

# Update on GHG Regulation and Emissions Trading in Alberta and other Jurisdictions

The Canadian Institute's Forum on  
Environmental Law & Regulation in Alberta  
June 19, 2012

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# Outline

- Impact of Emissions Regulation in Alberta
- Successes and Challenges of Program
- Role of Climate Change & Emissions Management Corporation (CCEMC)
- Impact of North American Climate Exchange
- Emissions Regulation outside of Alberta

# Introduction

- Alberta no longer only jurisdiction in North America with emissions regulation
- Climate Change regulation advancing in Quebec and California
- CCEMC, Emission Reduction requirements and Offset Projects all stimulating Cleantech Development – is it enough?

# Regulating GHG Emissions

## Impact of Emissions Regulation in Alberta

- Specified Gas Emitters Regulation (SGER) has been in force since 2007 and has resulted in 5 Compliance Periods
- 106 regulated facilities in 2011 - 108.3 MT CO<sub>2</sub>e emissions
  - 50% of Alberta's emissions
  - 70% of Alberta's industrial emissions
- requires an average of  $\approx 10$  MT of reductions annually

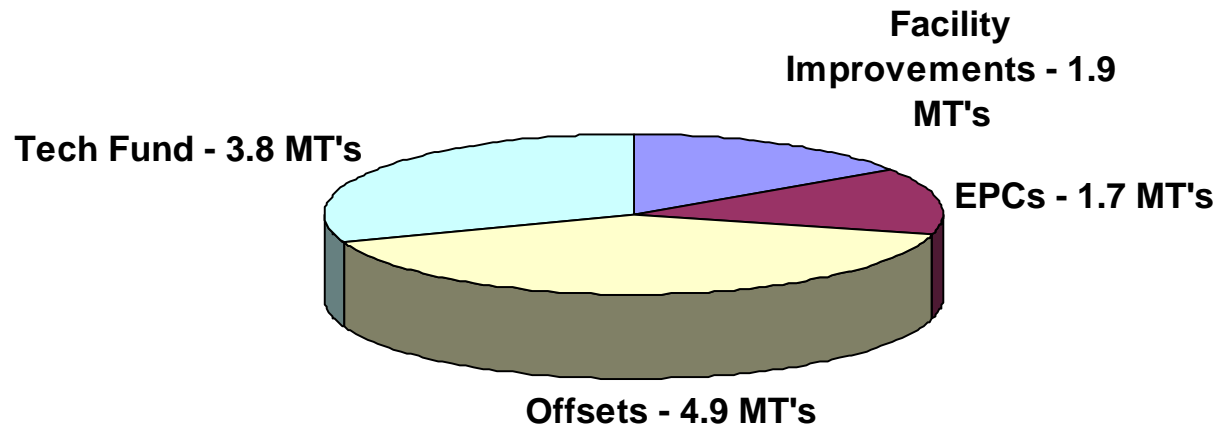
# Regulating GHG Emissions

## Specified Gas Emitters Regulation

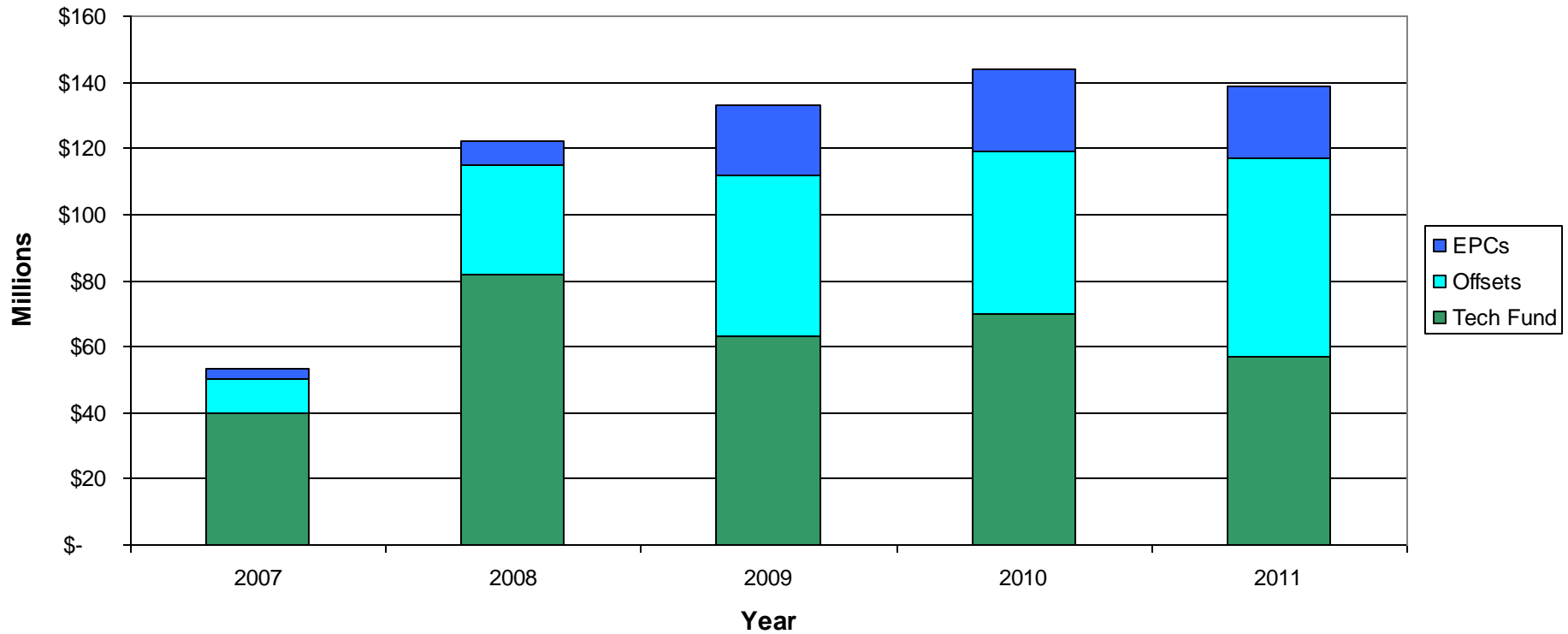
- Three compliance options:
  1. Physically reduce emissions at the facility
  2. Purchase verified Alberta offsets
  3. technology fund credits (\$15 per tonne)

Or, any combination of the above options

## 2011 SGER Compliance Mechanisms



## Compliance Market Development



Compliance Period	Offset Credits**		Tech Fund Payments		EPC Credits Retired**
<b>2007*</b>	1 Mt	\$10 Million	\$43 Million	2.867 Mt	0.25 Mt
<b>2008</b>	3.2. Mt	\$33 Million	\$82 Million	5.467 Mt	0.57 Mt
<b>2009</b>	3.8 Mt	\$49 Million	\$63 Million	4.22 Mt	1.2 Mt
<b>2010</b>	3.9 Mt	\$49 Million	\$70 Million	4.667 Mt	1.9 Mt
<b>2011</b>	4.9 Mt	\$60 Million	\$55 Million	3.8 Mt	1.7 Mt
<b>Total</b>	<b>16.8 Mt</b>	<b>\$201 Million</b>	<b>\$313 Million</b>	<b>21.02 Mt</b>	<b>5.62 Mt \$67 Million**</b>

\* Half Year

\*\* Estimates - Alberta Environment



# Major Accomplishments & Trends

- Only fully operational regulatory emission reduction and trading program in North America
- 32.3 million tonnes of GHG emissions avoided from Business as Usual\*
- 17 million tonnes of emission offsets used for Compliance to Date\*
- \$312 million into the Climate Change and Emissions Management Fund\*
- Almost \$600 million spent by emitters on Compliance Mechanisms
- Re-valuation of Program - September 2014
- Anticipated Cleantech Fund Price Increase between 2012 and 2014
  - Expected to graduate to \$30 per tonne by 2020
  - Stakeholder meetings should be part of the process
  - Different sectors could be impacted differently

\* Alberta Environment

# Challenges & Improvements

- Problems with Verification on certain projects
- Lack of Certainty of re: Acceptance of Offsets by Alberta Environment
- Lack of market mechanisms to facilitate easy trading
- <sup>\*</sup> Discrepancy in negotiating power and sophistication between Project Developers and Emitters
- Lack of Creditworthiness of many Project Developers
- More stringent verification guidelines and protocols being introduced
- Experience and improvement of communication of guidelines

\* Alberta Environment

# CCEM Fund

- Climate Change and Emissions Management Fund created to:
  - receive contributions from emitters
  - invest in development and application of transformative technologies
- Independently managed by the Climate Change and Emissions Management Corporation
- Mandate to reduce GHG emissions and adapt to climate change by supporting the discovery, development and deployment of clean technologies
- \$ 55 Million contributed in 2011 Compliance year
- **\$314 million** contributed to date

# CCEM Fund

- Round 1 invested in 16 Projects:
  - Renewable Energy (\$37.5 million) Energy Efficiency Projects (\$5.7 million)
  - Cleaner Energy Production 0 \$23.3 million
  - CCS \$4.8 million
  - Estimated \$308 million in total project value
- Round 2 and 3 invested in 11 Projects:
  - 5 Renewable Energy (\$27.65 million) (\$170 million in total project value)
  - 6 Energy Efficiency Projects (\$27.2 million) (\$168 million in total project value)

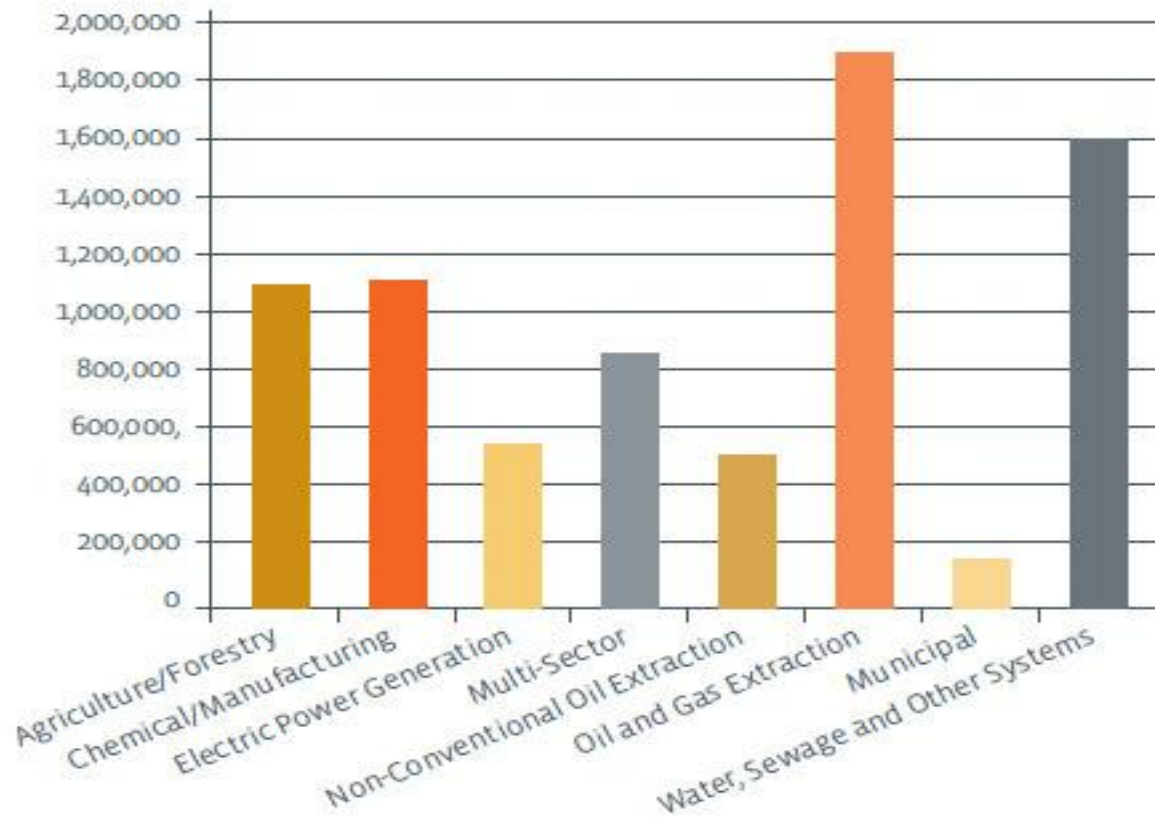
# CCEM Fund

## Progress to Date

- 27 Projects funded with \$126 million to date – supporting projects valued at \$632 million (Each \$1 invested is leveraged with an additional \$4)
- Additional projects announced to be allocated additional funds ( 3 Adaptation – Uncertain no. of biological source reduction projects)
  - Alberta Tree Improvement - \$3 million
  - Alberta Biodiversity Project - \$2.4 million
  - Watershed Management Project - \$1.6 million
- Projects announced to May 2011 estimated to cut a combined 8 million tonnes of emissions in the next decade

# CCEM Fund

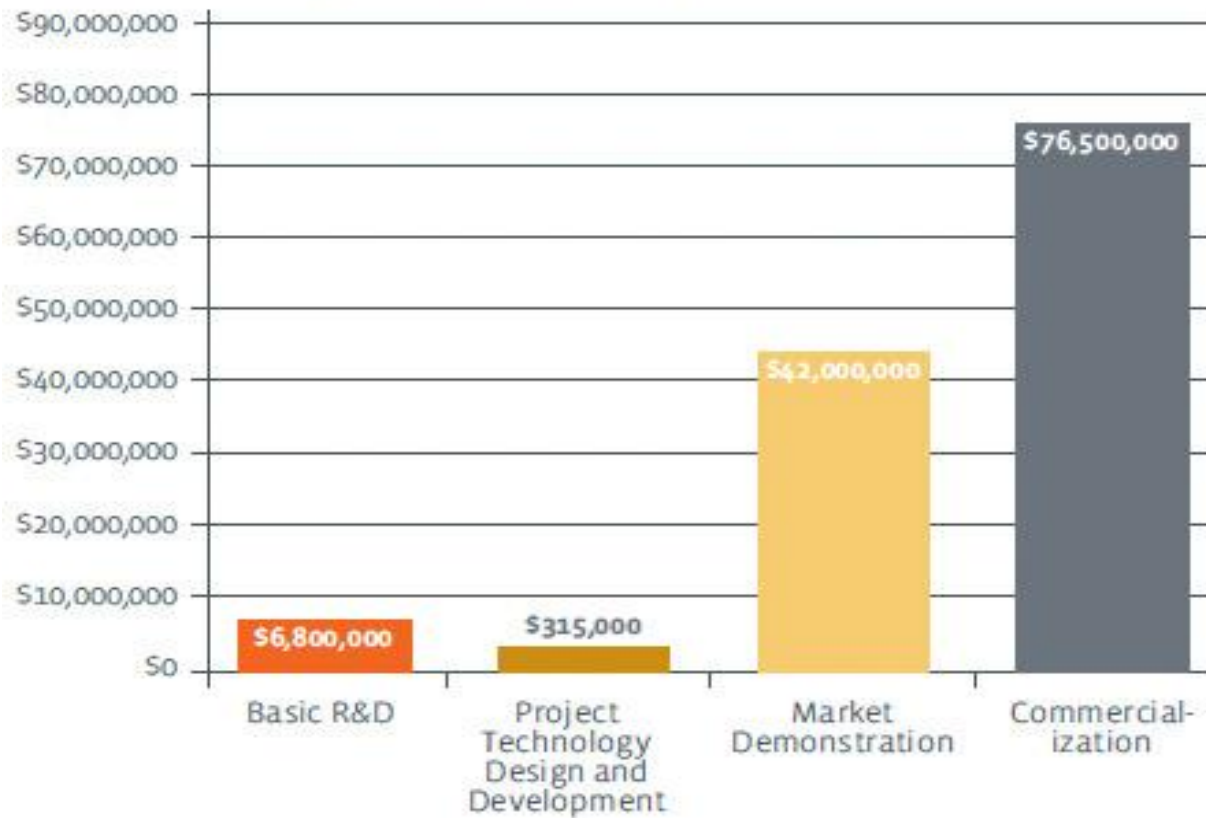
**Emission Reductions by Industry Sector\***  
(tonnes CO<sub>2</sub>e/decade)



• CCEMC 2010/2011 Annual Report

# CCEM Fund

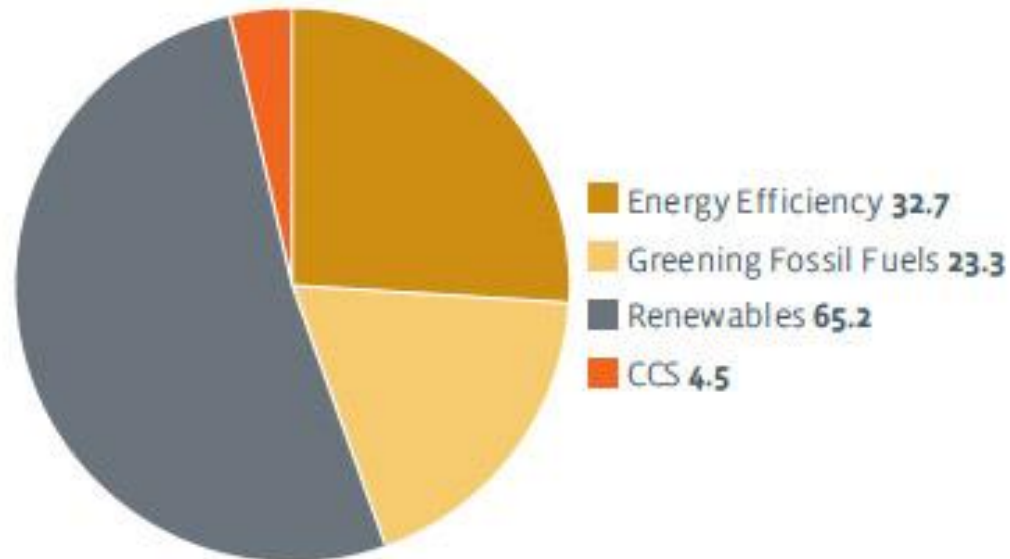
CCEMC Funding by Innovation Step



•CCEMC 2010/2011 Annual Report

# CCEM Fund

**CCEMC Funding by Strategic Investment Area**  
(5 millions)

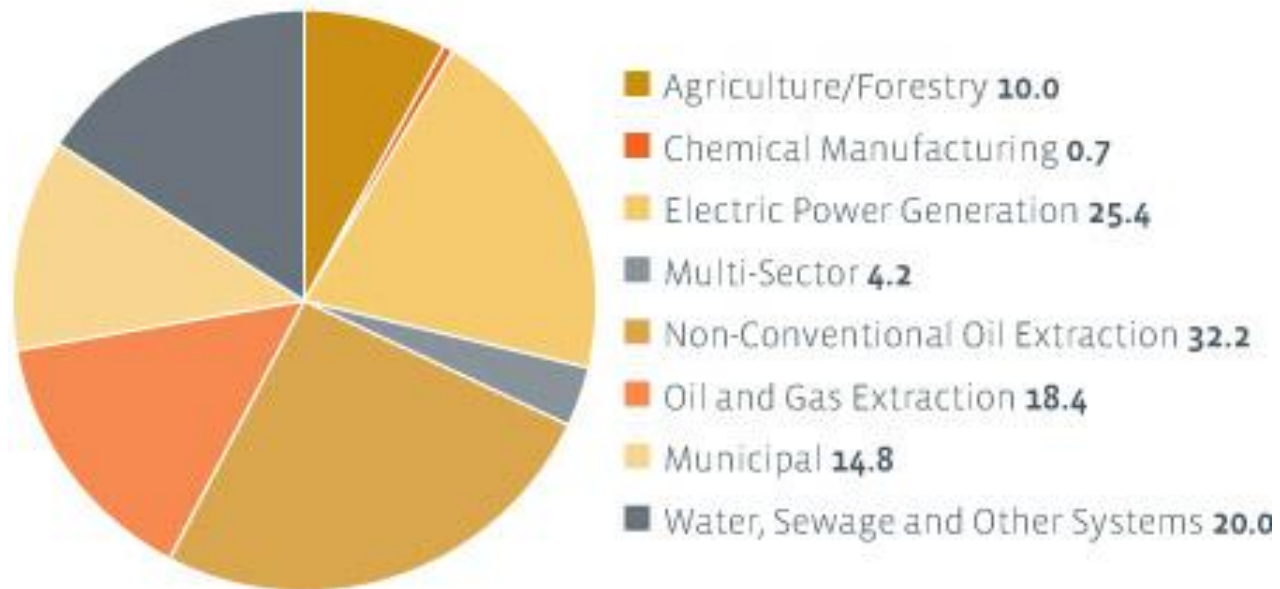


•CCEMC 2010/2011 Annual Report



# CCEM Fund

**CCEMC Funding by Industry Sector\***  
(\$ millions)



•CCEMC 2010/2011 Annual Report

# CCEM Fund

- Current Project Calls for
  - Energy Efficiency Projects (Deadline July 5, 2012) - \$40 M
  - Renewable Energy Projects (Deadline September 27 2012) - \$40M
  - Will match only up to 1/3 private-sector cash contributions
- Stronger Validation and Verification Processes in Place
- Opportunity for Industry to:
  - Recoup a portion of its contributions to the Tech Fund
  - Leverage its investment in new Cleaning Energy Production Technologies

\*<http://ccemc.ca/projects>

# North American Climate Exchange (NACX)

- Calgary based Climate Exchange
- Dealing in Spot Market – no futures/derivatives
- Objective is to improve/streamline trading process by:
  - Standardizing Agreements
  - Improving Closing Process
  - Centralizing market for buyers and sellers
  - Providing price and volume transparency to members
- Currently facilitating trades in Alberta Offsets and EPC's
- Approx. 300,000 tonnes traded to date
- 284,000 tonnes posted for sale currently

# NACX

- Plan to branch into other environmental compliance units
  - RECs, NOx and SOx offsets, Renewable Fuel Compliance Units, etc.
- Membership and Transaction Fees (3%)
- Currently 5 members with new applications pending
- In process of linking to Alberta Emission Offset Registry
- Central Market place could stimulate increased project development since process is simplified and seller friendly
- Could eventually assist in linking Alberta to other markets

# Emission Reduction Programs Outside Alberta

- **Western Climate Initiative (WCI)**
- Target to cut GHG emissions to 15% below 2005 levels by 2020
- WCI Partners include a number of large jurisdictions such as California, B.C., Ontario and Quebec, all of whom have enacted legislation and regulations
- Manitoba also a partner
- California and Quebec have agreed to link their offset trading systems
- Planning to conduct a joint allowance auction this fall
- Quebec on course to start enforcing cap-and-trade program in 2013
- Canadian partner provinces represent about 46% of Canadian GHG emissions, 79% of Canada's Population and 76% of Canadian GDP\*

\* WCI Design Summary

# Emission Reduction Programs Outside Alberta

## Non WCI Jurisdictions and Regulation

### Saskatchewan

- Management and Reduction of Greenhouse Gases Act - Not Proclaimed
- Draft Management and Reduction of Greenhouse Gases Regulations
- Program is similar to Alberta although designed to phase in more slowly with 2% reductions annually

# Federal Emission Reduction Programs

## Federal Government Approach

- Feds have changed their approach from Cap and Trade to direct sector by sector emissions regulation
- Renewable Fuels Regulation
  - Provides for the cooperation of the renewable and non-renewable fuel sectors in Canada
  - 5 percent renewable fuel content requirement for gasoline produced or imported in Canada
  - 2 percent renewable fuel content requirement for diesel and heating fuel
  - Market mechanism allows renewable fuel producers to sell compliance units to non-renewable fuel producers/importers (very similar to Alberta Offset Program)

# Federal Government Approach

## Reduction of Carbon Dioxide Emissions from Coal-Fired Generation of Electricity Regulations

- Proposed to come into Effect in 2015
  - Requires coal fire generation plants reaching their end of their useful life (later of 45 years from a unit's commissioning date or the end of their power purchase agreement) to meet a stringent performance standard (375 tonnes of CO<sub>2</sub>/GWh) or be de-commissioned
  - Objective is to phase out high emitting coal fire plants
  - Certain provinces will be impacted more severely than others (Alberta and Saskatchewan)
  - Equivalency Agreements are being discussed to take into account emission reduction actions already in place, such as Alberta's SGER
  - Nova Scotia and Feds have announced an equivalency agreement\*

\* Environment Canada <http://www.ec.gc.ca/default.asp?lang=En&n=714D9AAE-1&news=C57FE6E9-8B0D-487E-8B31-58B3FE776DBC>



# Federal Government Approach

## Impact on Alberta's Electricity Sector

- Electricity demand forecast to grow by over 40,000 GWh per year between 2011 and 2025
- Alberta will need to build at least 5,000 MW of new generation capacity
- Proposed CO2 regulations will cause the retirement of about 500 MW of existing coal-fired generating capacity by 2020 and a further 1,600 MW by 2025
- Some of this capacity would likely retire regardless of the proposed regulations, but a portion may have continued to operate for several years

\* Environment Canada <http://www.ec.gc.ca/default.asp?lang=En&n=714D9AAE-1&news=C57FE6E9-8B0D-487E-8B31-58B3FE776DBC>

# Federal Government Approach

## Reduction of GHG's from Motor Vehicles

- Motor vehicles produced 27% of GHGs in Canada in 2007 (200MT)\*\*
- Lightweight vehicles accounted for about 12% (89 MT)\*\*
- Proposed *Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations* (the proposed Regulations) to reduce GHG emissions by mandating GHG emission standards for new vehicles of the 2011 and later model years that are aligned with U.S. standards\*
- Proposed regulations to reduce GHG emissions from new on-road heavy-duty vehicles in concert with United States
- Canada intends to implement regulations with the 2014 model year in alignment with the United States\*\*
- Objective to reduce GHG emissions from Canada's heavy-duty vehicles by 3 million tonnes per year by the year 2020

\* Canada Gazette, <http://www.gazette.gc.ca/rp-pr/p1/2010/2010-04-17/html/reg1-eng.html>

\*\* Environment Canada, <http://www.ec.gc.ca/default.asp?lang=En&n=714D9AAE-1&news=8E1D0595-47C2-4B34-8DF3-7F86D3B6B210>

# Federal Government Approach

- Achieving Copenhagen Accord 17% target by 2020 will require Canada to reduce GHG emissions by **243 million tonnes** from the forecast “business as usual” case emissions of 850 million tonnes\*
- In the United States, over 40 per cent of the conventional coal-fired generating units are more than 50 years old with many scheduled for retirement by 2020
- Efforts so far by both federal and provincial governments, including the reductions resulting from the proposed regulations on coal-fired generating capacity, are expected to reduce annual GHG emissions by 65 million tonnes by 2020, leaving a **gap of about 178 million tonnes**\*

\* Environment Canada. Canada's Emission Trends. July 2011 – <http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=E197D5E7-1AE3-4A06-B4FC-CB74EAAAA60F>

# Federal Government Approach

## Emissions From Oil and Gas and Oil Sands

- Proposed Coal Fire Emissions Regulation only expected to reduce emissions by up to 5 Mts by 2020, with more reductions beyond that
- This means that it is highly likely the oil and gas sector is in line to be subject to more stringent regulation
- Discussions have already begun between the province and the federal government about regulating emissions from oil and gas and oil sands extraction

\* Environment Canada. Canada's Emission Trends. July 2011 – <http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=E197D5E7-1AE3-4A06-B4FC-CB74EAAAA60F>

# Questions?

# Contact Us

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