An Industry Perspective on Canada’s Climate Change Program

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TransAlta Corporation
• Canada’s largest investor-owned electric generation and marketing company. Operations in Canada, United States, Mexico, and Australia
• 10,000 MW generating capacity, $8 billion in coal-fired, gas-fired, hydro and renewable assets
• Active on GHG trading, also NOx & SO2
• One of Canada’s largest wind energy generators.
• TransAlta is a “Large Final Emitter”…fossil base, growth focus … 31 Mt/yr Canadian GHG emissions
• First Canadian company to purchase certified emission reductions under the CDM Kyoto mechanism

Carbon represents a business risk to be managed.
There will be GHG emission reduction requirements for Canadian industry from 2008 – 12. Regulatory details are evolving, but the fundamental elements are clear.

**Large Final Emitter Regulations**
- Electricity
- O & G (Oil & Gas)
- Mining & Manuf.

**Domestic Offsets Market**
- Agriculture
- Forestry
- Landfills
- Renewables

**Technology Investment Fund**
- 9 MT’s

**Int’l Kyoto Mechanisms**
- CDM/JI

**Cdn Gov’t Price Assurance Mechanism**
- $15/t

**45 Mt’s/yr reductions from 2008-12**

Nominal cost about $600-$700M/yr
Large Final Emitters (LFE’s) will live in a “baseline and credit” world. The metric is emissions intensity – tonnes emitted per unit of production. It will work as follows:

- **Baseline intensity** (say in yr 2000)
- **Required reduction** 12%
- **Target intensity**

Compliance is achieved when:

\[
\text{[Actual emissions]} - \text{[Offsets & credits]} = \text{Target emissions} = \text{Target intensity} \times \text{production}
\]

*Each sector’s targets will be computed separately.*
The Schedule

- CO2 listed as toxic under CEPA
- Umbrella LFE regulations under CEPA
- Building working mechanisms reporting, trading, registries, compliance tools
- LFE rules finalized for each sector
- Sector-specific regulations
- Kyoto starts
- First compliance

Jan 2006
Jan 2007
Jan 2008
Jan 2009

- Cdn domestic offset system design
- Domestic offset projects eligible for credits
- Canadian Gov’t starts buying domestic and international offsets under Climate Fund

Likely an impossible timeline.
For a large emitter like TransAlta, there are several alternatives for compliance. All will likely be required:

- **TransAlta's anticipated GHG emission reduction obligation**
  - 3M – 5M tonnes/yr

- **Internal reductions**
  - Efficiency improvements, process changes, controls
  - Best option, most secure and manageable.
  - Limited potential in fossil generation, abt 10%

- **Switch Fuels / New Technology**
  - Switch to gas, hydro, renewables, install clean combustion IGCC
  - Switching not possible in short term, nor smart
  - Retrofit CO2 capture appears uneconomic today
  - IGCC promising but 10 yrs out

- **Buy offsets**
  - Domestic and international reductions by others
  - The primary option for short term compliance
  - Will ultimately be replaced by technology

- **Pay Gov’t $15/tonne**
  - The backstop option in Canada
  - Not appealing but expect many industrials will have to use

*Need to think beyond 2008-12*
<table>
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<tr>
<th>Pre-2008</th>
<th>2008-12</th>
<th>2013-2017</th>
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<tbody>
<tr>
<td>Make internal reductions as opportunities present</td>
<td>Use offsets portfolio</td>
<td>Apply technology &amp; develop more</td>
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<tr>
<td>Build an offsets portfolio early &amp; cheap</td>
<td>Buy more offsets as req'd for compliance, domestic focus</td>
<td>Use offsets as a filler.</td>
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<td>• initially international</td>
<td>Pursue commercial opportunities to build IGCC, CO2 sequestration</td>
<td>Possibly int’l linkage &amp; emissions trading</td>
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<td>• domestic when possible</td>
<td>Replace retiring plants with lower-emitting ones</td>
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<td>Invest in clean technology development</td>
<td>More renewables</td>
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<td>Build renewables</td>
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Different compliance strategies for the short, medium and long term.
From a Canadian buyer’s perspective, TransAlta sees:

**International Kyoto Mechanisms:**
- many seller countries and companies just awakening
- a struggling CDM approval process, none for JI
- aggressive Japanese buyers, growing EU, Funds
- hesitant Canadian buyers with no clear obligations

**Cdn Domestic:**
- huge development opportunities, minimal projects
- no protocols, process, instruments, registries…
- uncertainty about what will count
- hesitant Canadian buyers with no clear obligations

The picture does not look good for buyers with reduction obligations
Some LFE’s will pursue international offsets. Most will not.

Some LFE’s will pursue domestic offsets. But the Cdn Gov’t is also buying these. If the gov’t pays $15/t or more, then LFE’s won’t buy these either.

LFE’s can buy up to 9 MT’s of credits from the Technology Investment Fund. Its likely to be oversubscribed.

Net result is that most LFE’s will avail themselves of the $15/t price assurance mechanism. Gov’t will use this money to buy more offsets internationally and domestically.

*Not exactly an exciting scenario*
The Kyoto period will represent a shake out for Canadian industry. Some companies will find innovative ways to reduce emissions at lower than average costs. This represents a competitive advantage.

Other companies will simply pay their $15/tonne compliance tax. The price signal will start to be incorporated into planning and cost structures.

Longer-term, technology and renewables will be able to contribute significantly.
End

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