Canadian Biofuel Policies

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Agenda

- Alternative Fuels Policy History
- Current Policies and Programs
- Possible Future Directions

Alternative Fuels Policy History

- The first federal alternative fuels policy was the 1975 introduction of the gasoline excise tax in response to the 1973 “oil crises”. Propane and natural gas were exempted from this tax. In 1992, the exemption was extended to ethanol made from biomass and methanol.
- In 1980, Manitoba introduced tax incentives for ethanol produced from biomass in Canada. The policy drivers were rural economic development and the 1979 “oil crises”.

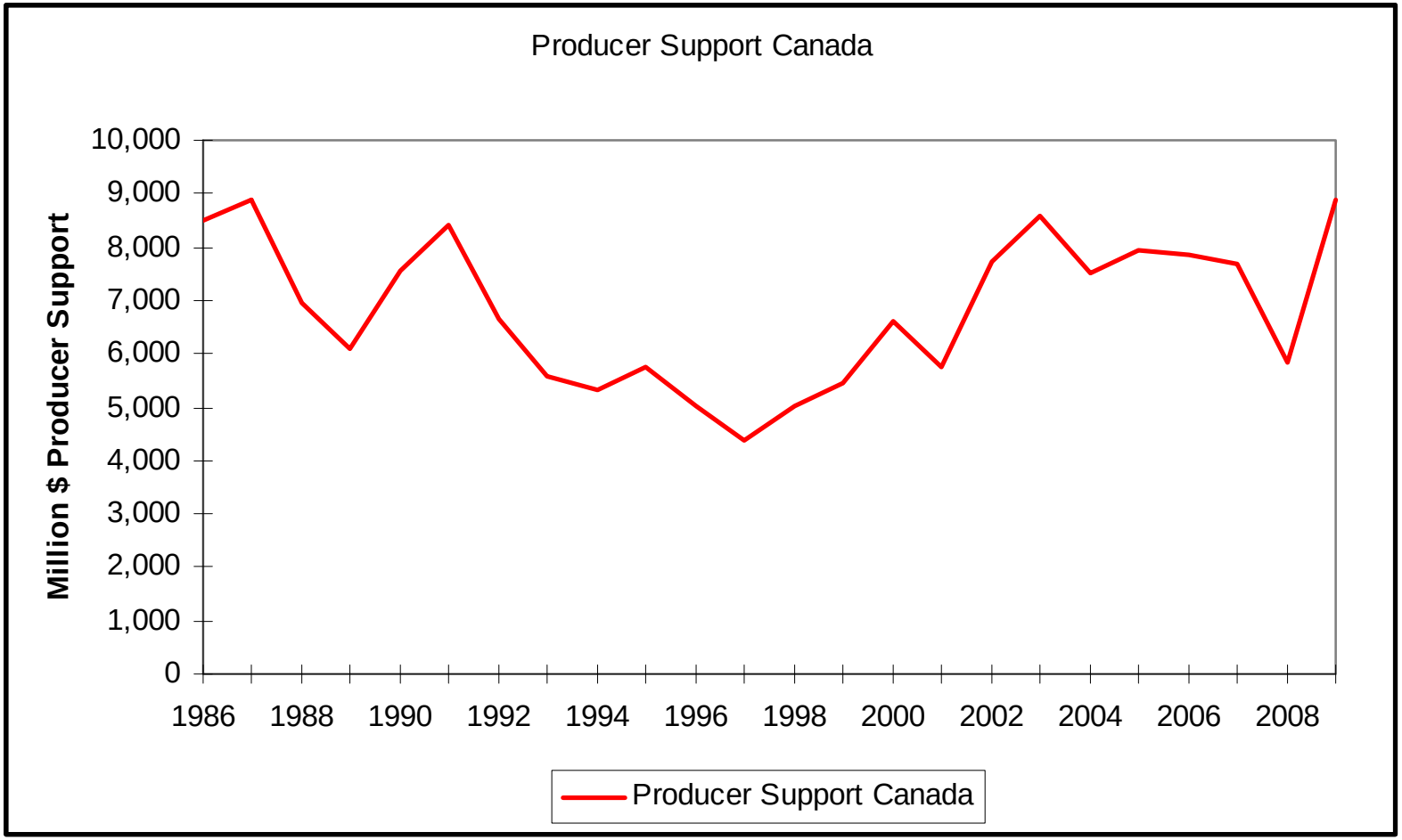
Alternative Fuels Policy History

- In 1988, Saskatchewan followed with incentives for ethanol production and use. This was followed by a number of other provinces and by 1992, there were tax incentives or tax exemptions in place from BC to Ontario along with the Federal excise tax exemption.
- Various drivers were used in the differences provinces but they were some combination of
  - Rural/economic development
  - Vehicle exhaust emission reduction
  - Energy diversification.

Alternative Fuels Policy History

- By the end of the the 1990's ethanol blends were sold by at least one marketer from Ontario to British Columbia.
- In the late 1990's agricultural support payments began to increase significantly as market prices for grains and oilseeds were below the cost of production.
- Rural economic development became a larger driver and we started to see the "next generation" of biofuel policies.

Direct Payments to Producers



Next Gen Policies and Programs

- Saskatchewan was the first province to consider an ethanol mandate. The legislation authorizing regulations with respect to a mandate were introduced in 2002, but the mandate didn't become effective until 2005.
  - Required level was ramped up to 7.5% as production capacity increased.
  - Small producer requirement.
  - Incentives for Saskatchewan producers but no requirement to use Saskatchewan ethanol.
- Ethanol industry has grown from 1 to 5 plants and the producers export to Alberta and BC. Three plants are producer owned.
- Created new opportunities for primary producers (high yielding, high starch wheat).

Next Gen Policies and Programs

- Manitoba and Ontario followed with ethanol mandates.
  - Manitoba (8.5%) tied the mandate to local production capacity, Ontario (5%) didn't.
  - Ontario coupled the mandate with capital incentives and a variable support program. Very successful program, now seven plants producing more than the mandated requirements.
- There is over compliance in all of these three provinces.

Next Gen Policies and Programs

- In 2006, the Federal government announced their Renewable Fuels strategy. It has four components.
  - Increasing the retail availability of renewable fuels through regulation.
  - Supporting the expansion of Canadian production of renewable fuels.
  - Assisting farmers to seize new opportunities in this sector.
  - Accelerating the commercialization of new technologies.

Next Gen Policies and Programs

- The drivers for the Federal strategy were;
  - Creating new economic opportunities for our farmers and agricultural sector.
  - Advancing the biobased economy.
  - Reducing GHG emissions.
- In December 2010, the ethanol mandate became effective and in July 2011, the renewable diesel mandate is expected to be implemented.

Next Gen Policies and Programs

- After the Federal announcement, several provinces moved to introduce their own mandates.
  - BC has a 5% ethanol and 5% renewable diesel requirement effective Jan 2010.
  - Alberta has a 5% ethanol and 2% renewable diesel requirement as of April 2011.
  - Saskatchewan will have a 2% renewable diesel requirement starting in 2012.
  - Manitoba has a 2% renewable diesel requirement as of Nov 2009.

Next Gen Policies and Programs

- Alberta introduced a minimum 25% GHG emission reduction requirement for qualifying renewable fuels.
- BC also introduced a Low Carbon Fuel Requirement for 2010 to 2020.
- Both provinces are using the GHGenius LCA model to determine eligibility or to determine the Carbon Index (CI) of the fuels.

Possible Future Directions

- The Alberta RFS is similar to the US EPA approach but without the inclusion of indirect land use (ILUC) emissions.
  - US EPA provides a blanket approval for all plants that fall within certain qualifying criteria.
  - Alberta requires each plant to demonstrate they meet the minimum threshold.
- The BC LCFS is patterned after the California initiative but with a few differences;
  - No ILUC.
  - Single pool for gasoline and diesel.
  - Each biofuel plant needs to calculate their own CI.

Possible Future Directions

- Transportation fuels policy development has become a lot more sophisticated and targeted over the past 40 years.
- The developments of the past several years have moved into new areas of regulation.
- But have the regulators moved ahead of the science?

Possible Future Directions

- LCA models were never designed to be used for regulatory purposes.
  - These models require a lot of data to be accurate.
  - While GHGenius probably has more data than any other model of its kind in the world, there are still data gaps.
  - Many of the other models that are being used for similar purposes, particularly in the EU, have limited, dated data, and don't recognize the significant regional variations in the processes.

Possible Future Directions

- Indirect land use modelling is even more problematic.
  - Most models are econometric models. They have thousands of undocumented assumptions.
    - Some of which have a very large influence on the results and the model developers admit are wrong.
  - They are very coarse.
  - They can not model the most likely responses from the agricultural sector.
  - The model developers are on record as recommending that they not be used to establish a regulatory framework.

The Current Situation

- BC has had to change 2011 to a reporting only year because of unforeseen complications of the single pool approach. The whole program is now under review.
- Biofuel imports into the United States have stopped due to issues complying with the RFS2 land use requirements and delays in establishing the CI numbers for commercial biofuel pathways.
  - Canada has spent more than a year working on opening up access for corn, soybeans, and canola feedstocks and biofuels.
  - Wheat ethanol would require one to two years work to get access to the US market.

The Current Situation

- Soybean exports and trade patterns to Europe have been very distorted since the implementation of the RED in Germany. GHG emissions have increased as a result.
- The California Air Resources Board is being sued by both the biofuel producers and the obligated petroleum parties over the LCFS.
  - The CARB work on program costs and possible compliance scenarios were deeply flawed.

Canadian Biofuels Policies

- Canadian biofuels policies have generally achieved the results that were originally desired.
- They have become more targeted and complex over time.
- Some programs, in Canada and elsewhere, have started to move into new areas requiring sophisticated compliance tools.
  - Much more development work is required for these tools to be effective.
  - Without this development work some of the policies will have to be significantly revised or dropped.