Plenary Session IV

Green Technology, Government Policy and Commercialization Strategy

Jim Grey, CEO, IGPC Ethanol Inc. & Chair of Renewable Industries Canada

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Next 10-20 Years……..

Driven by Two Issues

- **Government Policy & Action**
- **Technology**

…….The Two are NOT Mutually Exclusive

Existing Policy Landscape

Today, 26 biofuels plants are operating across the country. Federal legislation requires 5% ethanol content in gasoline and 2% bio-based diesel content in diesel nationally. In addition, many provinces, including Ontario, have their own volumetric requirements for gasoline and diesel fuel sold within their jurisdiction.

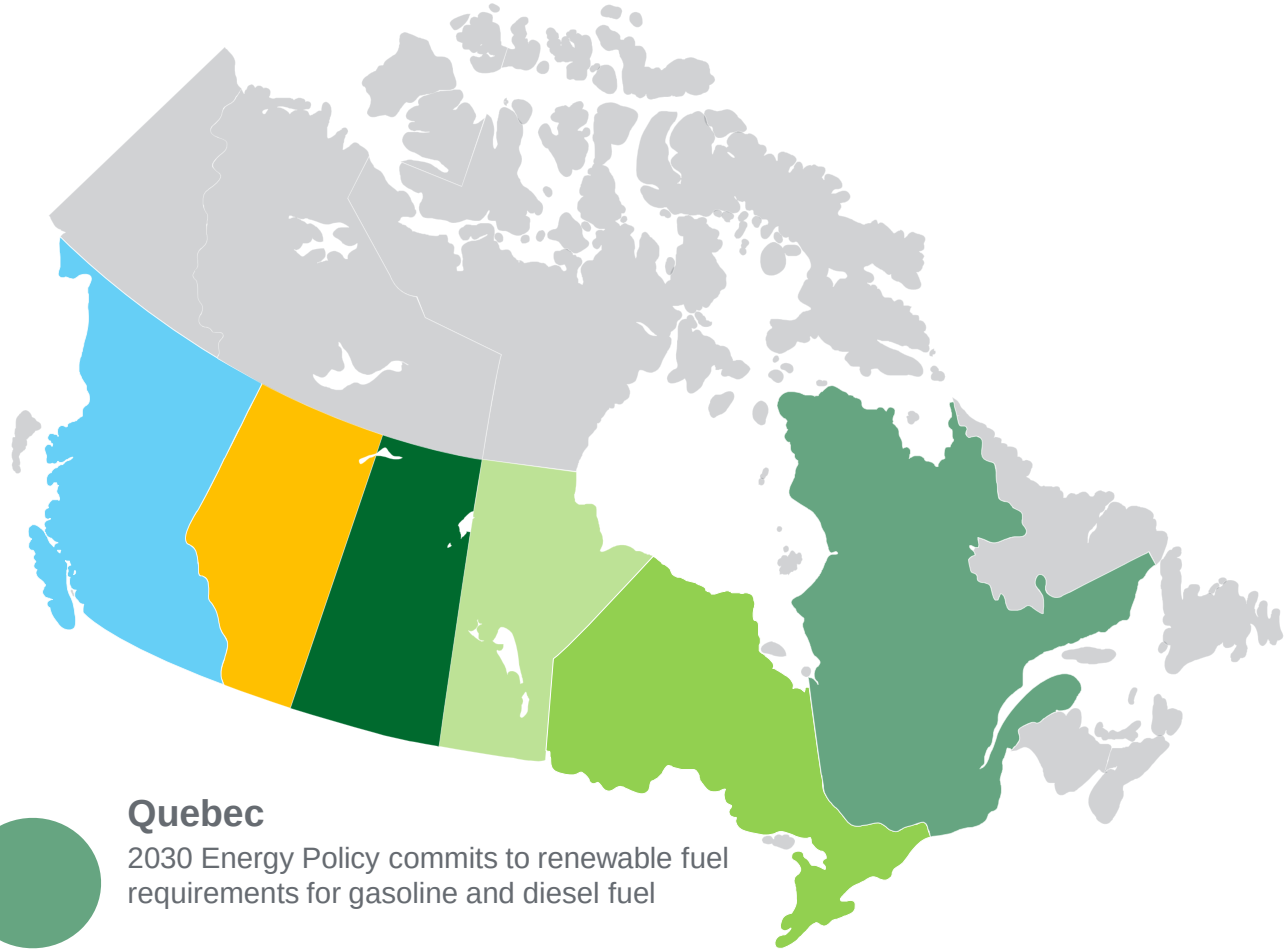
British Columbia
4% Biomass Based Diesel (10% GHG reduction in overall carbon intensity by 2020)
5% Ethanol

Alberta
2% Biomass Based Diesel (25% GHG reduction to petroleum 2020)
5% Ethanol

Saskatchewan
2% Biomass Based Diesel
7.5% Ethanol

Manitoba
2% Biomass Based Diesel
8.5% Ethanol

Ontario
4% Biomass Based Diesel (70% GHG Reduction in overall carbon intensity by 2017)
10% Ethanol with Carbon Int. Threshold



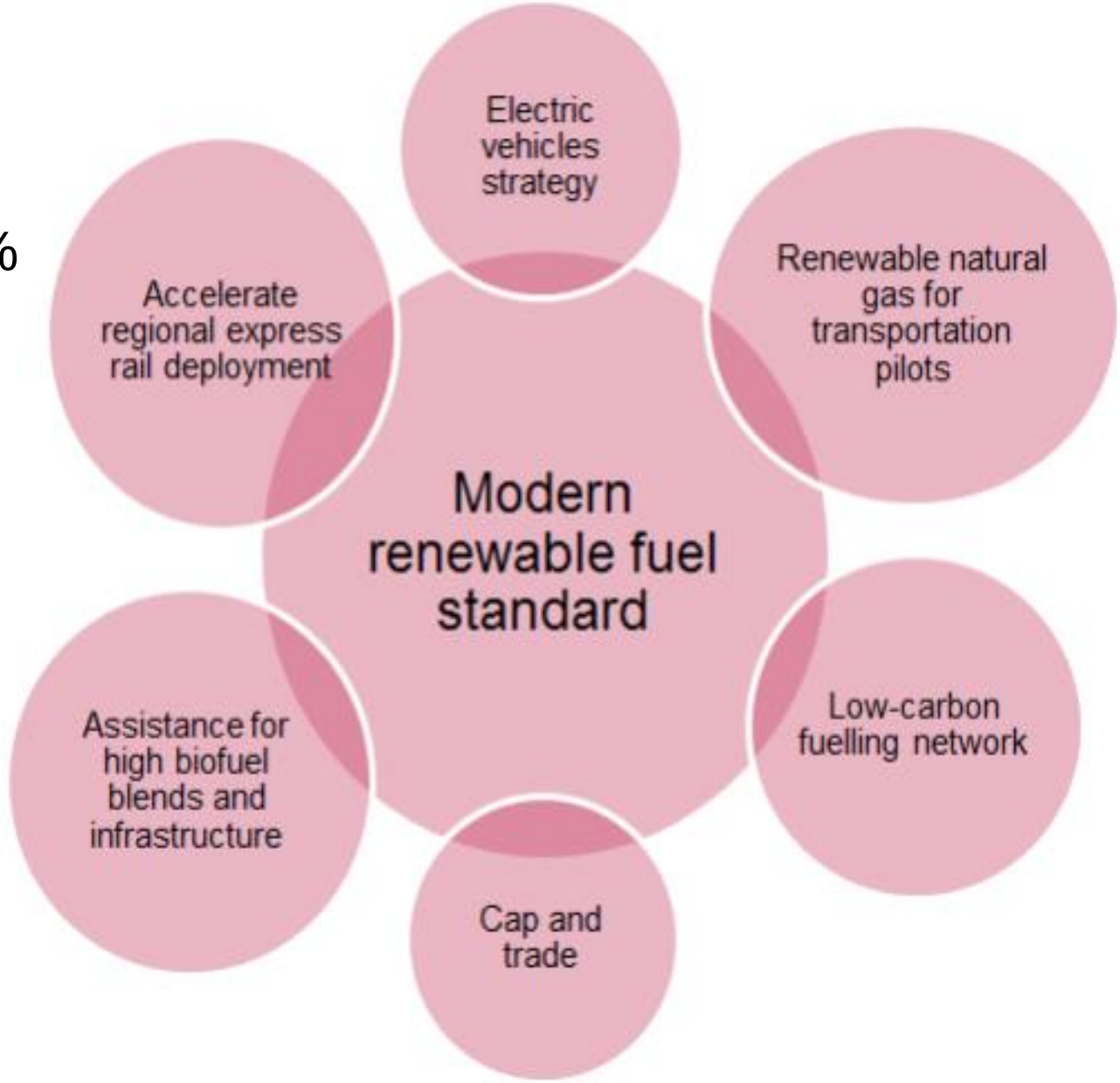
Quebec
2030 Energy Policy commits to renewable fuel requirements for gasoline and diesel fuel

Federal Government
CLEAN FUEL STANDARD

- Regulatory requirement under Canadian Environmental Protection Agency
- "…Modern, Flexible Performance Based Approach that would incent the use of a Broad Range of Lower Carbon Fuels…"
- Target is 30 megatonnes of annual reductions in GHG emissions by 2030. *(2016 Paris Accord)*
- Current 5% mandate equivalent to 4.2 megatonne reduction
- Six month delay just announced for draft regulation of liquid fuels (Spring 2019). Regulation 2020. Implementation 2022. Gaseous/solid fuels 2023.

Ontario

- Target to reduce GHG emissions by 5% by 2020
- Average renewable fuel content to increase to 10% volume in 2020
- Increase access to electricity and biofuels
- Rebates for electric vehicles *(cancelled by Ford government)*



Conclusion – Canada & Provinces

- Ontario Renewable Fuels Standard (RFS) appears secure
- General uncertainty federally (Clean Fuels Standard)
- Concern of potential loss of national RFS
- General opinion - higher blends will be required
- Canadian/Ontario ethanol will be preferred over MidWest
  - Carbon Intensity
  - Currently importing 1.25Billion Litres (Dom. Prod. is 1.7Billion Litres)
- Doubling ethanol production in Canada = 170MM bushels of corn

United States

- Uncertainty around RFS due to Trump Administration
  - Small refinery waivers
  - Exported ethanol

- NAFTA Renegotiations
  - Could ethanol sustain collateral damage?

- China

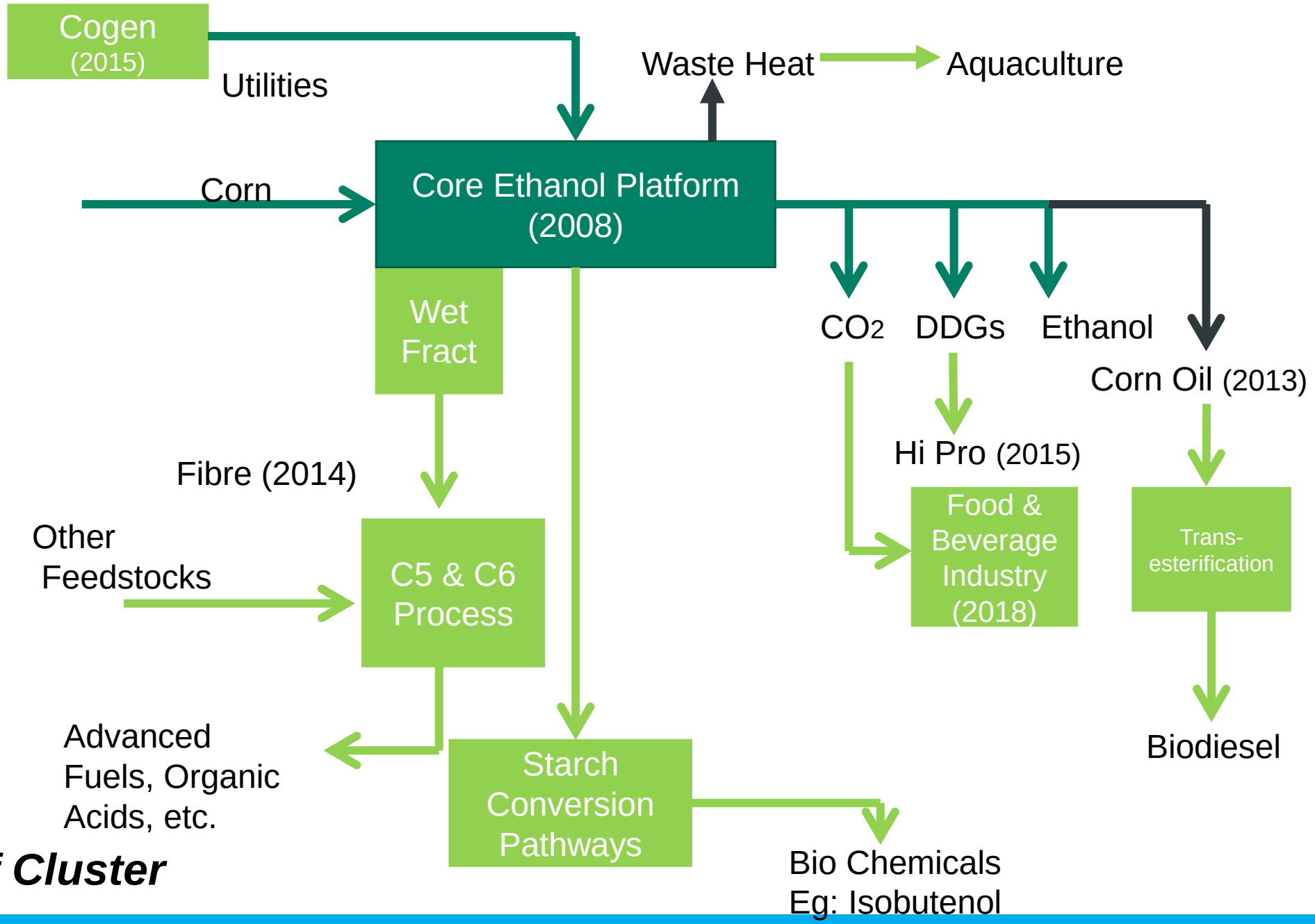
Technology

- Advancement in Next Generation Biofuels
  - Still very expensive to build out
  - Federal/Provincial programs may incent

- EV's (prior to July 2018)
  - Ontario government targets 14,000 units sold/yr by 2020
  - 50% of compound annual growth rate required to reach target
  - Does not flatten growth curve of ICE cars

- Continued investment in First Generation Ethanol
  - Cost reductions
  - Efficiency improvements

- Cluster Development



Example of Cluster

IGPC Ethanol Inc.



Future

$120 MM Expansion (May 2017 – Fall 2018)

- from 200MM litres to 400MM litres (ethanol)
- from 170,000 tonnes to 340,000 tonnes (co-products)
- increased corn purchases from 18MM to 36MM bushels (approx. 9.1% of provincial prod.)
- 1100 person-years of construction jobs
- addition of 20-25 full time jobs
- over the next 25 years, generate estimate $3.86B in economic activity, $1.18B in GDP, $527MM in wages and a total of more than 13,800 person-years of employment across the Ontario economy *(RIAS Inc. "Economic Benefits of IGPC's Planned Expansion in Aylmer, Ontario" – November 16, 2016)*
- partnered with Air Liquide Canada to construction facility to capture CO_2 - $35MM project
- continued advocacy with Federal and Provincial governments




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ETHANOL