Alberta Greenhouse Gas Profile

- Large facilities covered by Specified Gas Emitters Regulation (45%)
- Renewable fuel standard impacts transportation
- Offsets and funding programs for other sectors
Actions to Date

• Energy Efficiency and Conservation
  – incentive programs (residential, commercial, agricultural)
  – Municipal Climate Change Action Centre
  – GreenTRIP - $2 billion towards public transit
  – Regulation – Specified Gas Emitters Regulation

• Carbon Capture and Storage
  – $1.24 billion for two large-scale CCS projects, 2.76 Mt per year reduction by 2017
  – Regulatory Framework Assessment and offset protocol complete

• Greening Energy Production
  – Provincial generating capacity
    • Hydro, Wind, Solar and Biomass – 15 per cent (70% increase since 1998)
  – Bioenergy Producer Credit Program
    • $440 million over 5 years will support 30 bioenergy facilities until March 2016

• Renewable Fuels Standard Regulation, Micro-generation Regulation, etc.
Climate Change and Emissions Management Act (2003)

<table>
<thead>
<tr>
<th>Regulations</th>
<th>Issued</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specified Gas Reporting Regulation</td>
<td>2004</td>
</tr>
<tr>
<td>Specified Gas Emitters Regulation</td>
<td>2007</td>
</tr>
<tr>
<td>Administrative Penalty Regulation</td>
<td>2007</td>
</tr>
<tr>
<td>Climate Change and Emissions Management Fund Administration Regulation</td>
<td>2009</td>
</tr>
<tr>
<td>Renewable Fuels Standard Regulation</td>
<td>2010</td>
</tr>
</tbody>
</table>
Regulatory Approach to Manage Emissions

Climate Change and Emissions Management Act (2003)
Specified Gas Emitters Regulation (2007)

- regulating large industry (≥ 100,000 t CO₂e per year, over 100 sites)
- existing facilities required to immediately reduce per unit GHG output
  - currently 12% reduction stringency
  - 2016 increases to 15% stringency and 2017 increases to 20% stringency
- new facilities ramped up from operating years 4 to 9 to full stringency requirements
- Compliance flexibility
  - reduce emissions at facility
  - use emission performance credits
  - purchase serialized Albert-based carbon offset credits
  - pay into the Climate Change and Emissions Management Fund (dedicated fund defined in legislation)
    - currently $15/tonne
    - 2016 increases to $20/tonne and 2017 increases to $30/tonne
Alberta Carbon Offset System

**Primarily Alberta-based**
- credits must originate in Alberta to be used for Alberta’s regulatory requirements
- can be sold outside Alberta (but must be retired from system)
- may be retired in or outside Alberta for voluntary systems

**Foundation of quantification**
- 32 approved protocols
- ISO-based verification by third parties
- guidance on protocol development, project reporting and verification

**Since 2007**
- 24.3 Mt of offsets retired
- 35 Mt registered
Regulatory Compliance Results 2007-2014

- 61 Mt of emissions avoided (from BAU)
- $578 million paid into the Climate Change and Emissions Management Fund

<table>
<thead>
<tr>
<th>Compliance Cycle</th>
<th>Total Avoided Emissions</th>
<th>Fund Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>At Facility Reductions and Cogen</td>
<td>Offset Credits</td>
</tr>
<tr>
<td>2007 (half year)</td>
<td>2.88 Mt</td>
<td>0.88 Mt</td>
</tr>
<tr>
<td>2008</td>
<td>3.93 Mt</td>
<td>2.68 Mt</td>
</tr>
<tr>
<td>2009</td>
<td>3.55 Mt</td>
<td>3.74 Mt</td>
</tr>
<tr>
<td>2010</td>
<td>3.57 Mt</td>
<td>3.85 Mt</td>
</tr>
<tr>
<td>2011</td>
<td>5.57 Mt</td>
<td>5.40 Mt</td>
</tr>
<tr>
<td>2012</td>
<td>4.61 Mt</td>
<td>3.20 Mt</td>
</tr>
<tr>
<td>2013</td>
<td>4.62 Mt</td>
<td>2.04 Mt</td>
</tr>
<tr>
<td>2014</td>
<td>8.12 Mt</td>
<td>2.55 Mt</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>36.85 Mt</strong></td>
<td><strong>24.34 Mt</strong></td>
</tr>
</tbody>
</table>
## 2014 compliance results

<table>
<thead>
<tr>
<th>Facility Count</th>
<th>Facility Count</th>
<th>% of regulated emissions</th>
<th>tonnes owed/ tonnes emitted</th>
<th>Emissions Performance Credits Submitted (kt)</th>
<th>Funds Credits Purchase (kt)</th>
<th>Offset Credits Submitted (kt)</th>
<th>Reductions at facility (kt)</th>
<th>Recognition of Cogeneration (kt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical</td>
<td>10</td>
<td>6%</td>
<td>1%</td>
<td>74</td>
<td>91</td>
<td>158</td>
<td>419</td>
<td>172</td>
</tr>
<tr>
<td>Coal Mines</td>
<td>4</td>
<td>0%</td>
<td>13%</td>
<td>-</td>
<td>39</td>
<td>38</td>
<td>(1)</td>
<td>-</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>5</td>
<td>3%</td>
<td>5%</td>
<td>36</td>
<td>269</td>
<td>0</td>
<td>(24)</td>
<td>107</td>
</tr>
<tr>
<td>Other*</td>
<td>10</td>
<td>6%</td>
<td>-7%</td>
<td>-</td>
<td>55</td>
<td>-</td>
<td>135</td>
<td>613</td>
</tr>
<tr>
<td>Gas Plant</td>
<td>29</td>
<td>4%</td>
<td>3%</td>
<td>176</td>
<td>313</td>
<td>105</td>
<td>555</td>
<td>55</td>
</tr>
<tr>
<td>In Situ</td>
<td>17</td>
<td>21%</td>
<td>-5%</td>
<td>464</td>
<td>237</td>
<td>486</td>
<td>3,414</td>
<td>932</td>
</tr>
<tr>
<td>Oil Sands</td>
<td>5</td>
<td>23%</td>
<td>3%</td>
<td>466</td>
<td>1,327</td>
<td>177</td>
<td>711</td>
<td>1,225</td>
</tr>
<tr>
<td>Pipeline</td>
<td>4</td>
<td>3%</td>
<td>21%</td>
<td>-</td>
<td>808</td>
<td>-</td>
<td>(381)</td>
<td>-</td>
</tr>
<tr>
<td>Refining</td>
<td>4</td>
<td>3%</td>
<td>3%</td>
<td>108</td>
<td>43</td>
<td>-</td>
<td>345</td>
<td>-</td>
</tr>
<tr>
<td>Power Plant - Coal</td>
<td>7</td>
<td>30%</td>
<td>12%</td>
<td>82</td>
<td>2,282</td>
<td>2,506</td>
<td>73</td>
<td>-</td>
</tr>
<tr>
<td>Power Plant - Gas</td>
<td>8</td>
<td>1%</td>
<td>7%</td>
<td>-</td>
<td>82</td>
<td>22</td>
<td>44</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>103</td>
<td>100%</td>
<td>4%</td>
<td>1,405</td>
<td>5,545</td>
<td>2,534</td>
<td>5,292</td>
<td>3,104</td>
</tr>
</tbody>
</table>

*other includes metals, minerals, forest products, and waste
Climate Change and Emissions Management Fund

- Legislation requires dedication of funds collected
  - reducing emissions or
  - improving Alberta’s ability to adapt to climate change
- Climate Change and Emissions Management Corporation established to lead investment in innovation and technology
  - $350 million invested
  - leveraged with other sources of funding to a $1.6 B
  - funds can be (and are being) invested outside Alberta
- Alberta further investing
  - $1.3B in two large scale carbon capture and storage projects
  - $2B in GreenTRIP

- $15 to 30 Per tonne of CO2
- $578 Million in Alberta’s Technology Fund
- $6:1 Leveraging
- 22 Mt Reduction by 2020
### Regulation and Ministerial Order Amendments

<table>
<thead>
<tr>
<th>Compliance Year</th>
<th>Stringency</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>12%</td>
<td>$15/tonne</td>
</tr>
<tr>
<td>2016</td>
<td>15%</td>
<td>$20/tonne</td>
</tr>
<tr>
<td>2017</td>
<td>20%</td>
<td>$30/tonne</td>
</tr>
</tbody>
</table>

#### Greenhouse Gas Emissions Reductions from Regulation update (June 2015)

- Revised Policy
- Current Policy
Other Amendments to the Regulation

- **Amendments:**
  - Extended the expiry date to December 2017.
  - Strengthens enforceability by incorporating standards.
    - Guidance is established for facility baselines, facility compliance reporting, offset project development, and facility and offset verification.
  - Established additional requirements for offset projects and offset project developers to improve compliance with carbon offset system.
  - Made administrative improvements (outdated references, definitions, etc.).
Administrative Penalty Regulation

• **Intent:** Provides the authority to issue a penalty for compliance breaches as set out in the Specified Gas Emitters Regulation and Specified Gas Reporting Regulation.

• **Amendments:**
  – Extended the expiry date to December 2017.
  – Expanded coverage to include offences related to non-compliance with standards incorporated in the Specified Gas Emitters Regulation amendments.
  – Increased penalty amounts to maintain the relevance of penalty amounts relative to the increased carbon price.
Program Details


Offset and Emissions Performance Registries

- [http://www.csaregistries.ca/albertacarbonregistries/home.cfm](http://www.csaregistries.ca/albertacarbonregistries/home.cfm)
Climate Leadership Plan highlights
Climate Change Advisory Panel report released Nov 22, 2015

4 key areas that the Alberta government is moving forward on:

• Phasing out coal-generated electricity and developing more renewable energy
  – Coal power emissions phase out by 2030
  – 30% of generation from renewables by 2030

• Implementing a new carbon price on greenhouse gas pollution
  – Extends price to all combustion
  – Industrial emitters transition to performance standard

• A legislated oilsands emission limit
  – 100 Mt CO2e limit, with provision for cogen emissions and new upgrading

•Employing a new methane emission reduction plan to reduce oil and gas methane emissions by 45% by 2025.
Questions

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http://alberta.ca/climate/index.cfm
http://esrd.alberta.ca/climate-change/default.aspx