

An Introduction to The Pacific Carbon Trust

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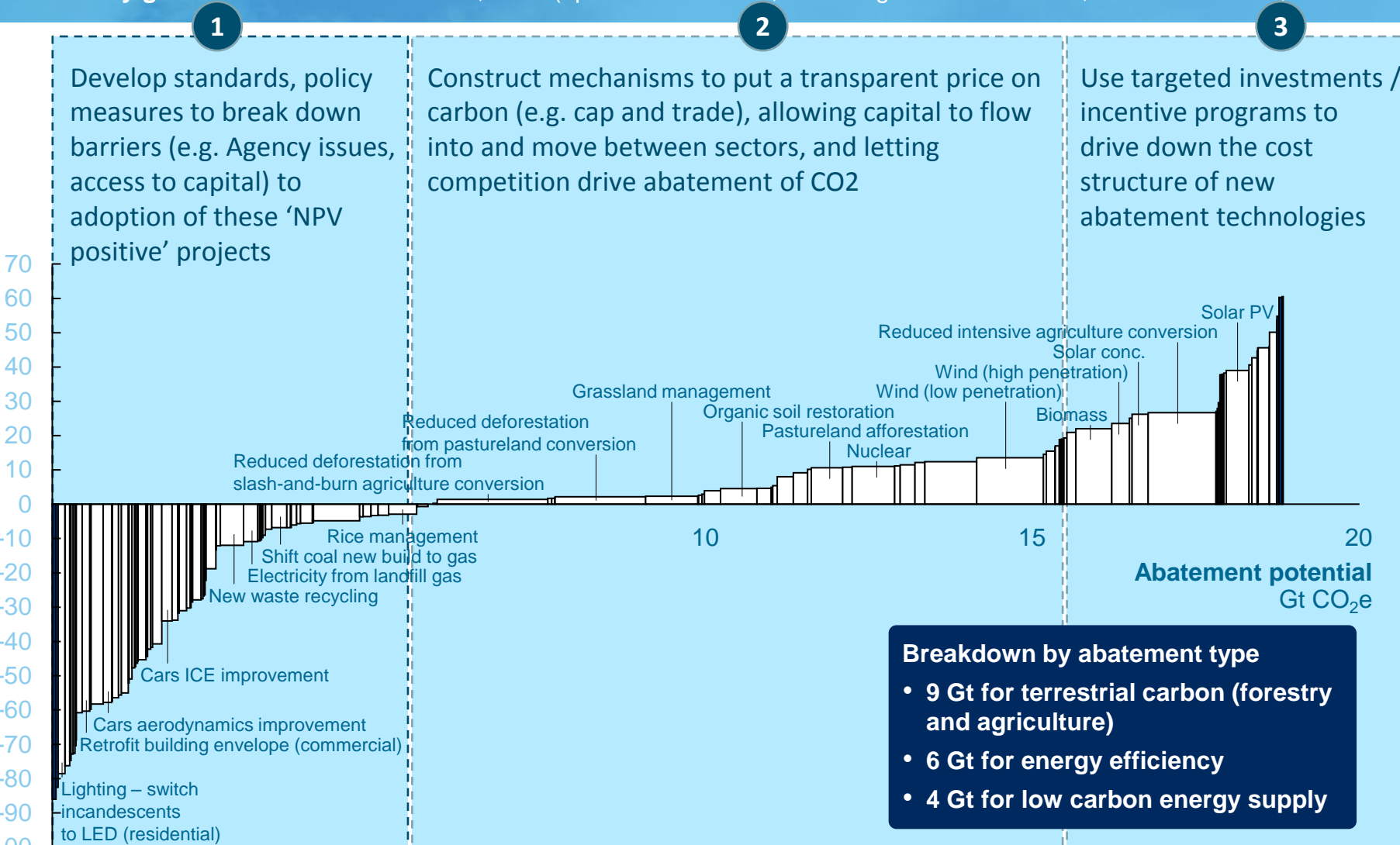
Pacific
Carbon
Trust

Agenda

- Economics of Climate Change
- Cap and Trade Basics
- BC Government Policy
- Introduction to the Pacific Carbon Trust

Quickly and efficiently achieving these reductions globally requires a combination of policy actions, market tools and targeted investments

McKinsey global abatement cost curve, 2020 (up to costs of €60/t, excluding transaction costs, 4% discount rate)



Government plays a role in catalyzing the transition to a carbon constrained world

Approach

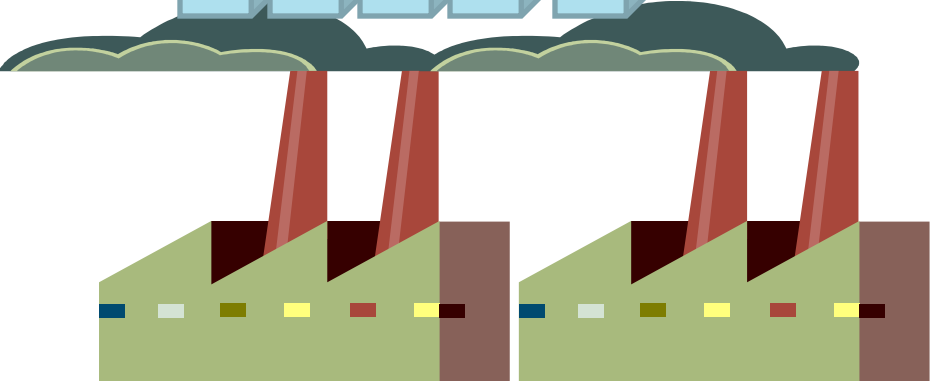
- 1 Developing standards / policy measures to remove barriers to adoption of positive return projects
- 2 Build a mechanism to place a price on carbon and allow market forces to drive abatement
- 3 Use targeted investments / incentives to drive down the cost and accelerate adoption of new low cost technologies

Government role / interventions

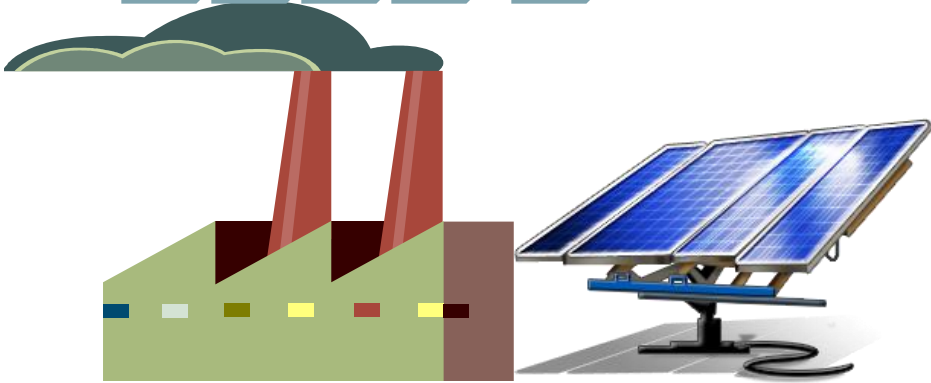
- Creating efficiency standards (e.g tailpipe emissions, building codes, labelling programs for homes, appliances, vehicles)
- Developing mechanisms to break down barriers to adoption (e.g. Financing / incentives for energy efficiency upgrades)
- Create a strong framework to create scarcity (cap and trade) or place a strong price signal (e.g. Carbon tax) in order to drive behavioural change across the economy
- Coordinate with other jurisdictions to ensure broad reach and minimize leakage of emissions outside of jurisdiction
- Creating funding mechanisms to support R&D / early stage commercialization of clean technologies
- Convene key industry stakeholders and design a targeted research / investment agenda to accelerate the deployment of critical technologies (e.g. CCS / Smart Grid)

A cap and trade system allows capital to flow to the lowest cost source of emissions reductions

Company A



Company B



Cap



Cap

- A maximum amount of emissions from “capped” sectors
- The cap moves down over time to meet emissions targets (2020, 2050)
- The cap is allocated to different firms that are “within” scope
- Firms with emissions above their allocation will trade their emissions with firms that don’t. Or purchase offsets
- Offset supply limits are key to price stability

Offsets

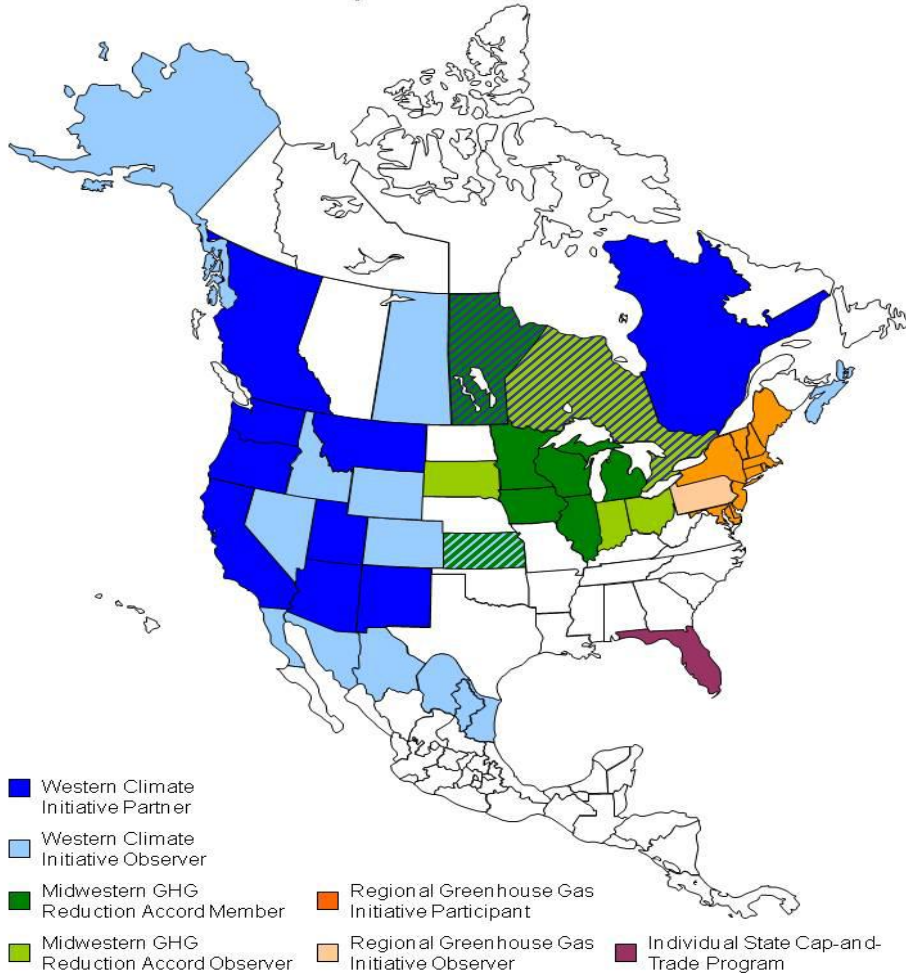
- **Reduction or removal enhancement outside capped sectors.**
- **Protocols instead of reporting regulations.**
- **Regulatory requirements for an offset:**
 - **Real**
 - **Additional**
 - **Counted once**
 - **Permanence**

Implications of the 3 big issues

Lever	Description of issue	Proposed resolution
1 Market Scope	<ul style="list-style-type: none"> The extent to which sectors, and geographies are linked through a common market mechanism 	<ul style="list-style-type: none"> Generally speaking, a combination of broader geographic and sectoral coverage will help keep carbon prices low, and moderate price swings
2 Market Timing	<ul style="list-style-type: none"> The expected timeline for when a market will be put into place, and as a pre-condition the standards will be set by which the market will operate The time horizon on which the market will operate 	<ul style="list-style-type: none"> Generally speaking further delays on carbon legislation will continue to depress prices in “pre-compliance” and voluntary markets Significant delay, combined with aggressive reduction commitments, may create a price “spike” as markets scramble to fill supply gaps
3 Macro Economy	<ul style="list-style-type: none"> The magnitude and shape of potential economic recovery globally 	<ul style="list-style-type: none"> Prolonged economic contraction will have a dampening effect on carbon prices as market may be oversupplied Prolonged contraction will test political will to drive CO2 prices high enough to deliver meaningful behavioural change

Across North America there are a number of regional compliance –oriented markets for carbon emerging,

North American Cap-and-Trade Initiatives



WCI

- Cap and trade system, with US and Canadian partners, with target implementation by 2012
- Covers 17% of North American GHG emissions in sectors representing 26% of N.A. GDP
- Target 15% reduction below 2005 levels by 2020

RGGI

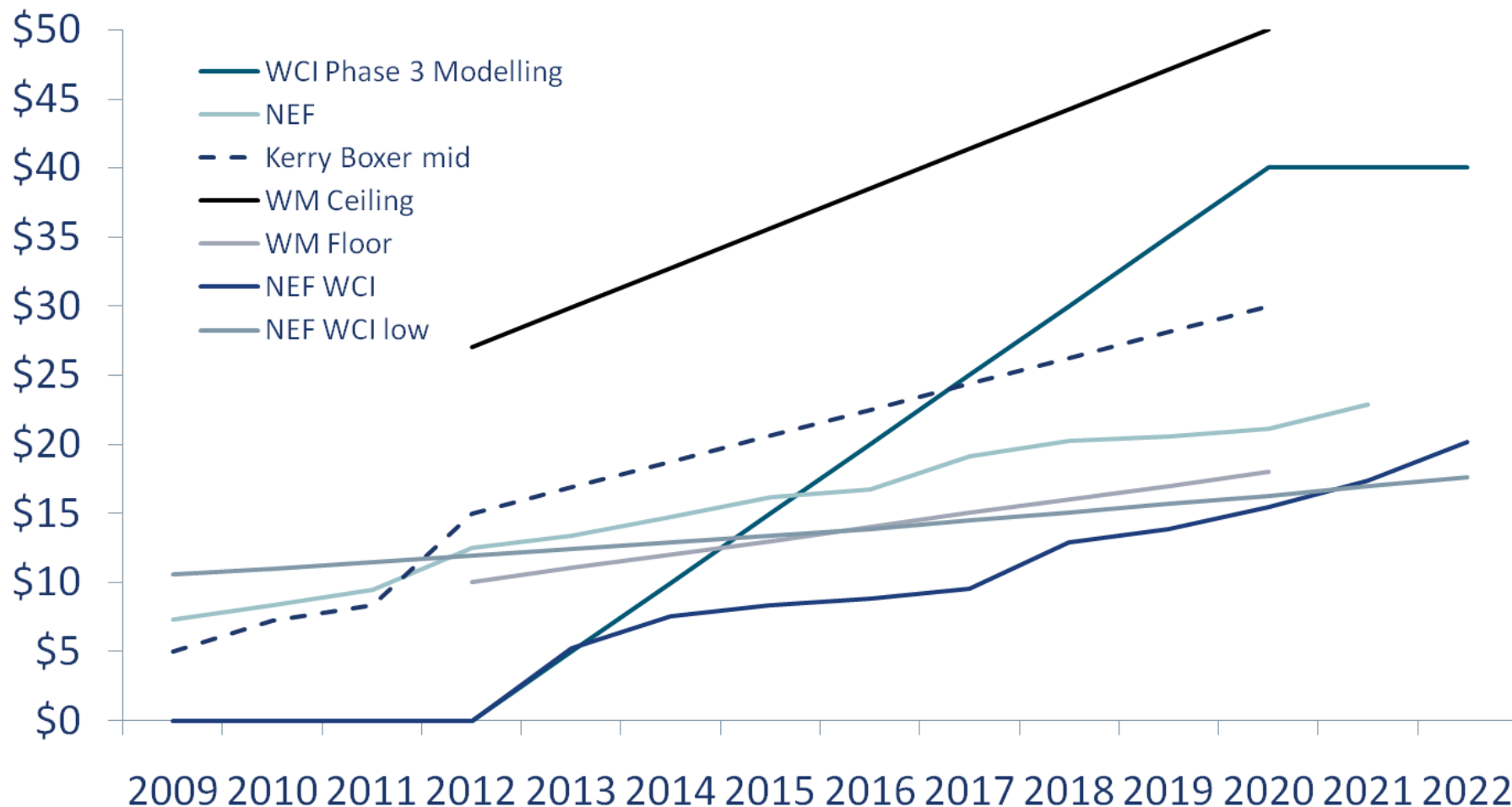
- Cap and trade system focused on the Power Generation Sector in the US North East
- Targets 10% reduction in power sector emissions by 2018
- Actively trading credits

Midwest GHG Reduction Accord

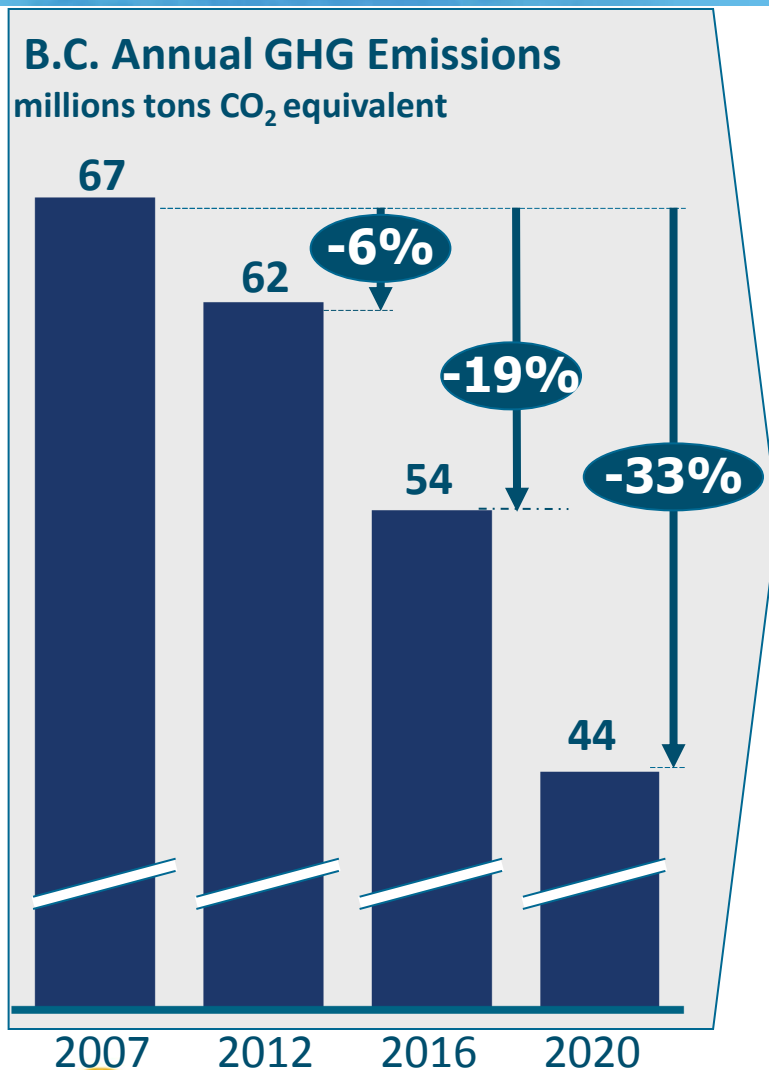
- 18-20% reduction in GHG emissions below 2005 levels by 2020
- Design covers electrical and industrial combustion sources with limited coverage of transportation fuels

This market uncertainty is reflected in the wide variation of carbon pricing forecasts currently being put forward in North America

Estimated allowance price forecasts (\$USD/tonne)



BC has made an ambitious, aggressive commitment to reduce GHG emissions 33% by 2020



BC's climate change commitment

Action in every sector

- Interventions across every sector in B.C.

Integrated Legislative Actions

- Addresses: Energy Efficiency, Renewables, CO₂ tax
- Green incentives for business and consumers

A Carbon Neutral Public Sector

- Leading by example
- All CO₂ emissions from public sector to be offset by 2010

Acting locally / Engaging globally

- Building world class low-carbon economy in BC
- Active membership in WCI to build N.A. Cap and Trade

While BC is known for abundant low carbon energy, we underperform other economies in both energy and carbon productivity

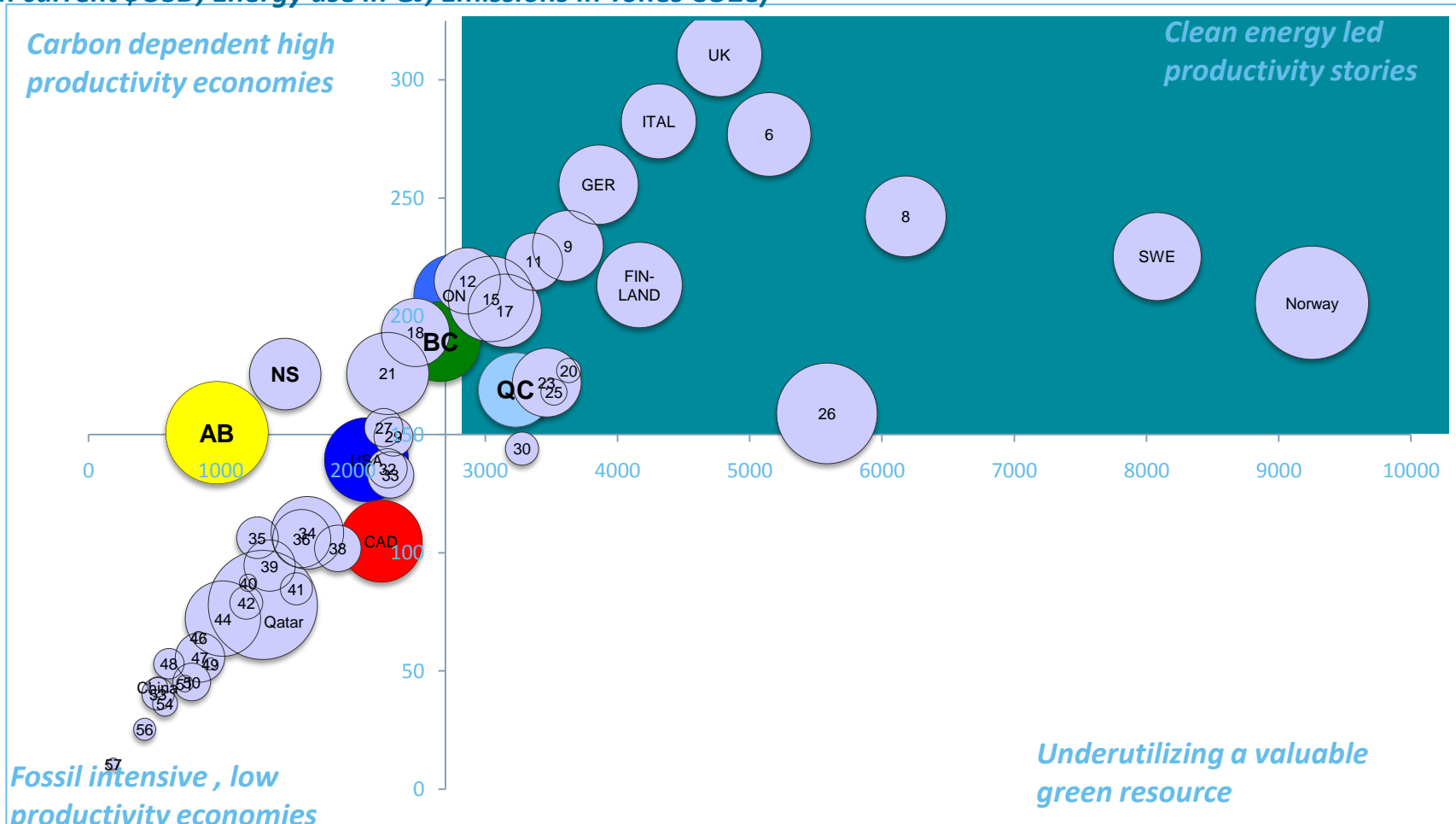
2007 Carbon Productivity vs. Energy Productivity – select economies

economies

(GDP in current \$USD; Energy use in GJ; Emissions in Tones CO2e)

Bubble size = GDP per Capita

Energy Productivity (\$ GDP / GJ Energy Use)



Introduction to Pacific Carbon Trust

Deliver quality BC-based **carbon offsets** to clients, and to support growth of **low-carbon economy** in BC

- New Crown BC Crown Corporation
- Capitalised at \$24 million
- Exclusive Supplier of up to 1,000,000 annual tonnes for the public sector
- Aggressively sourcing offset projects to meet this demand
- Acquired 330,000 tonnes from 15 projects
- Acquiring clients outside of government

Pacific Carbon Trust was launched with the ambitious mandate to deliver on government carbon neutrality and build BC's green economy

Summary of PCT Mandate

Deliver Quality, BC based offsets, to help clients meet their CO2 reduction goals

And

Support the growth of BC's low carbon economy

Building a portfolio of credible, BC based offsets across all sectors, in excess of 1 million tonnes a year

Making targeted investments in technologies and capacity building to accelerate the growth of the industry.

Pursuing programmatic approaches to GHG and energy intensity reductions

Key offset recognition criteria

Key Offset Recognition Criteria

1: Real

- An identifiable project
- Sound methods available to quantify GHG emissions

2: Additional

- Reduction from business as usual and regulatory req.
- Allows project to overcome economic/tech. barriers

3: Permanent

- Offset has an impact that is lasting (i.e. 100 yr +)

4: Verifiable

- Readily identified, monitored, and audited
- Minimize measurement uncertainty

5: Counted Once

- Clear, singular, ownership of the offset attributes
- Offset title transferred; registered publicly

Types of GHG reduction / offset projects

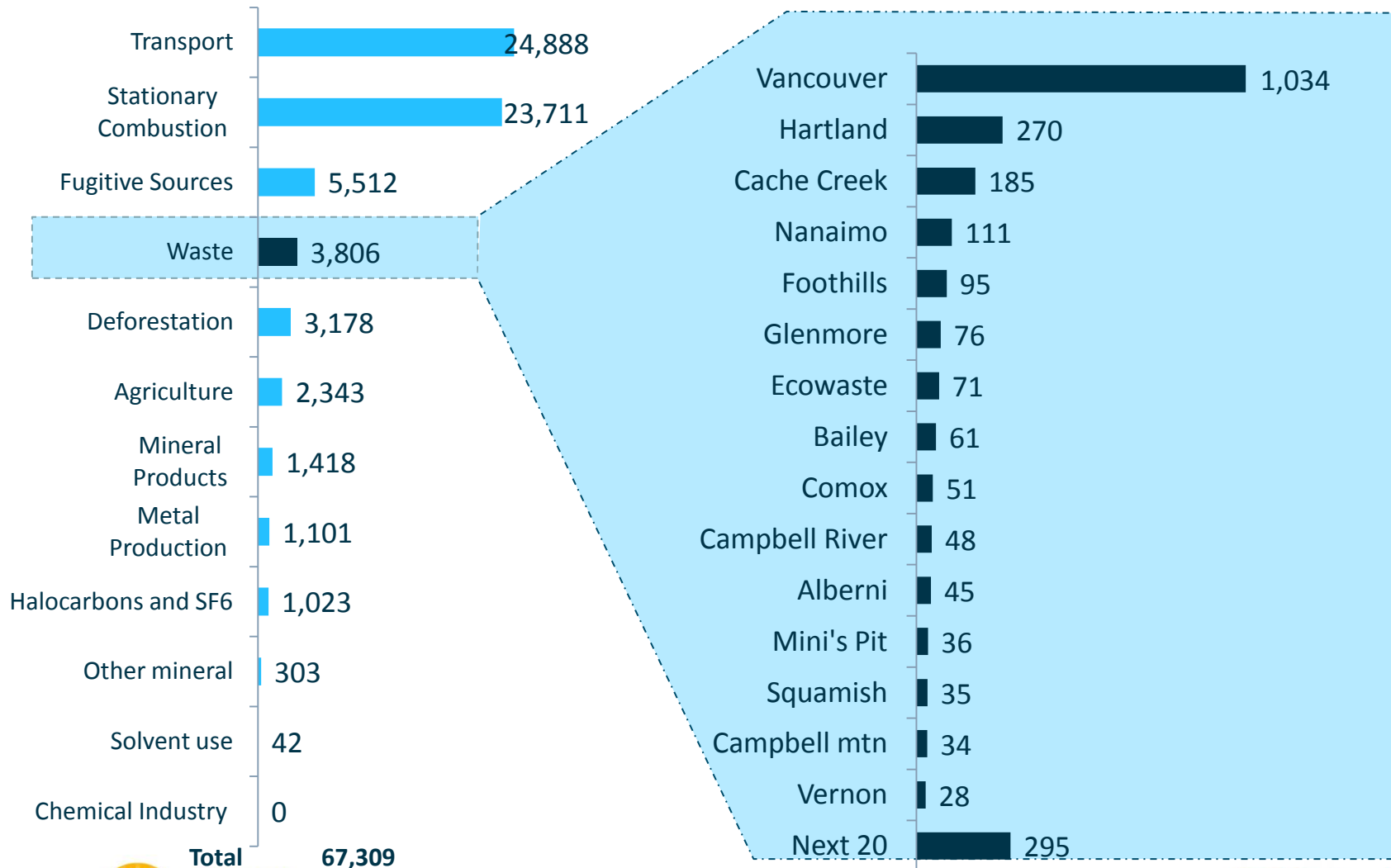
Opportunity	Description	Sample projects
Low carbon fuel supply opportunities	<ul style="list-style-type: none"> Facilitating switch to a fuel source with lower CO2 emissions (e.g. From coal to natural gas) 	<ul style="list-style-type: none"> Switch from natural gas to biomass
Energy efficiency initiatives	<ul style="list-style-type: none"> Reducing amount of energy required to achieve similar output Minimizing waste energy lost from a process (e.g. methane loss) 	<ul style="list-style-type: none"> Elimination of waste methane from landfills Coal mine methane destruction Co-Gen / CHP
Terrestrial carbon sequestration	<ul style="list-style-type: none"> Increased storage of CO2 in sinks, such as forests Capture and sequestration of CO2 from industrial emissions 	<ul style="list-style-type: none"> Forestry projects Carbon Capture and Storage (CCS)

- Pacific Carbon Trust pursues three core types of GHG reduction/ offset projects

Waste accounts for nearly 4 million tonnes of GHG emissions annually across BC, and is concentrated in a handful of landfills across the Province

2007 BC GHG Emissions (Kt CO₂e)

2007 GHG Emissions by landfill (kt CO₂e)



While regulations requiring LFG systems by 2016 create a time sensitive opportunity, significant barriers still exist which are slowing implementation

The compelling case for action

Changing Waste Regulations across BC

- Regulations require LFG systems post 2016 for landfills generating over 1,000 t methane / yr
- Significant, growing market demand for Carbon Offsets

Time sensitive opportunity

- Limited crediting period (today to 2016), creates a 'shrinking pool' of revenue from sale of credits

Compelling economics

- BC, through Pacific Carbon Trust has one of the highest Carbon Prices in the world
- Sale of offsets can reduce overall capital cost of LFG system

Accelerating LFG Rollout in BC

Barriers to overcome

Awareness of the opportunity

- Market is still new, and PCT is still conducting outreach across industry / government to raise awareness

Access to talent / technical resources

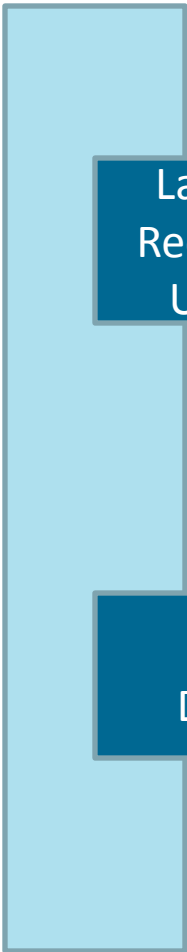
- Limited pool of technical resources available to help municipalities navigate the carbon world

Limited capital availability

- In today's economic climate, capital is scarce, and communities lack ability to finance even economically viable projects

Multiple Opportunities exist for emission reduction projects in the waste sector

How Pacific Carbon Trust is working to support



Landfill Gas Recovery and Utilization

- Create a strong price signal on carbon to improve the economics of LFG installation ahead of regulation.
- Working with municipalities, developers, operators and industry groups to promote uptake of LFG systems

Waste Diversion

- Working aggressively to ensure that waste diversion programs receive 'equal opportunity' for carbon crediting, through adopting waste diversion protocols
- Ensuring that municipalities make the environmentally appropriate choice for waste management strategy

Key takeaways

1. There is a meaningful price on carbon in BC today - project investment decisions across the province should reflect this reality
2. By setting a carbon price in advance of a cap and trade system we are providing an incentive for industry to act early, creating strong benefits for early action
3. Pacific Carbon Trust is willing and able to engage with companies at any stage of the project development lifecycle – we are here to help
4. Pacific Carbon Trust is open for business, actively engaging, and putting a premium price on carbon today

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