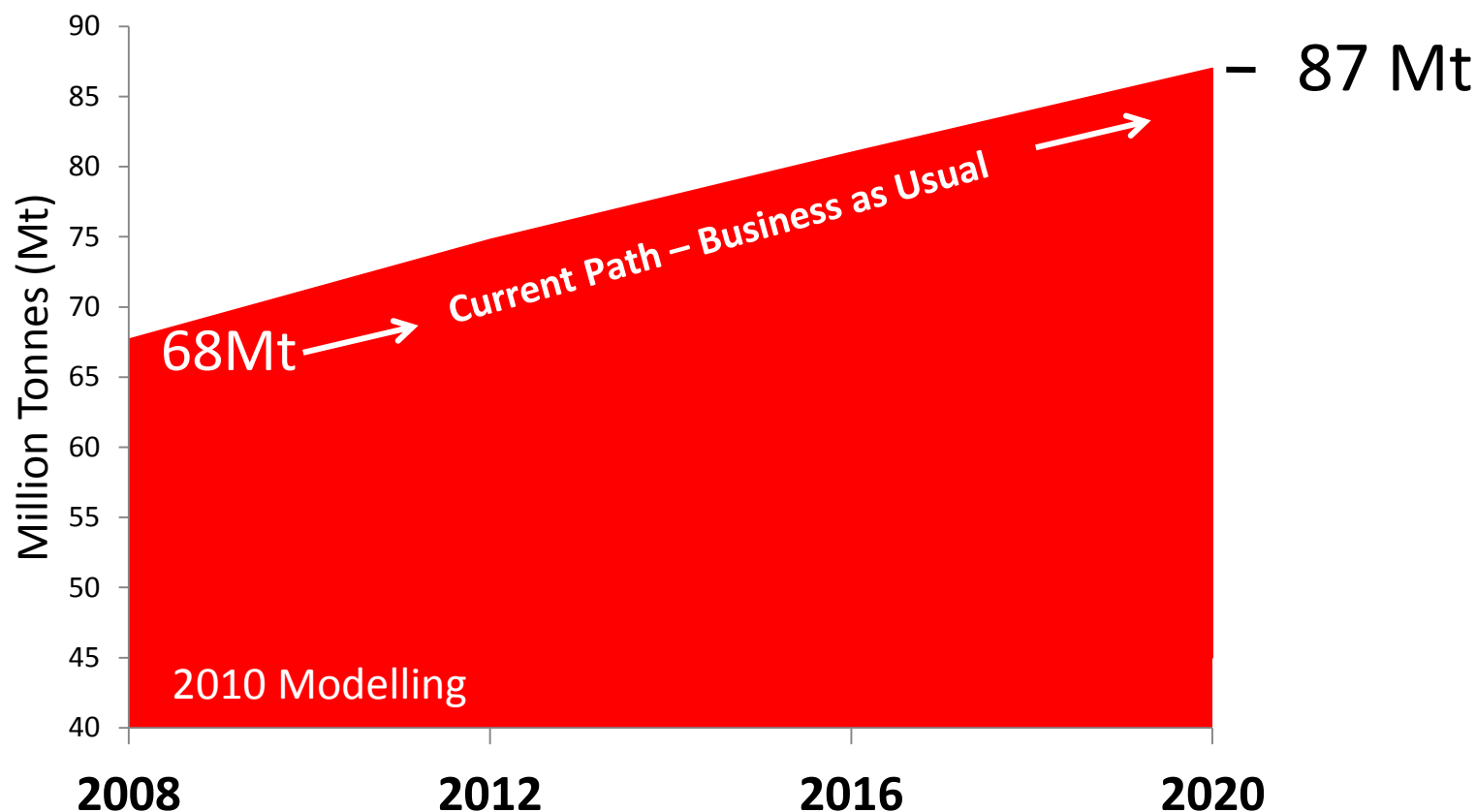
68 million
Tonnes CO₂e



BC's Unique Emissions Profile



BC's Emissions Pathway



BC Climate Action Plan

Standards (Regulations)

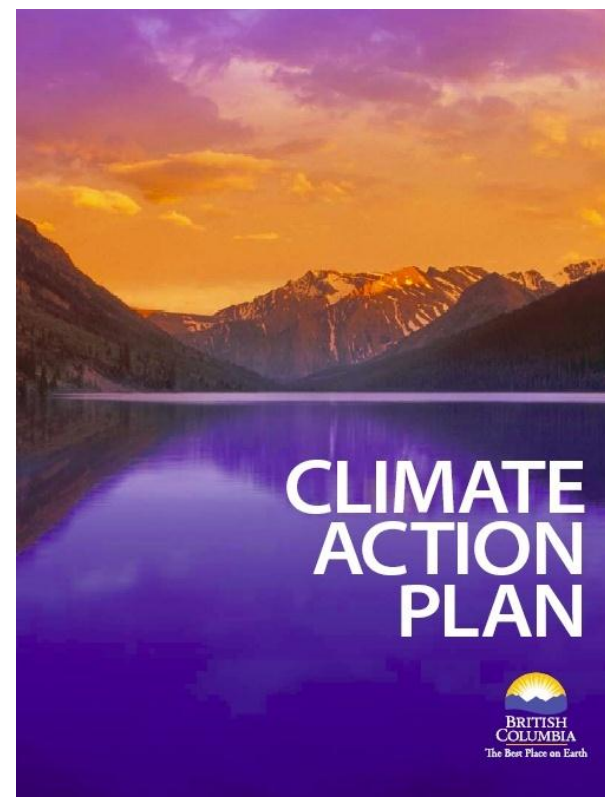
Greenhouse Gas Reduction Act
Vehicle Emissions Standards
Regulate Landfill Gas

Investments (Programs)

LiveSmart
Innovative Clean Energy (ICE) Fund
Pacific Institute for Climate Solutions

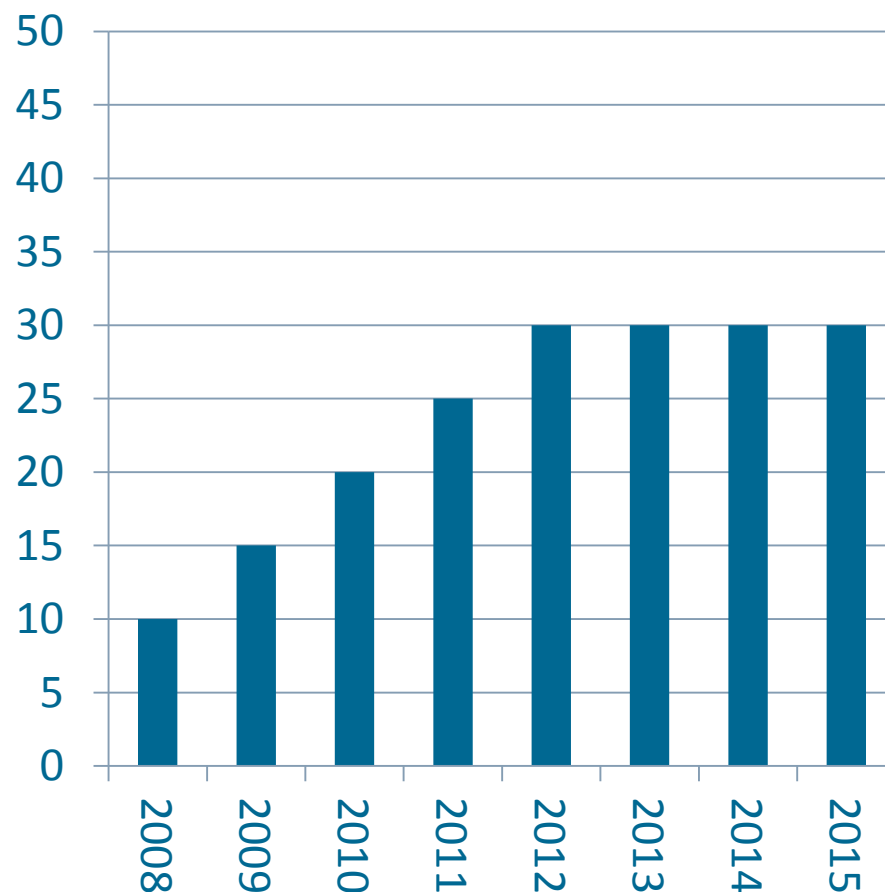
Price on Carbon (Fiscal/Market)

Carbon Tax Act
Cap and Trade (WCI)
Pacific Carbon Trust



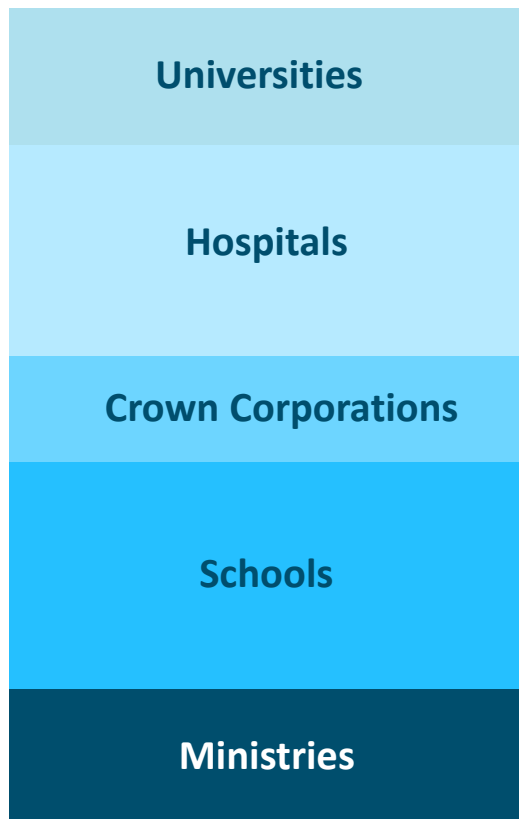
Carbon Tax

BC's Carbon tax is
the most
comprehensive in
the world.



Lead by Example:

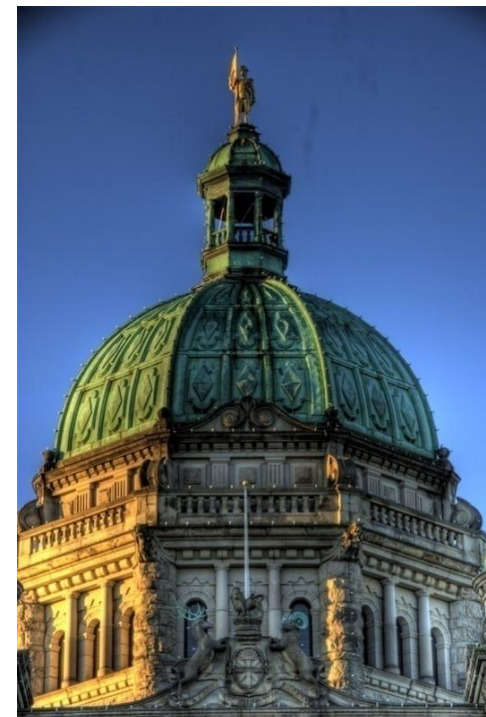
Carbon Neutral Public Sector



**Up to 1 Million
Tonnes/Year**



\$25/tonne



Pacific Carbon Trust - Crown Corporation



Pacific Carbon Trust

Deliver BC-based
carbon offsets
to clients

Grow BC's
low-carbon
economy

Duchess Park Secondary School



Cariboo Regional District and Houston

Cariboo Regional District's Pine Valley Sewer Upgrade

- Reduces energy consumption by increasing process efficiency

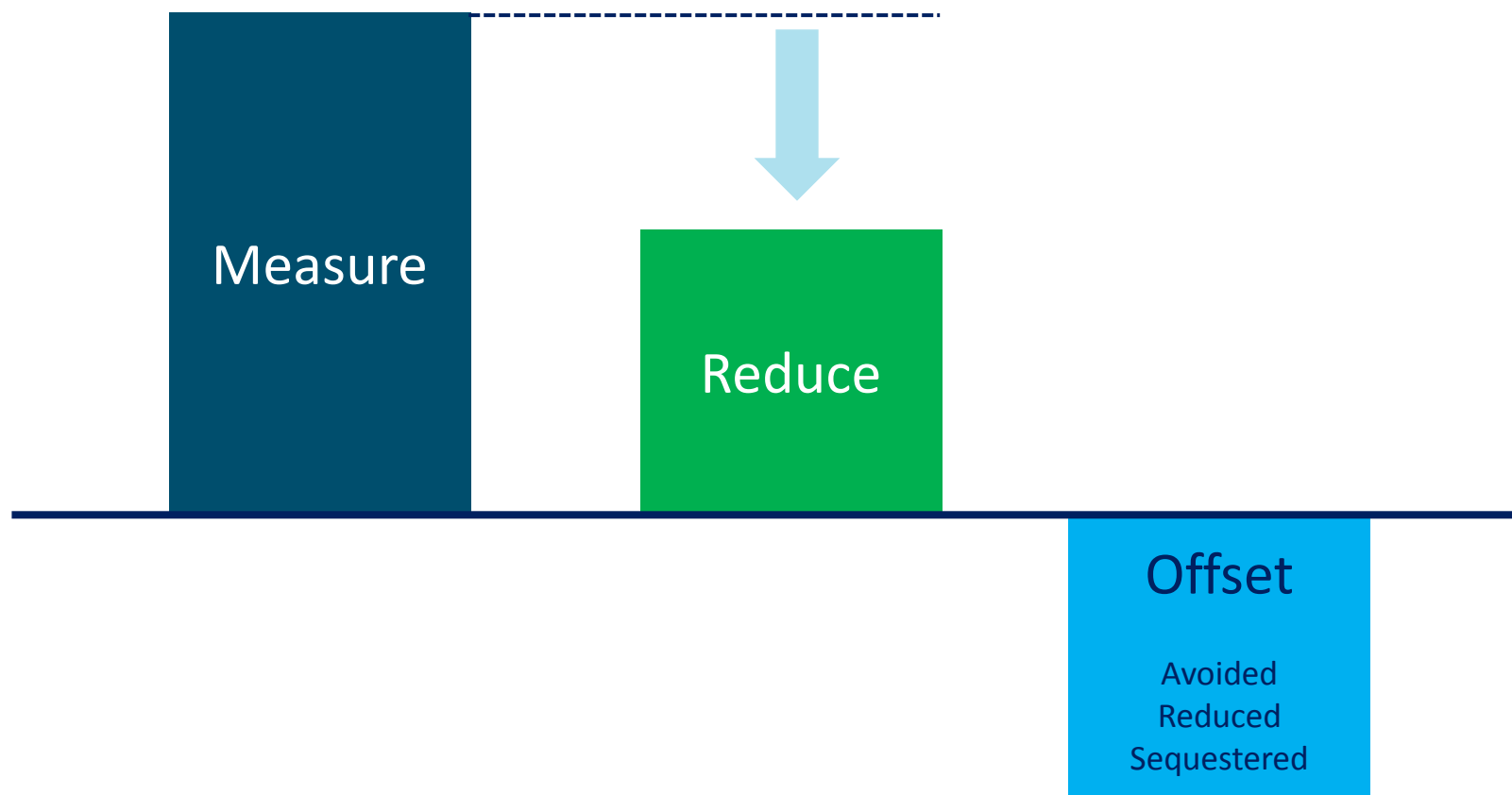


Houston's Leisure Facility Geo-Exchange Energy System

- Improves energy efficiency in providing space and water heating



What is Carbon Neutral?

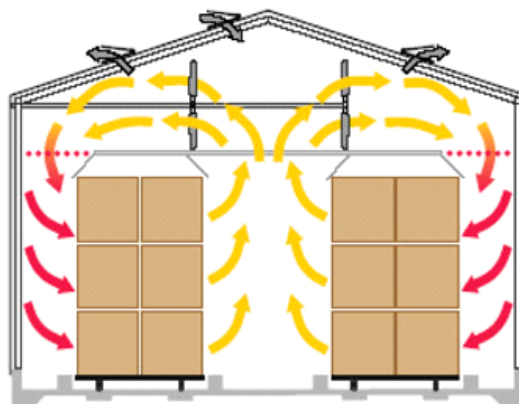


Potential Offset Project



Lumber Kiln Fuel Switch

Before
Natural Gas



After
Wood Shavings

Baseline (Annual)

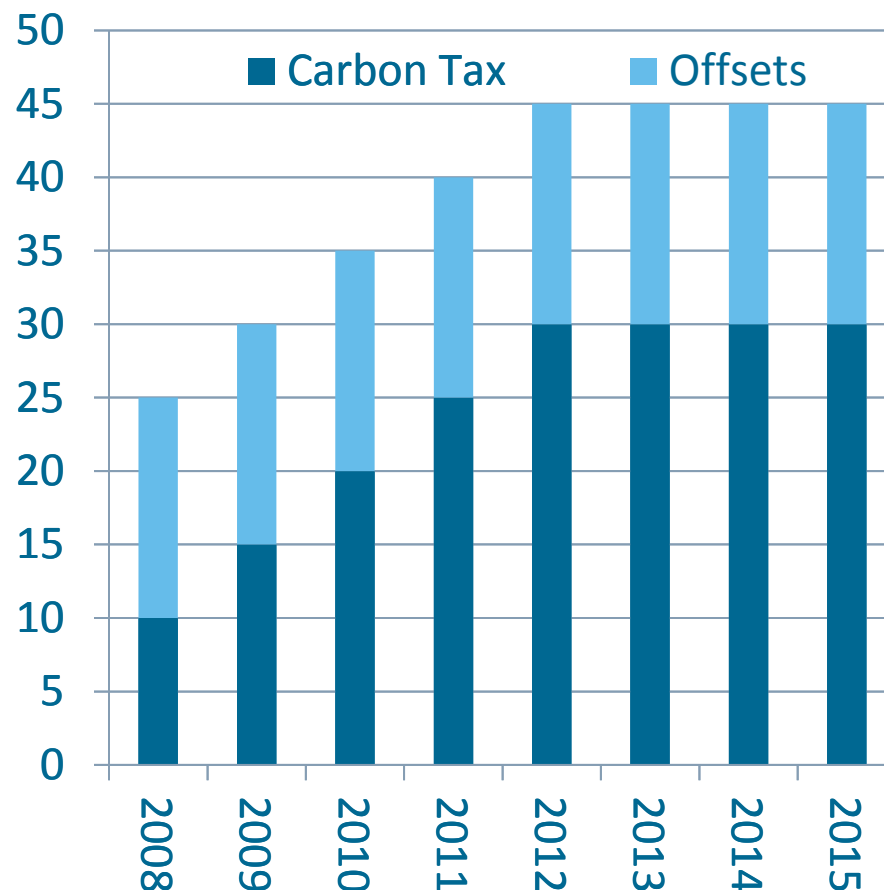
- 200 million bf lumber dried
- 240,000Gj of natural gas
- 12,000 tCO₂e emissions

Offset Project (Annual)

- 200 million bf lumber dried
- Wood Shavings (carbon neutral)
- Carbon Offset Revenue = ~\$120,000
 - 12,000 tCO₂e reduction @ \$10/tonne
- Carbon Tax Savings = \$240,000
 - @ \$20/tonne
- Fuel Savings = \$\$,\$\$\$

Double Benefit

1. Reduce Carbon Tax
2. Sell Offsets to PCT

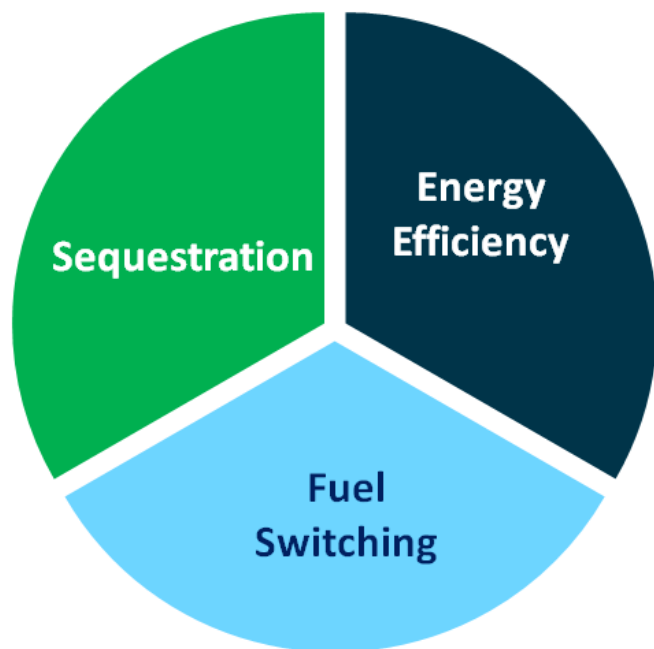


Quality Criteria

BC Emission Offsets Regulation

- | | | |
|---|--------------|--|
| 1 | Real | ▪ There are sound methods available to quantify the GHG emissions from the proposed project |
| 2 | Additional | ▪ Start date after November 2007
▪ Reduction in GHGs over and above business as usual . |
| 3 | Permanent | ▪ The offset has an impact that is lasting (i.e., 100 years +) |
| 4 | Verifiable | ▪ The impacts of the project can be readily identified, monitored, and audited post-implementation |
| 5 | Counted Once | ▪ There is clear, singular, ownership of the offset attributes of the project |




Portfolio Balance






Sectors

-  Agriculture
-  Buildings
-  Forestry-Land
-  Forestry-Industrial
-  Industrial
-  Landfill
-  Oil and Gas

Project Types

-  Energy Efficiency (EE)
-  Fuel Switching (FS)
-  Sequestration (SQ)

Project Size (per year)

-  Under 25,000 tonnes c02e
-  25,000 – 100,000 tonnes c02e
-  Over 100,000 tonnes c02e



Carbon Neutral Solutions



iD2 COMMUNICATIONS



BC Hydro
powersmart



Climate Action Charter

Voluntary Commitment to be Carbon Neutral by 2012

- GHG Targets: Set individually in Community Plan
- Municipalities: 177 signed Climate Action Charter

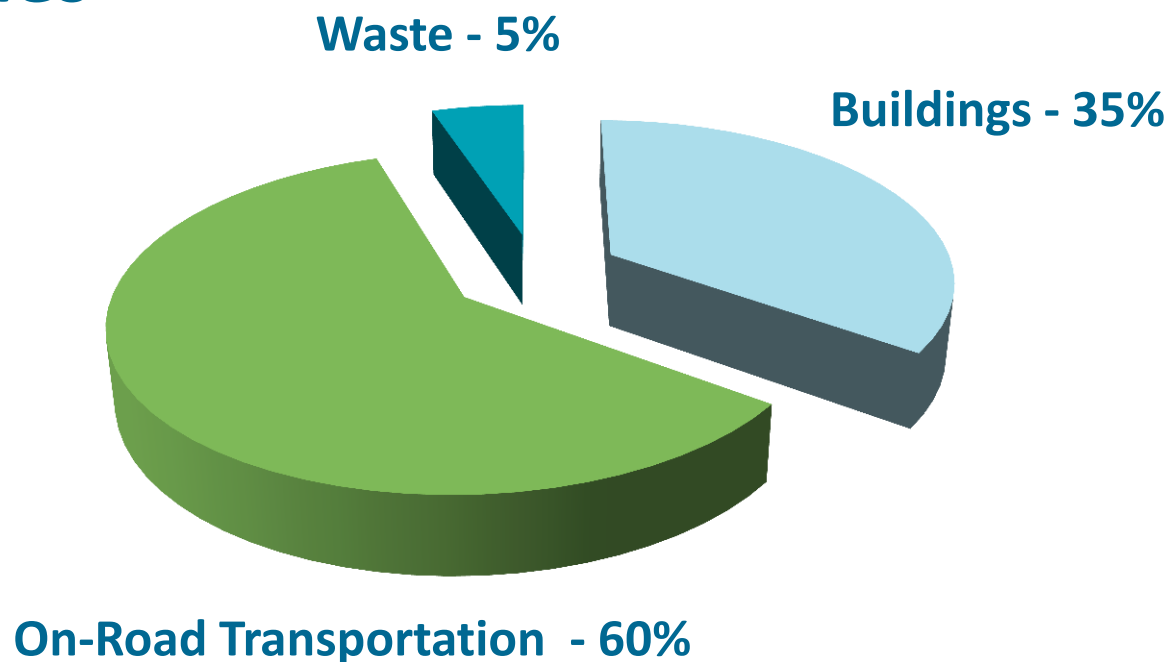
Climate Action Charter



UNION OF
BRITISH
COLUMBIA
MUNICIPALITIES

Main Emissions in Communities

Total for BC Communities



Community and Local Government Emissions

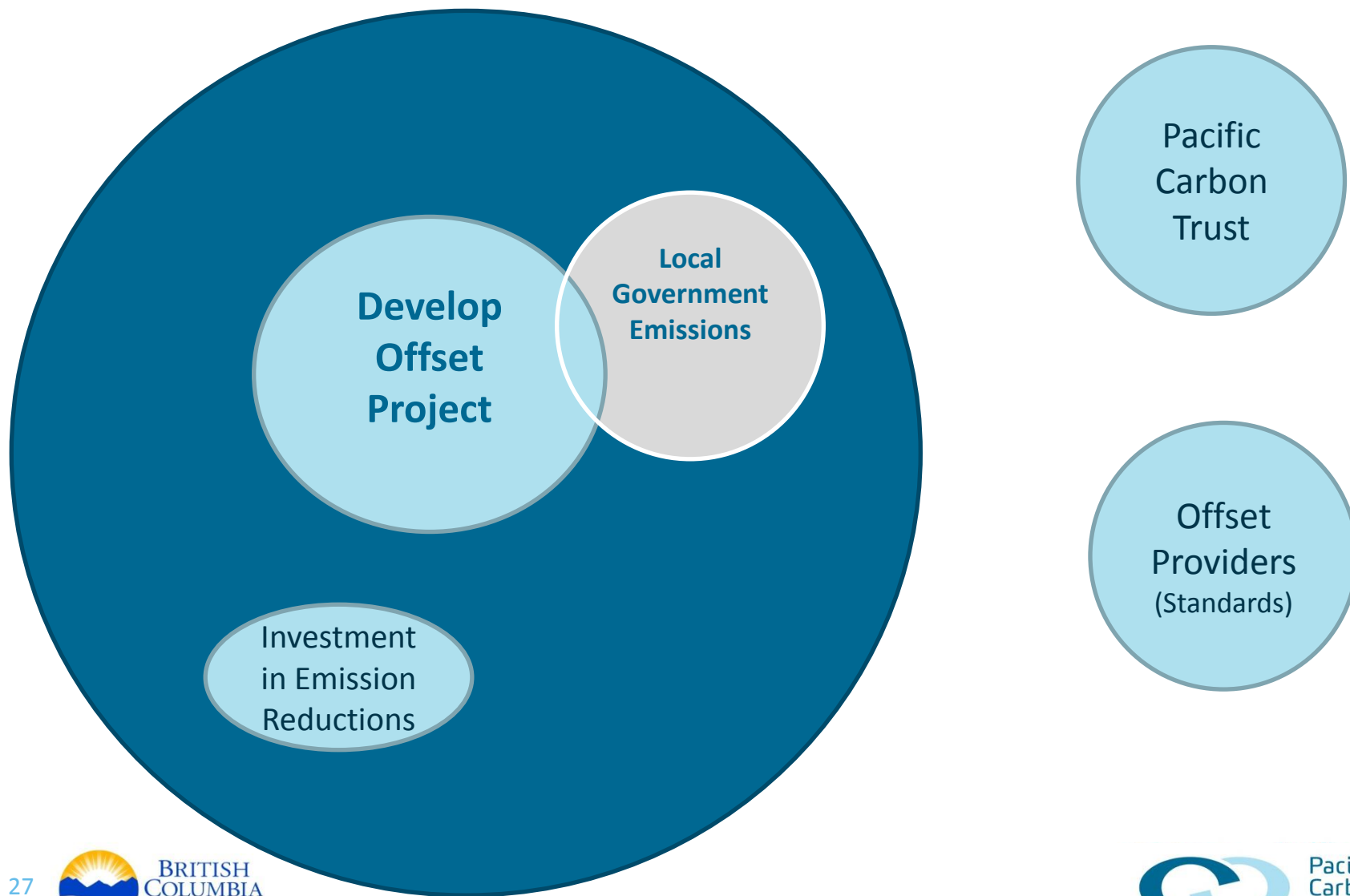


Local Government Emissions (Traditional Services)

- Solid waste
- Arts, recreation, cultural services
- Road and traffic operations
- Administration and governance
- Water: drinking, storm and waste
- Fire protection



Community and Local Government Emissions



Develop Offset Project: Building Retrofit

Offset 2,000 tCO₂e

Buy Offsets

\$50,000

Carbon Neutral Municipality
BC and Regional Benefits

**Community
Offset
Project**

\$1,500,000

Carbon Neutral Municipality
Community and BC Benefits
Savings

Offset Costs: \$50,000 (\$25/t)

Carbon Tax: Save \$20 / t carbon tax

Revenue

Offset Sales: \$5-15/tonne

Energy Efficiency Savings



Methane Capture Landfill Project



TYPE: **Converts methane to energy**

LOCATION: **Salmon Arm**

ESTIMATED PROJECT VOLUME: **10,000 tonnes/yr**

BENEFITS: **25,000 GJ to heat community**

PARTNERS: **Columbia-Shuswap Regional District, Terasen, Pacific Carbon Trust**



Buildings Projects

Energy Efficiency

Examples

- Heating systems (e.g. geothermal, heat pumps)
- Building envelope
- Lighting

Conserve Water

- Reduce emissions (lower water quantities, flows) – in upstream supply or downstream treatment

Reduce Waste

- Reduction or diversion of waste
- Reduce refrigerant leakage

Transportation Projects

Energy Efficiency

- Improve Productivity
- Reduce Fuel Consumption

- Anti-Idling
- Logistics Management
- Training

Fuel Switching

- Switch from high GHG fuel to lower GHG fuel source

- Biodiesel
- Natural Gas
- Hydrogen
- Electrification/Hybridization

Intermodal

- From high GHG transport type To lower GHG transport type

- Private Vehicle to Public Transit
- Private Vehicle to Walking/Bike
- Truck to Train/Boat

Key Question: Build or Buy

Buy Offsets

- Who is the seller?
- Types of offset projects?
- Build to which offset standard?
- How is additionality determined?
- Counted once?
- Verifiable? By third party? Qualifications?
- Where are they located?
- Cost/benefit vs. other options?

Develop Offsets

- What are key emission sources/sinks?
- Volume of aggregated emissions?
- Offset development capacity?
 - Meet offset criteria, protocol
 - Expertise to plan, quantify, implement and report
 - Coordinate professionals, partnerships, investments
- Cost/benefit vs. other options?

Pacific Carbon Trust



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