



Innovation in Carbon

Overview for GHG Summit

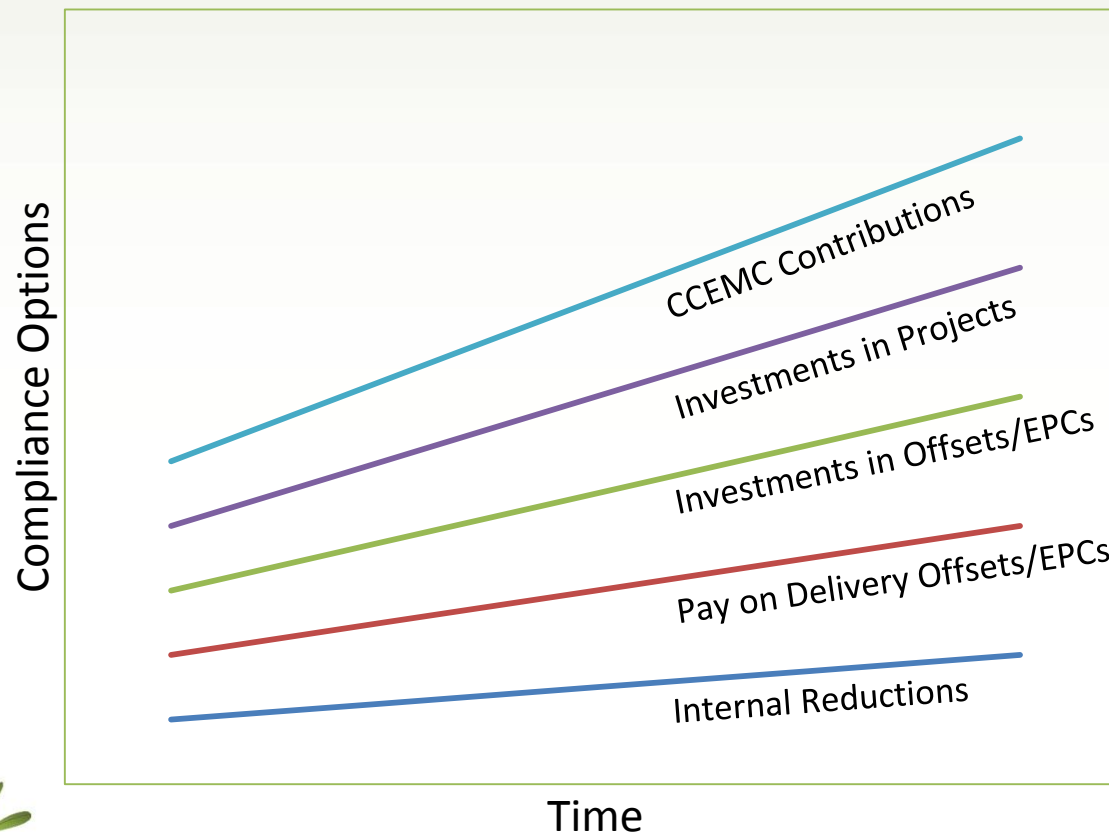
October 23, 2014



PRASINO CARBON CONSORTIUM

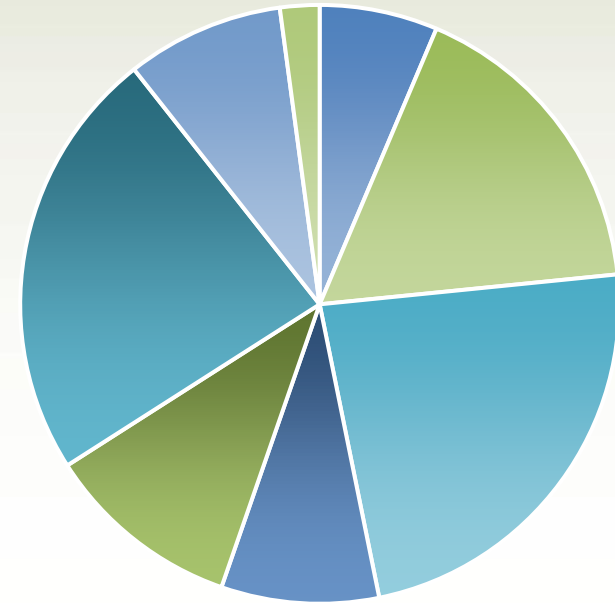
Portfolio of Approaches

- Investments in offsets/EPCs is part of a portfolio approach to meeting evolving compliance obligations under SGER

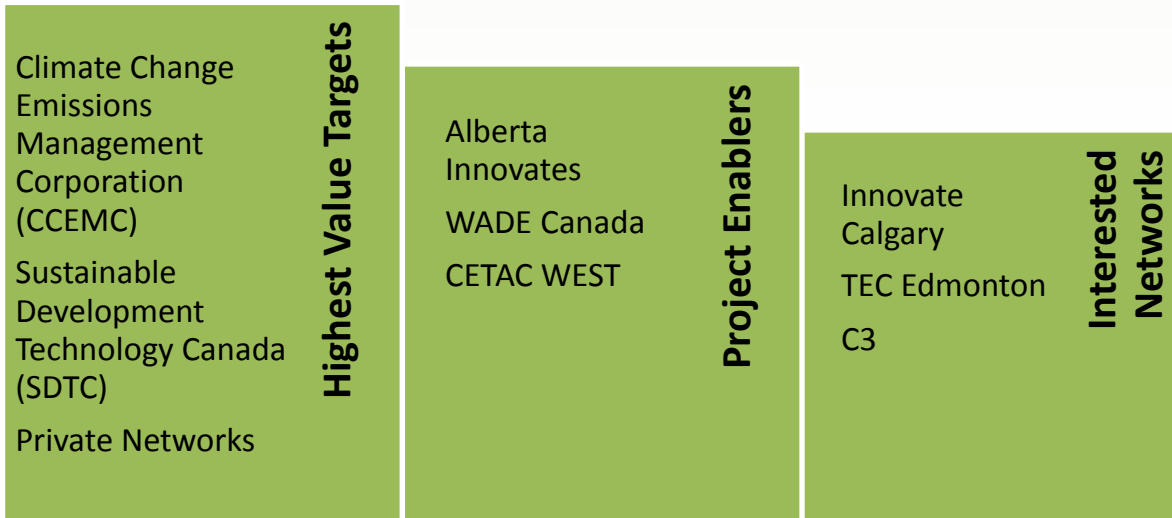


Project Supply Analysis

- Through market analysis and our professional relationships, Prasino developed an illustrative portfolio.
 - 47 projects with potentially 41.3 million tCO₂e reductions over 10 years.
- Numerous networks in Alberta working to bring forward pre-evaluated projects.



- Waste Heat Recovery
- Biofuels and Bioenergy
- Fuel Switching
- Enhanced Oil Recovery
- Renewable Energy
- Fugitive Emissions
- Energy Efficiency
- Sequestration



PCC Offer

- PCC provides financing for qualified Alberta-based projects secured against the projects forward stream of carbon offsets
- PCC provides funding and carbon offset revenue certainty to projects through a combination of three deal structures:

Pre-Payments

- Releasing funds before the project is implemented with payments tied to project development milestones.

Pay-on-Delivery

- Forward contracts for specific volumes of serialized and registered credits according to an agreed schedule.

Right of First Refusal (ROFR)

- ROFR to the PCC for additional tonnes greater than pre-pay and pay-on-delivery.

PCC may provide prepayments of up to \$3 million per qualified project.

Why It Works

- **For the Project Owner, PCC provides:**

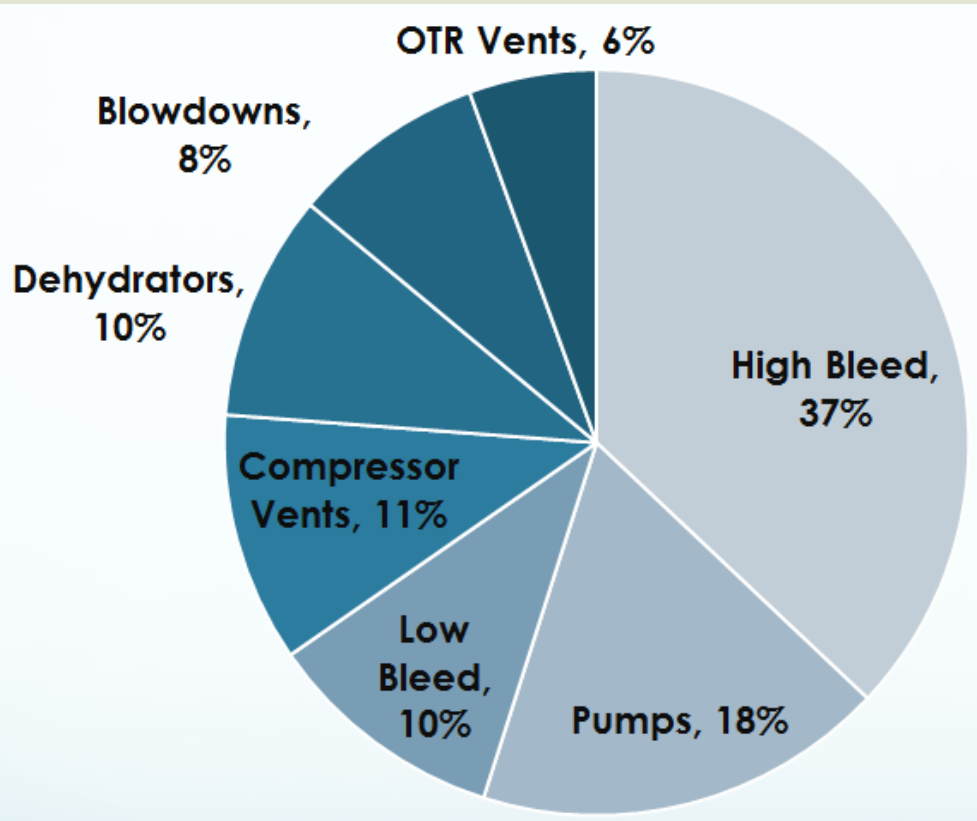
1. Early-stage source of project finance secured against carbon offset delivery from sophisticated, credit-worthy counterparties
2. Non-dilutive capital pool that does not act as traditional debt and does not require the project owner to forego equity in the project.
3. Capital at a reduced cost relative to other available debt/equity sources.
 - Cost of capital calculated as a discount on the market price for the forward stream of carbon offsets.

- **For the Investors, PCC provides:**

1. Access to a supply of verified carbon offsets to meet their environmental compliance requirements.
2. Acceleration of the projects that supply of carbon offsets to the carbon offset market.
3. Dilution of risk through the portfolio of carbon offsets contained within the PCC-funded projects.

CAP-OP ENERGY

The Opportunity



- Controllers and pumps make up **55%** of vented emissions in oil and gas
- Alberta Oil and Gas Facility Vents 28.8 Mt annually according to the *National Inventory Report 1990-2011*
- **This is a high value opportunity to help Alberta meet its emissions reduction targets**

Oil and Gas Vented Emission Sources by Type (source: *BC Facility Greenhouse Gas Reports*)

Opportunity Size

GHG Emitting Equipment	Alberta Equipment Count	Eligible Alberta Equipment Count*	Alternatives	Average GHG Emissions Reduction	Total GHG Reduction Potential per year
High-bleed Instruments	340,000	100,000	Low-bleed instruments	40 tCO ₂ e/yr	4,000,000 tCO ₂ e
Pneumatic Pumps	161,000	145,000	Low/No-bleed pumps	75 tCO ₂ e/yr	10,875,000 tCO ₂ e
Gas wells	70,000 Well Sites	35,000	Well Site Vent Gas Capture	44 tCO ₂ e/yr	1,540,000 tCO ₂ e
Annual Total					16 million tCO ₂ e

Table from PTAC and Alberta Innovates report titled *Alberta's Upstream Oil and Gas Assets Inventory Study*

ALBERTA'S UPSTREAM
OIL AND GAS ASSETS
INVENTORY STUDY

Opportunities to Reduce Greenhouse Gas
Emissions at Existing Distributed Facilities

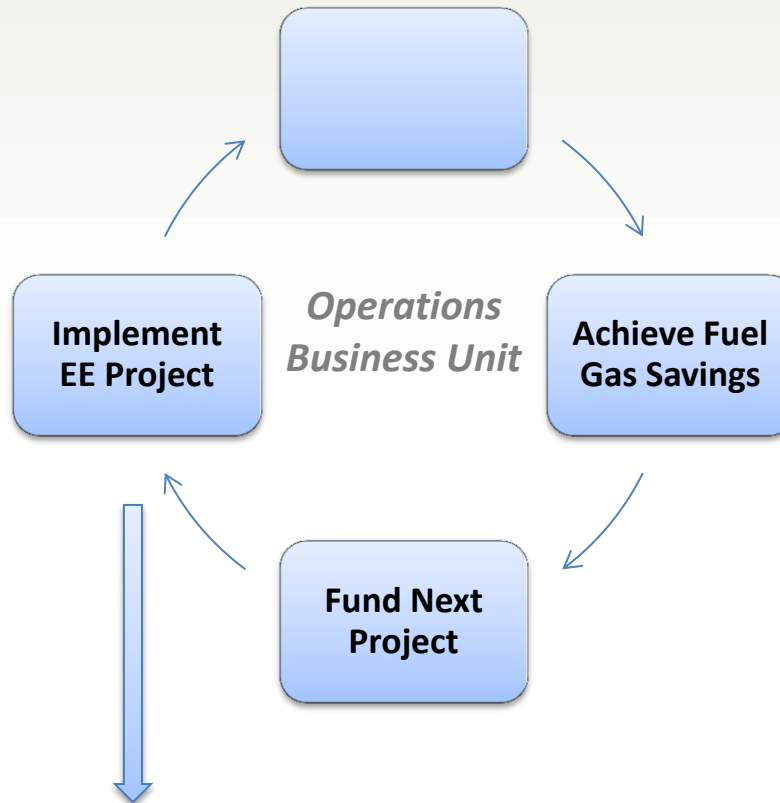
Prepared for Alberta Innovates – Energy and Environmental Solutions

Economic Model

Fuel Gas Savings Cycle

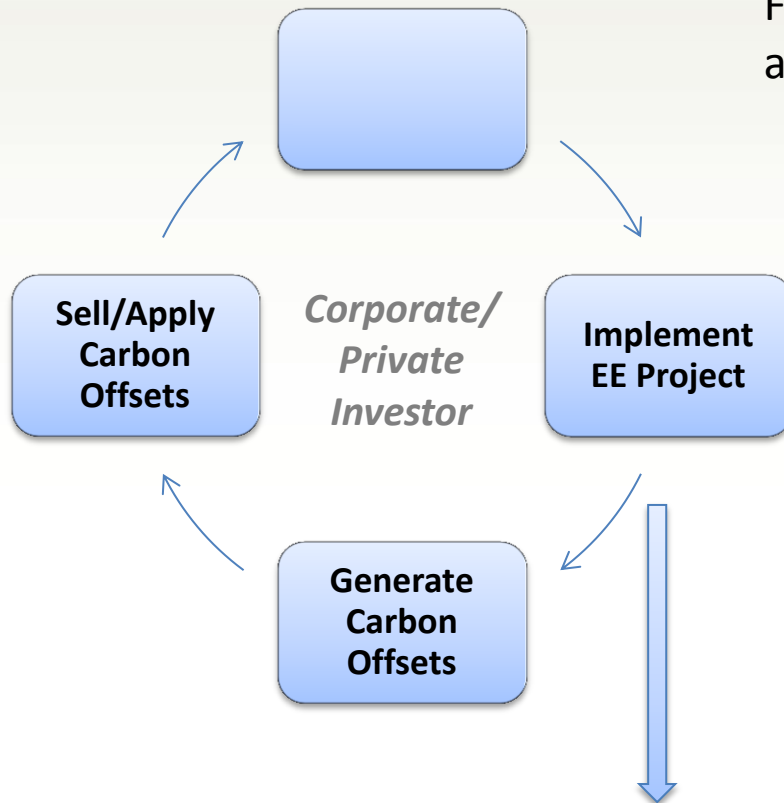
Fit with business unit goals and objectives:

- Production
- Lower Costs
- Reliability



Economic Model

GHG Savings Cycle

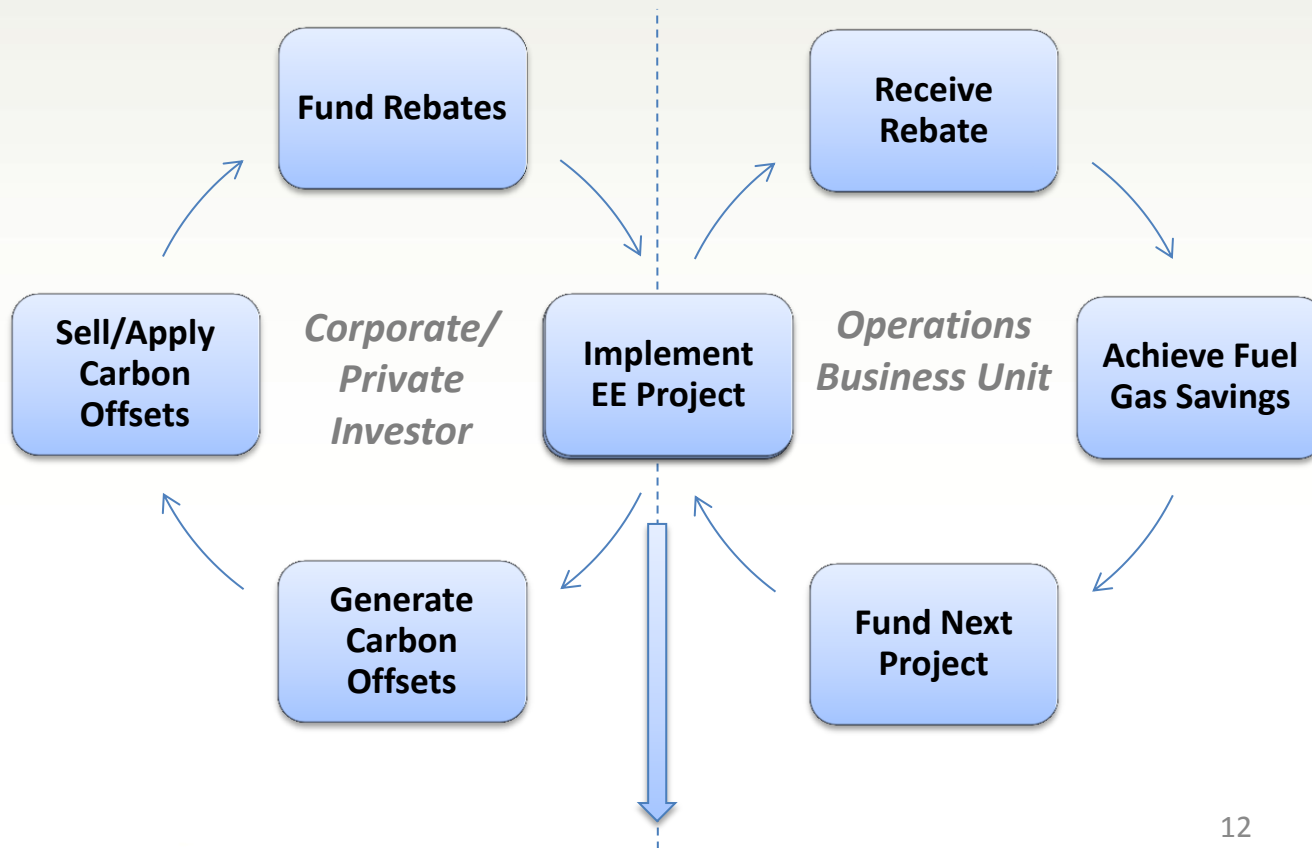


Fit with corporate goals and objectives:

- Environmental Stewardship
- Regulatory risk mitigation

Economic Model

De-coupling of cycles to prove model and align interests



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Example Project

No Rebate

- Capital cost
 - Equipment - \$1,800
 - Installation - \$500
- ▶ Fuel savings of ~119 GJ/year (~\$400/year - net)
- Financial return
 - IRR (8 yr) – 11.4%
 - Payback – 6 years

With Rebate

- Capital cost
 - Equipment - \$700
 - Installation - \$500
- ▶ Fuel savings of ~119 GJ/year (~\$400/year - net)
- Financial return
 - IRR (8 yr) – 38.9%
 - Payback – 3 years

Rebate program significantly accelerates the return on investment when valuing fuel savings on their own

- ▶ GHG savings - ~49 tCO₂e/year (~\$500/year – net)

Skip Willis Scholarship Event



- **Date:** November 24, 2014
- **Time:** 5:00 p.m. – 8:00 p.m. followed by a reception
- **Location:** Ranchmen's Club, Calgary, (710 13 Ave SW)
- **Cost:** \$99.00 with net proceeds to Skip Willis Undergraduate Scholarship.

The Skip Willis Undergraduate Scholarship was created in honour of Errick "Skip" Willis. Skip was an internationally recognized expert in climate change, an IETA Fellow and an instructor with the School of Environment's Carbon Finance program. The scholarship honours his commitment to civil discourse and progress on climate change issues.



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