

Alberta's Carbon Offset System

Karen Haugen-Kozyra
Climate Change Central



Climate Change Central

Albertans taking action

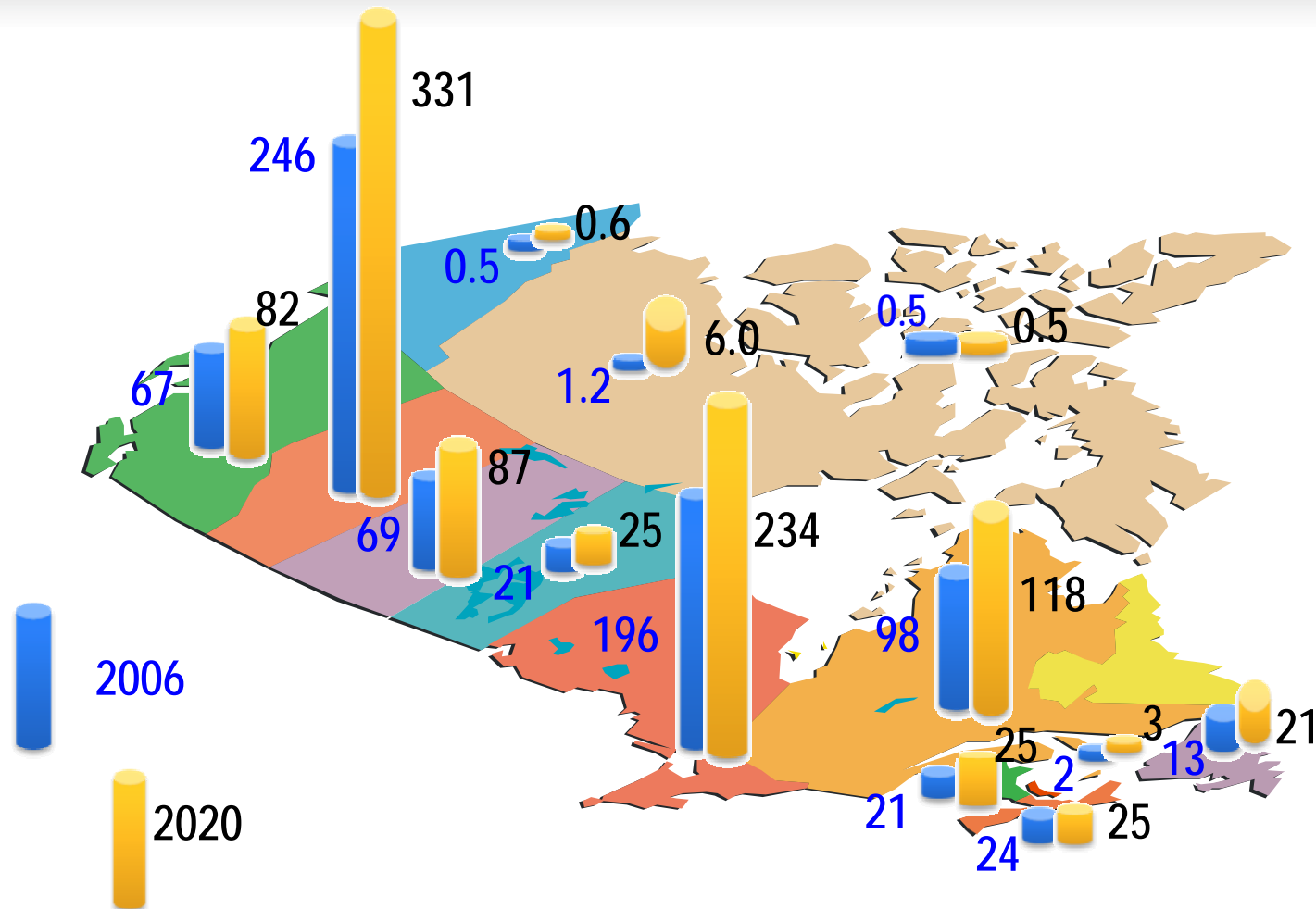
C3 Background

- Climate Change Central was formed in 2000, public-private, not-for-profit
- Focus on reducing greenhouse gases
 - Policy, energy efficiency, technology development, environmental communications.
- Goal is to empower Albertans to take action on climate change
- Facilitated development of the Offset Carbon Market in Alberta



Alberta's GHG Emissions in the Canadian Context

(MT of CO₂e/yr)



Climate Change Central

Alberta Context

- Alberta – the first multi-sector, regulatory-based demand for carbon reductions in North America
- Regulatory Framework – started July 1, 2007:
 - Applies to all industrial facilities with >100,000 T CO₂e emission intensity
 - They must reduce their GHG emissions by 12% every year
- Carbon Offsets – one of the ways they can comply and meet their targets
- Offsets are emission reductions from a non-regulated activity (farmers adopting no-till)



Alberta's Offset System, Standards-Based

A Model for Others in North America

- A demand for Offset credits
 - Created through the emission reduction regulation (Specified Gas Emitter's Regulation)
- A supply of Offset credits
 - Creation allowed through the regulation/ *quantification protocols* to facilitate projects and meet "Gold Standards"
- Rules to govern the system
- Consequences for non-compliance



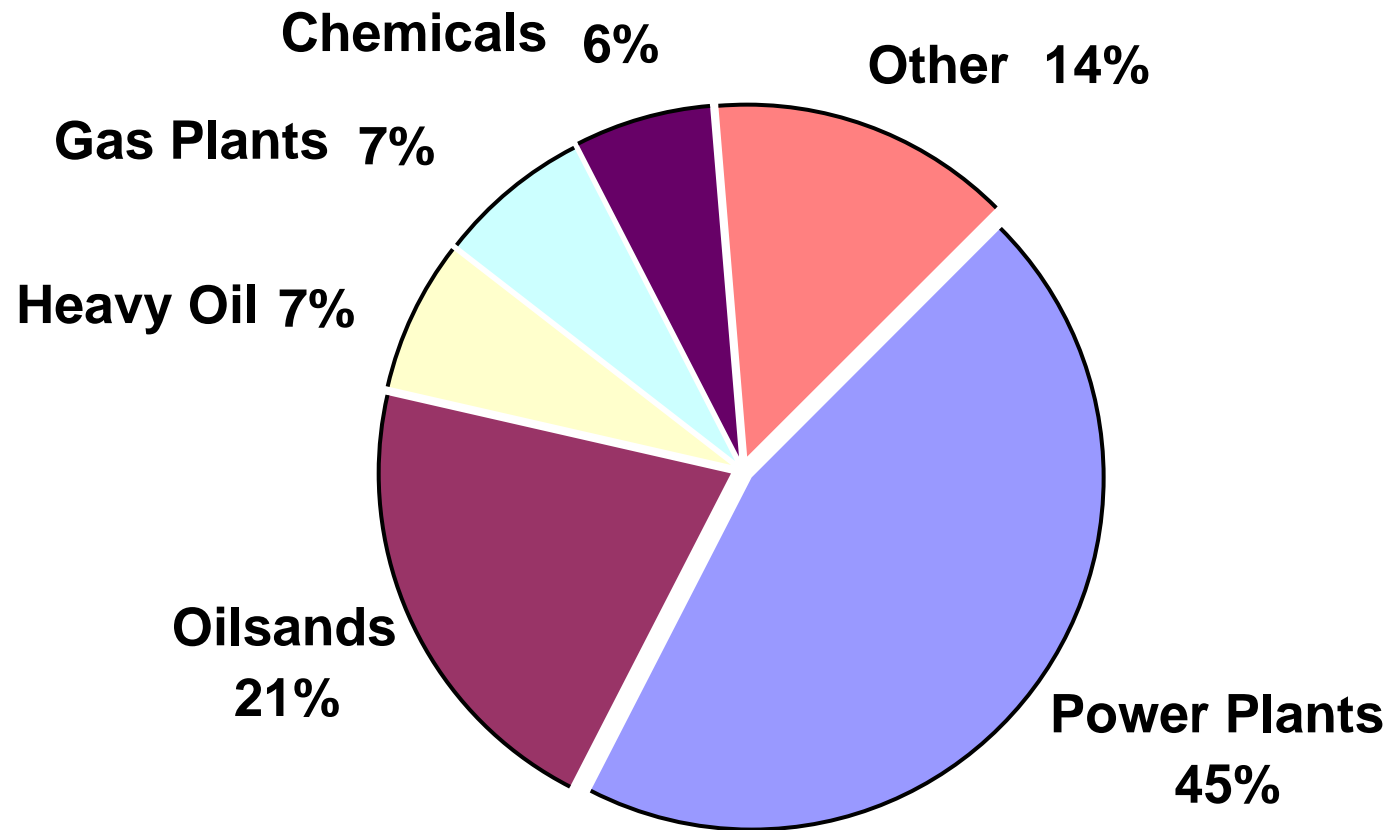
Alberta Compliance Options under Specified Gas Emitter Regulation

- Emission Performance Credits
 - These are credits for better than target performance within regulated facility
- Fund Credits
 - Invest in the Climate Change and Emissions Management Fund at \$15/tonne – funds used to develop or invest in Alberta based technologies, programs, and other priority areas (as per CCEMA)
- *Carbon Offsets*
 - *Voluntary emission reduction opportunities in support of achieving environmental objectives (net environmental benefit)*



Buyers in the Carbon Market

(>100,000 tonnes CO₂e/year)



AB Offset Rules – Regulatory Definition/Supporting Infrastructure

■ Emission Offsets:

- Action (project) taken on/after January 1, 2002
- All actions must occur in Alberta
- Must be *real, quantifiable and measurable*
- Not otherwise required by law; clearly owned
- Must be verified by 3rd party
- Guidance Documents (Projects, Verification, Protocols)
- Protocols – Most comprehensive set in NA
 - 25 Approved
 - 8 more in protocol review process
 - 6 more signalled their intent
- Project-based Registry launched = Alberta Offset Emission Registry (AEOR)

Connect to www.carbonoffsetsolutions.ca



Climate Change Central

Fundamentals of Offset Projects

- Fundamental Principle: Activities and emission reductions must be *above and beyond* Business as Usual practices
- Project Condition
 - What happens (GHGs) with the improved practice/new technology?
- Baseline Condition
 - What was happening (GHGs) in the old practice, or common industry practice before the change?
 - Are they comparable (same level of activity, product, service) to base calculation on
- Evidence – Document it:
 - Quantification and Monitoring Plan
 - Data Management System and Data Controls

Amount of Offsets = Baseline - Project.
Need to quantify both!



Why Protocols?

- Approved Protocols – a set of formulas and coefficients for the project
 - Science-based
 - International compatibility
 - Streamlined use
 - Transparency and consistency
 - Reduced costs and administration
 - Provides certainty for practice – GHG tonnes reduced
 - Meets Criteria of 'real, additional, measurable, verifiable, permanent, unique, clearly owned'

***Provides Accountability Context and
Defines the Size of the Benefit***



Alberta Offset System

Approved Quantification Protocols

- **GHG Emission Removals** = Carbon Sinks (remove GHGs from atmosphere)
 - Reduced/No-Tillage
 - Afforestation (Planting Trees)
- **GHG Emission Reductions**
 - Pork (Feeding/Manure Storage & Spreading)
 - Biogas (Anaerobic Decomp. Ag Materials)
 - Beef Feeding of Edible Oils *Updated
 - Beef Reducing Days On Feed *New
 - Beef Lifecycle (Reducing age at slaughter)
 - Biofuels
 - Biomass (Combustion facilities)
 - Energy Efficiency (pork, dairy, poultry facility process changes/retrofit)
- Acid Gas Injection
- Compost (Non-manure)
- Enhanced Oil Recovery (2)
- Landfill Gas Capture
- Aerobic Landfill Bioreactor
- Run-of-River Electricity System
- Model Freight Shift
- Road Rehabilitation
- Solar Electricity Systems
- Waste Heat Recovery (2)
- Wind Powered Electricity Systems
- Waste Water Treatment
- Waste Non-Incineration
- **Coming Soon**
 - N2O Fertilizer Reduction
 - Reduced Summerfallow
 - Residual Feed Intake (beef)



Getting a Credit to Market in AB

Phase:

Steps:

Tools:

***Project
Development***

***Project
Implementation***

***Project
Reporting***

***Offset
Submission
(Regulated
Facility/Buyer)***

Offset Project Plan

- Scope
- Baseline and Project
- Quantification Plan
- Monitoring Plan
- QA/QC Plan

Data Management

- Monitoring and Data Collection

Project Report

- Report/GHG assertion
- Verification Statements

To AB Environment

- Regulated Emitter's Compliance Report:
 - Project Report
 - GHG Assertion
 - Verification Statement

Gov't Approved Protocol

**Project Registration
on Alberta Offset
System Registry**

Verification

(Third Party Verifier)

- Verification Plan
- Verification Statement
- Conflict of Interest Checklist
- Statement of Qualifications

AB Offsets - 1st compliance period

- 1 Mt reductions achieved through AB based offsets
 - Purchases - Most by power plants, small amounts by refineries and coal mines
 - Project types - 55% were tillage based (3), wind (2), landfill gas (1) and biomass (1)
 - 3-4 times more was aggregated but not verified
 - Companies paid \$6-\$13; farmers received \$4-9 (\$2.7M) First 2007 Compliance Cycle:
- 7 registered GHG offset projects
- 1,555,913 tonnes of CO₂e registered
- 980,338 tonnes used for compliance



AB Offsets – 2nd compliance period

- 25 additional GHG offset projects registered and verified
- 10 of the projects were from Tillage Projects
 - Total tillage registered for 2008 = 1,000,976 tonnes
 - Total from all retired = 706,688 tonnes was submitted by LFEs for 2008 compliance
- 5 Wind
- 3 Enhanced Oil Recovery
- 3 Biomass
- 1 Composting
- 1 Run of River Electricity Generation
- 1 Acid Gas Injection
- 1 Anaerobic Wastewater Treatment
- Total offsets created in 2008 equaled 3,471,495 tonnes of CO₂e across all projects
- 2,601,402 tonnes was submitted by LFEs for 2008 compliance
- Prices – ranged from \$10 to just under \$14/tonne



AB Offsets – Summary to date

- Total both compliance periods (serialized) - 5,027,408 tonnes, 32 projects
- Total tillage both compliance periods (serialized) - 1,558,566 tonnes, 15 projects



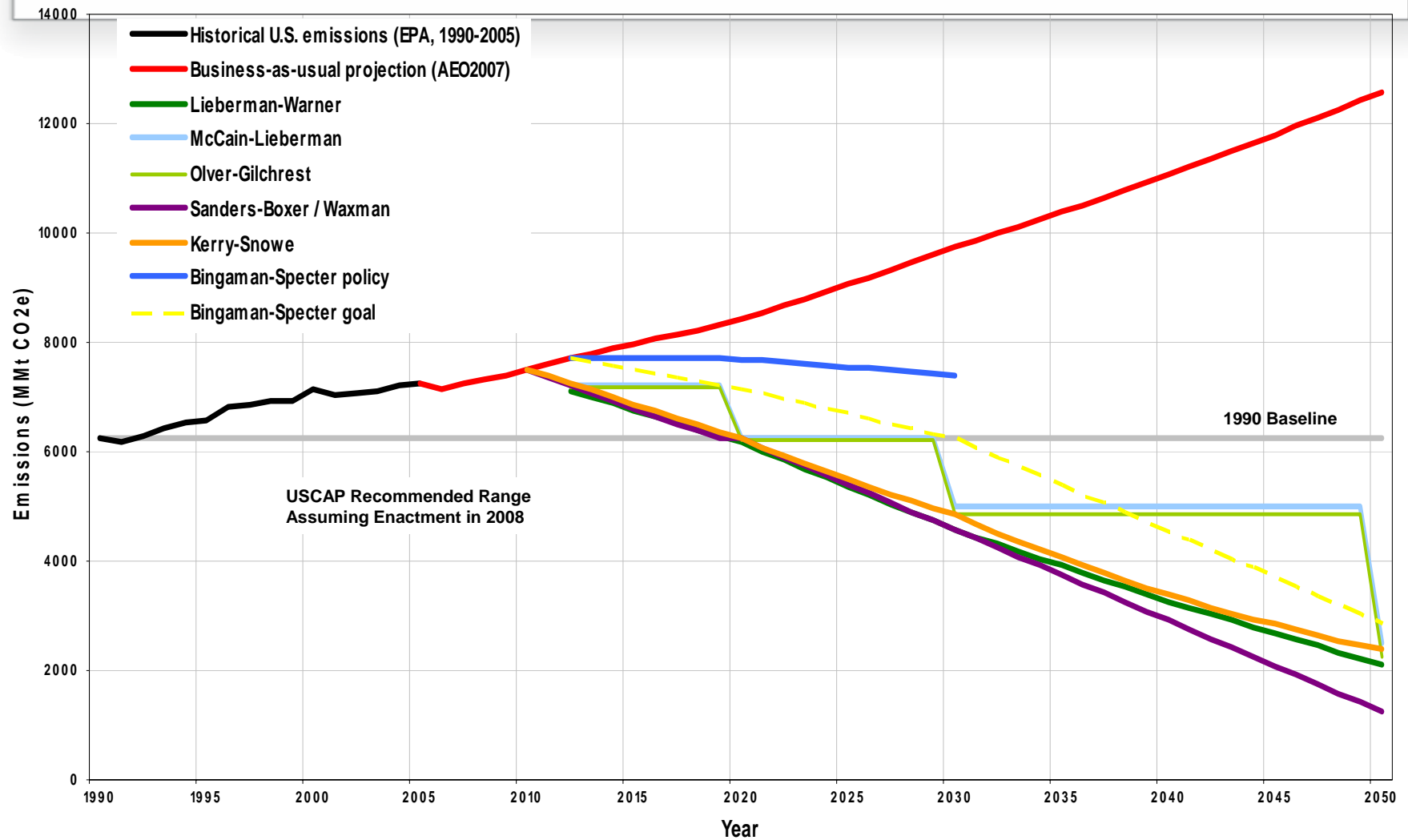
US Developments



Climate Change Central

Albertans taking action

Past Bills/Congress



Concerns about Offsets

- Will work too well
 - If too many, will divert effort away from the capped sectors, reduce investment in Technology
- Won't work
 - Too costly or complicated – or too discounted to bring in participation
- Not real reductions



Concerns over Real

- Voluntary transactions between 2 parties (enough gov't oversight?)
- Factors that undermine:
 - Leakage – diverted emissions beyond project boundaries
 - Non Additional – parties being paid for actions they would've done anyway
 - Permanence – release of stored carbon during or after project ends



Policy Solutions

- Quantitative Limits
- Qualitative Limits
- Accounting adjustments (discounts)
 - Level of practice uptake
 - Buffers or set asides
- System-wide adjustment of the cap



Waxman-Markey Bill

- Allows approximately 2B tonnes of offsets
 - Complicated formula; estimates range from 1.5B to 2.1B
 - Indexed to compliance units so decrease overtime
- 50:50 split between Domestic/Int'l
- Capped sectors - 4 compliance units for every 5 tonnes of offsets
- Discounts used extensively



Waxman-Markey Bill

- Domestic Program

- Offset Integrity Advisory Board
- Additionality – 2009 onwards; common practice
- Performance Std Baselines
- Impermanence (buffers or insurance)
- Adjustments for uncertainty (discounts)
- Adjustments for leakage (discounts)
- Early credits (CCAR, RGGI)



Carbon Offset Solutions

www.carbonoffsetsolutions.ca

Your information resource for all things related to emissions trading and climate change policy in Alberta

- Policy / Carbon Market Standards
 - Alberta Approved Protocols "How to" Guides
 - *Project Guidance, Verification Guidance, Draft Protocol Development*
- Market Service Providers
 - List of aggregators, verifiers, brokers
- Alberta Emission Offset Registry (AEOR)
 - *Project Registration & Meeting Place*



Climate Change Central

Questions?

Thank You!

karenhk@climatechangecentral.com

WWW.CARBONOFFSETSOLUTIONS.CA



Climate Change Central