



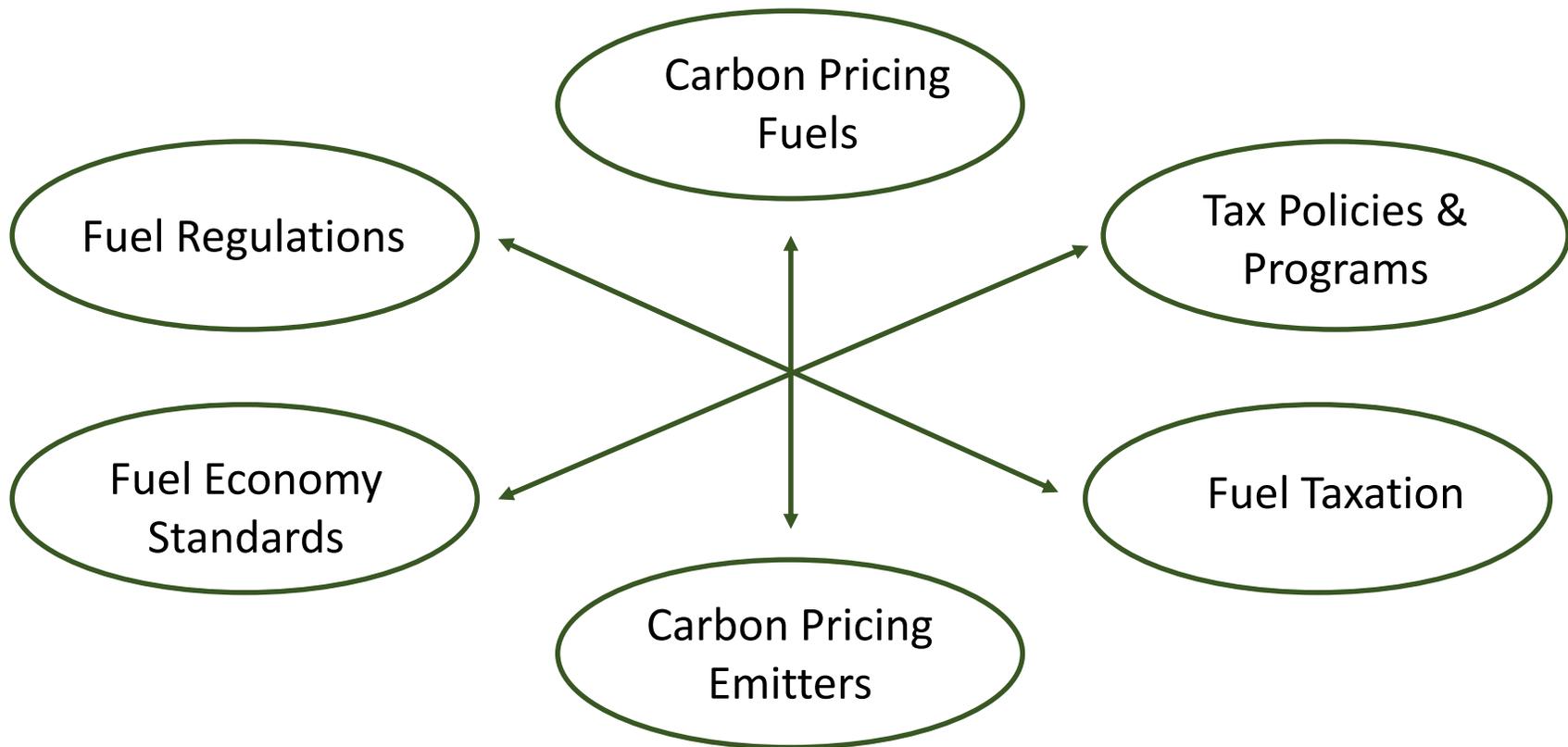
Advanced Biofuels Canada  
*Biocarburants avancés Canada*

*Decarbonizing Transportation: How Are Clean Fuel Programs Changing the Transportation Industry Paradigm to a Low Carbon Economy?  
(Part 2 – Canadian Clean Fuel Programs & Policies)*

*Doug Hooper, Director Policy & Regulation  
February 11, 2021*



# Complementary Policies



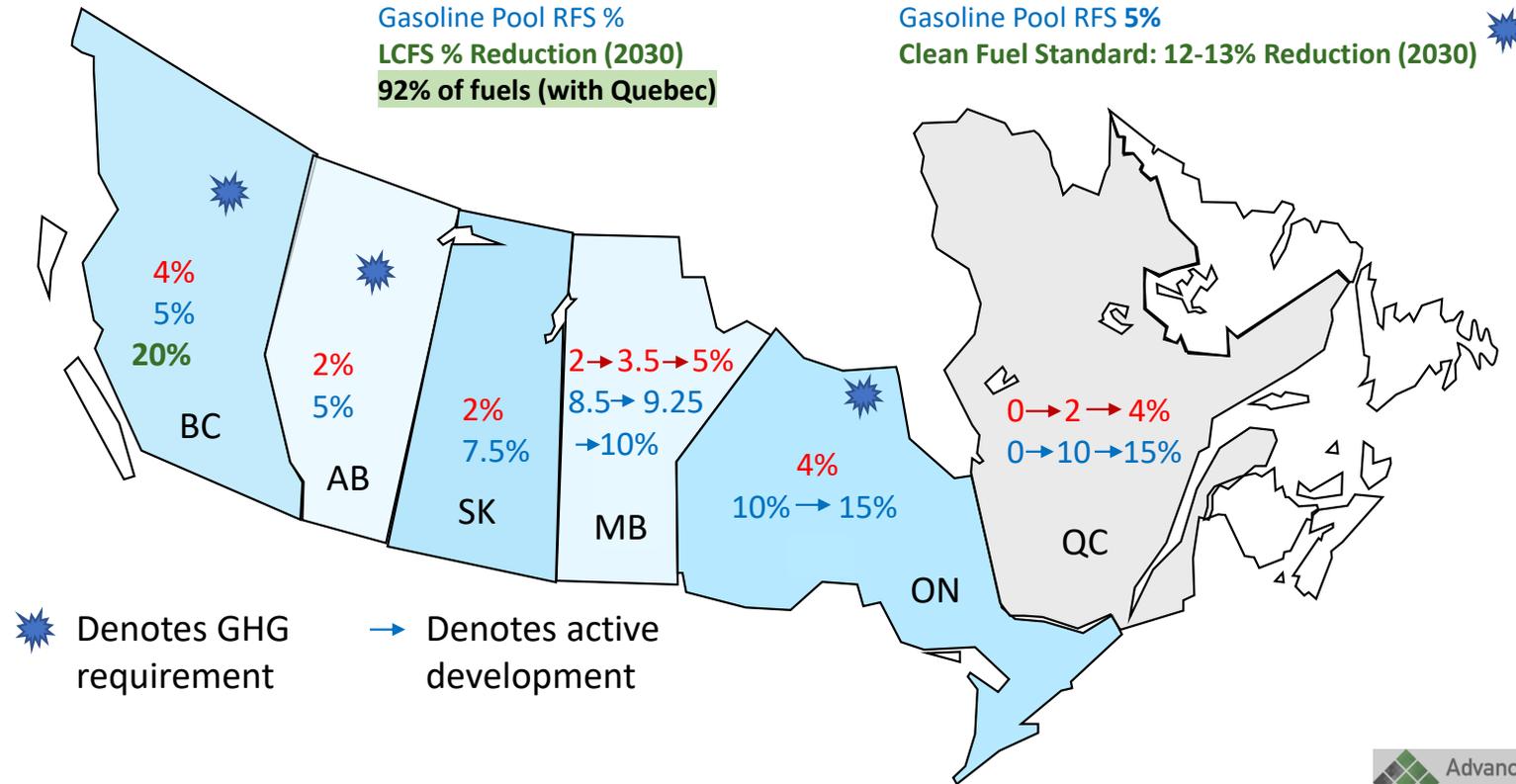
# Canadian Fuel Regulations (2021)

## Provincial Mandates

Diesel Pool RFS %  
 Gasoline Pool RFS %  
 LCFS % Reduction (2030)  
 92% of fuels (with Quebec)

## Federal Mandates

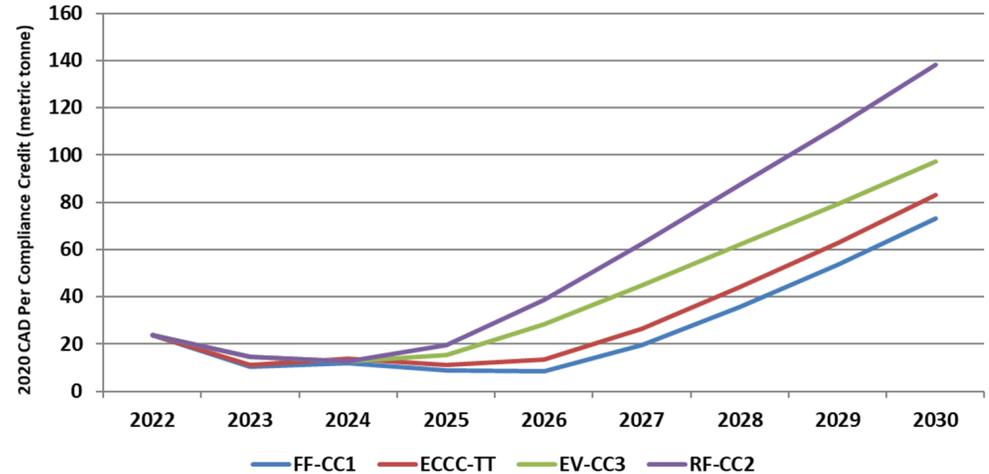
Diesel Pool RFS 2%  
 Gasoline Pool RFS 5%  
 Clean Fuel Standard: 12-13% Reduction (2030)





# Credit Value: Low Carbon Intensity Fuels

- Clean Fuel Standard compliance credits
- Stack: provincial credits (e.g. BC LCFS, ON CTF regs)
- WAEES modeling suggests biofuels compliance achieved at CAD 75 - 140/credit



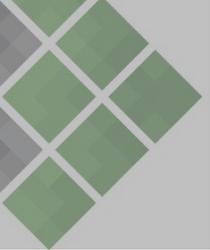


## Carbon Tax: Biofuels & Fossil Fuels

- Federal carbon charge - \$40/T (2021) to \$170/T (2030)
  - \$50/T in 2020
  - Plus \$15/year (2023-2030)

CAD (per gallon)	2022	2025	2030
Carbon Price	\$50	\$95	\$170
Gasoline	\$0.42	\$0.79	\$1.42
Diesel	\$0.51	\$0.96	\$1.73
Biofuels*	\$0.00	\$0.00	\$0.00

\* Full exemption if blend exceeds 10% in gasoline or 5% in diesel



## Market Value of Carbon - Biofuel Blends

- Combine carbon tax exemption and credit value (@ CAD 100/credit)

CAD (per gallon)	2022	2025	2030
<b>B20</b>	\$0.20	\$0.28	\$0.42
<b>B99</b>	\$1.48	\$1.93	\$2.68
<b>E25</b>	\$0.12	\$0.20	\$0.33
<b>E85</b>	\$0.68	\$0.99	\$1.52

\* Proposed *Clean Fuel Standard* carbon intensity reduction schedule & constant \$100/credit value

\* Based on canola biodiesel (AB) and corn ethanol (ON) GHGenius default carbon intensities



# Carbon Pricing: Emitters

Greenhouse Gas  
Pollution Pricing Act



GGPPA adopted in June 2018

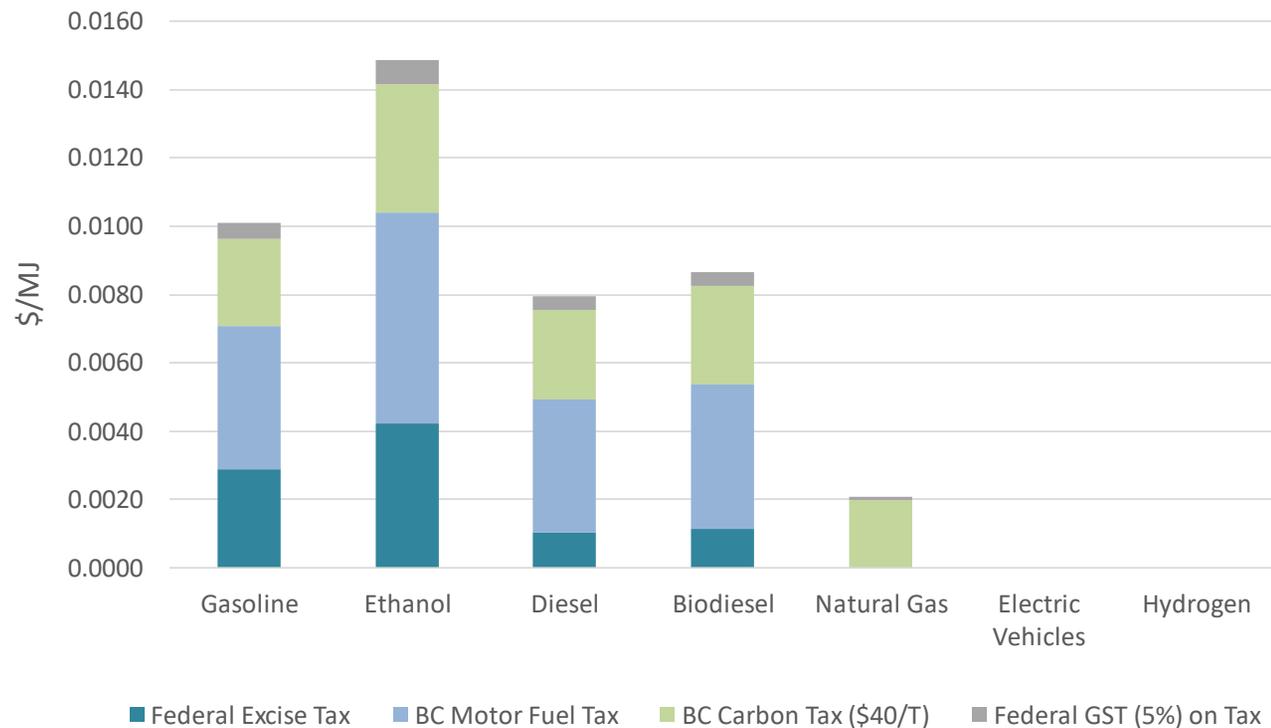
- National carbon pricing ‘backstop’ system
  - Output-Based Pricing System (OBPS) on industrial emitters
  - Stacking: OBPS + CFS

	Benchmark (% exempt)	Tightening Rate	Type	Carbon Price (\$/t 2021)
Federal <a href="#">OBPS</a>	80 – 95%	None – s.t. PCF review	Sector / products	\$40
Alberta <a href="#">TIER</a>	90%	1% p.a. to High Performance Benchmark max.	Facility	\$40
Ontario <a href="#">EPS</a>	98% 92% by 2022	2% p.a.	Facility	\$40
Quebec <a href="#">C&amp;T</a>	n/a	1-2% p.a.	Economy-wide	<a href="#">Auction</a>
Saskatchewan <a href="#">MRGG</a>		0.5% 5% by 2030		



# Transportation Fuel Taxes (2020)

- Alternative fuels and ZEV vehicles have shifted the tax burden
- Fuel tax reform needed to align funding / policy



Tax components on transportation fuels in BC

# Clean Energy - Tax Policies & Programs

- **2030 Strengthened Climate Plan (Dec 2020)**
  - 64 policy/program measures (existing, new)
  - CAD 15 billion
  - Federal income tax cut – 50% (clean sectors)

**Oil & Gas  
& Industry**



>\$4.3 billion

**Biofuels &  
Synthetic Fuels**

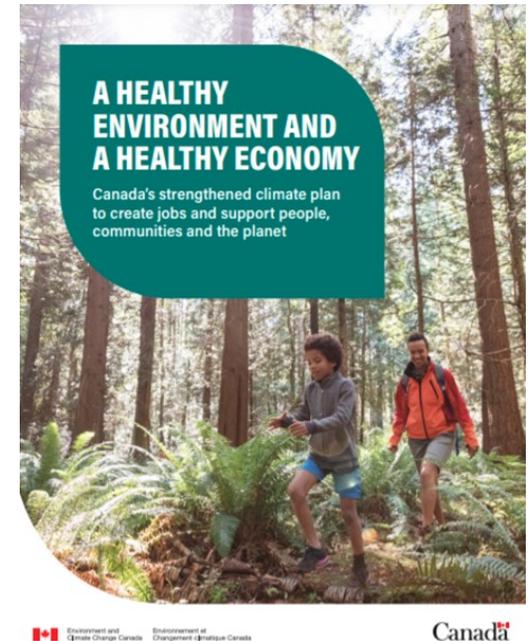


~\$1.0 billion

**Clean Power  
EVs /H<sub>2</sub>**



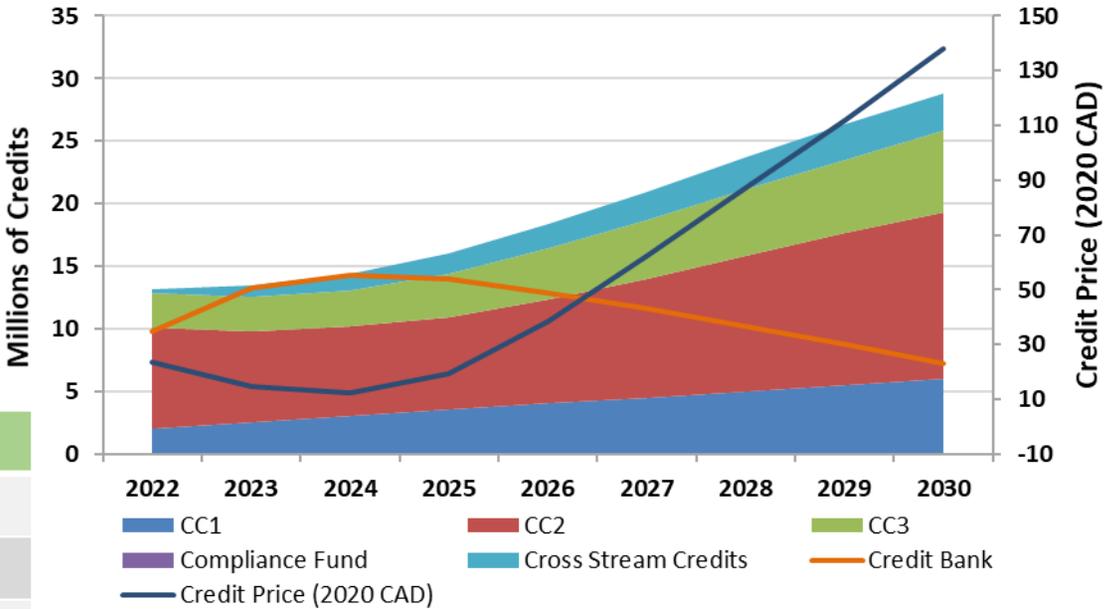
> \$7 billion



# Clean Fuel Standard - Demand

- Scenario modeling based on defined credit generation (CC1, CC3, X-stream, fund)
- Solve for biofuels

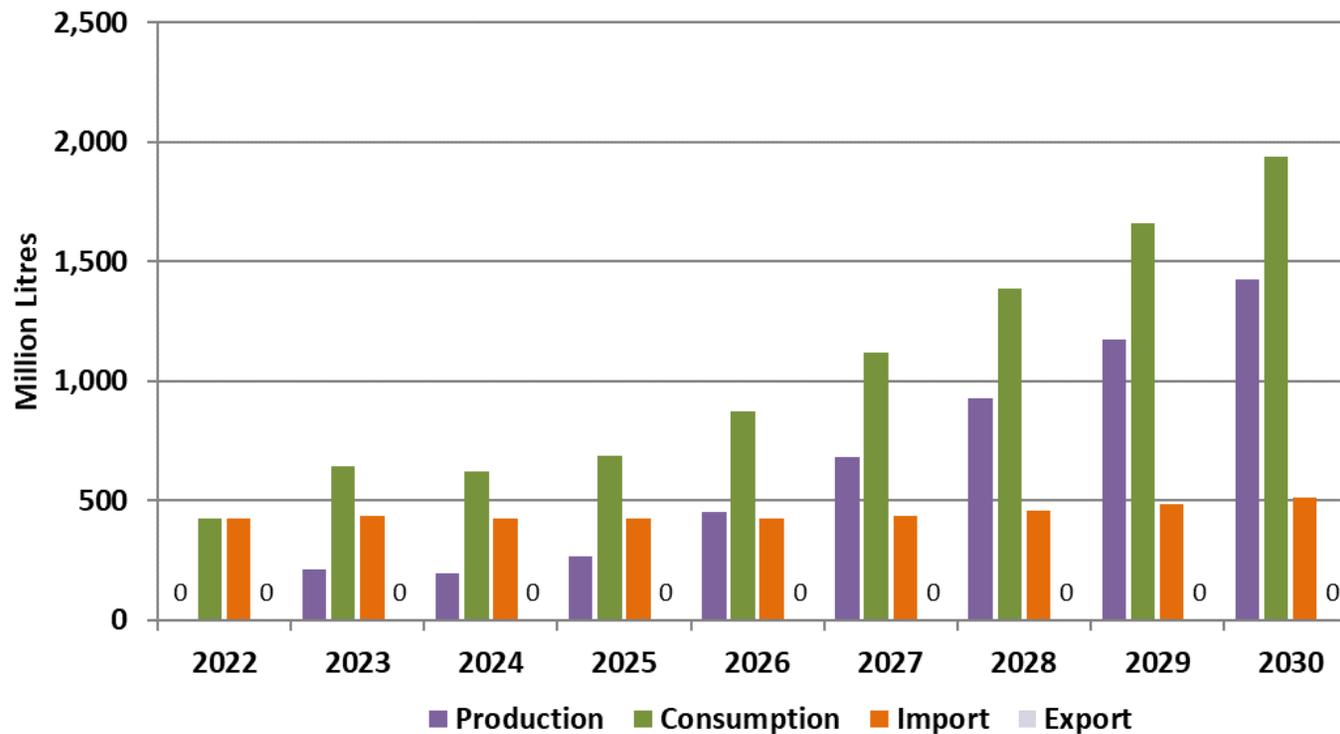
	2018	2030
Biodiesel	1.3%	3.1%
Renewable Diesel	1.2%	5.8%
Ethanol	6.5%	14.1%



Source: World Agricultural Economic and Environmental Services, Dr. John Kruze, November 2020  
*Analysis of the Implications of Canada's Proposed Clean Fuel Standard*



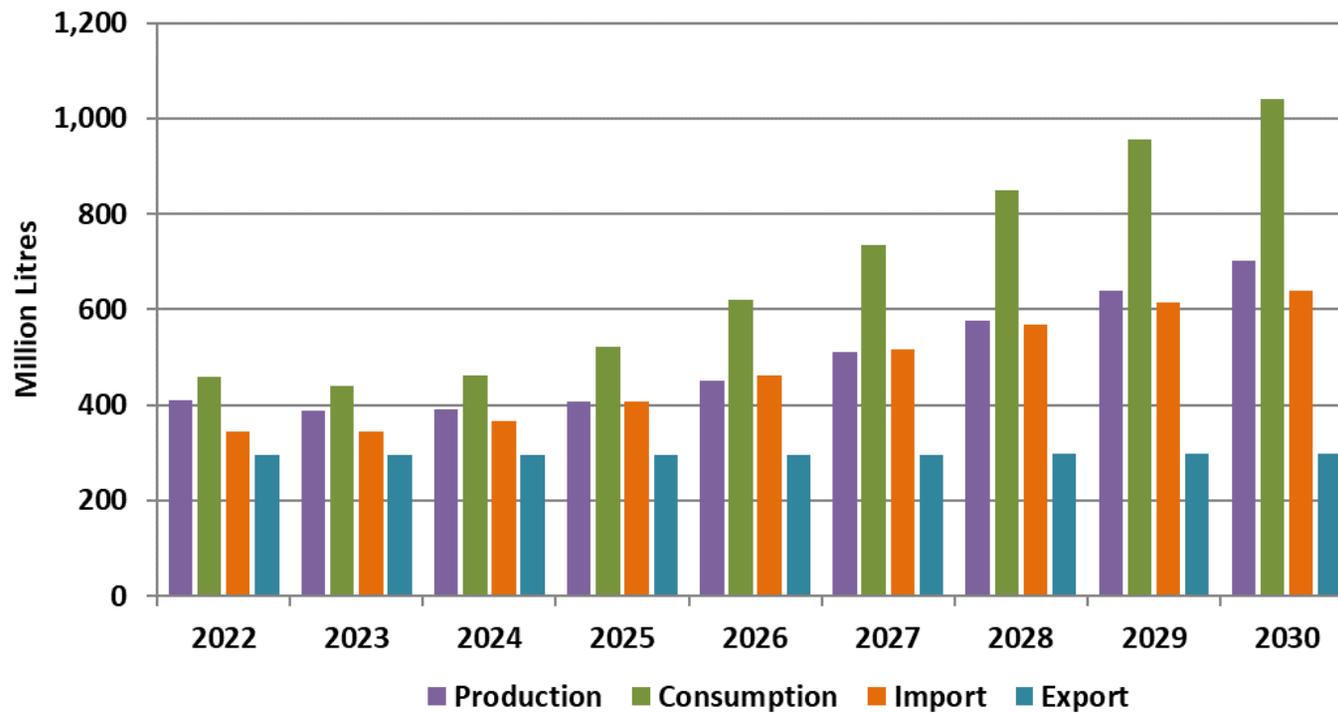
# Clean Fuel Standard Renewable Diesel & Co-processing



Source: World Agricultural Economic and Environmental Services, Dr. John Kruze, November 2020  
*Analysis of the Implications of Canada's Proposed Clean Fuel Standard*



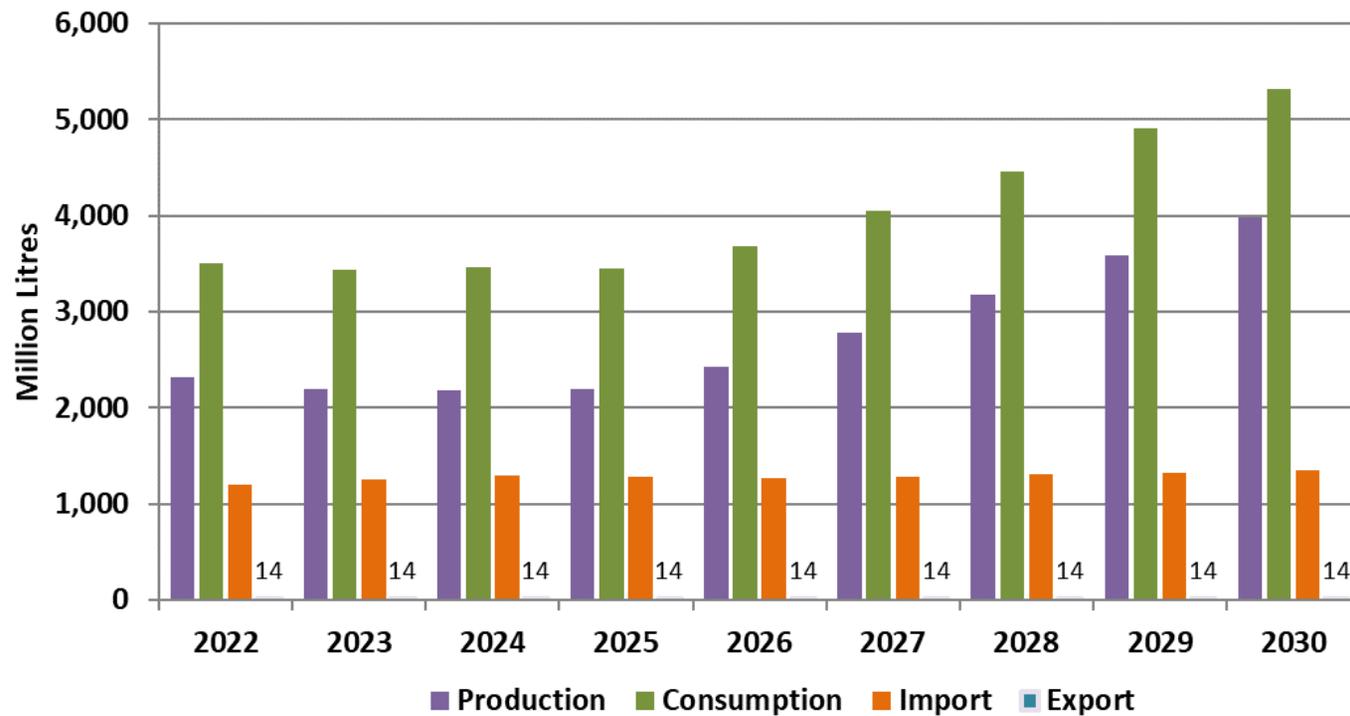
# Clean Fuel Standard Biodiesel



Source: World Agricultural Economic and Environmental Services, Dr. John Kruze, November 2020  
*Analysis of the Implications of Canada's Proposed Clean Fuel Standard*



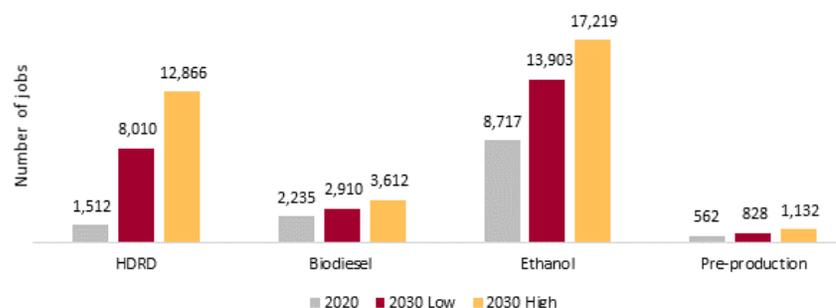
# Clean Fuel Standard Ethanol



Source: World Agricultural Economic and Environmental Services, Dr. John Kruze, November 2020  
*Analysis of the Implications of Canada's Proposed Clean Fuel Standard*

# Economic Impact & Jobs

**Renewable Fuels Scenario**  
**> 21,000 jobs**  
**+ CAD 10 billion output**



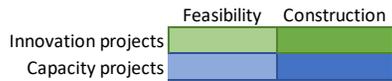
<i><b>Total Effects</b></i>	<i><b>Employment</b></i>	<i><b>Labor Income</b></i>	<i><b>Value Added</b></i>	<i><b>Output</b></i>
2020 Baseline	13,026	\$783.6	\$1,691.7	\$5,284.4
2030 Low Estimate	25,650	\$1,625.3	\$3,400.3	\$11,210.2
Increase over Baseline	12,624	\$841.7	\$1,708.6	\$5,925.8
% Change over Baseline	97%	107%	101%	112%
2030 High Estimate	34,828	\$2,062.5	\$4,350.2	\$15,217.5
Increase over Baseline	21,802	\$1,278.9	\$2,658.5	\$9,933.1
% Change over Baseline	167%	163%	157%	188%

Source: Bureau of Business and Economic Research, U of MN Duluth, January, 2021  
*Economic Impact of Current and 10-Year Projections of Biofuels Production in Canada*



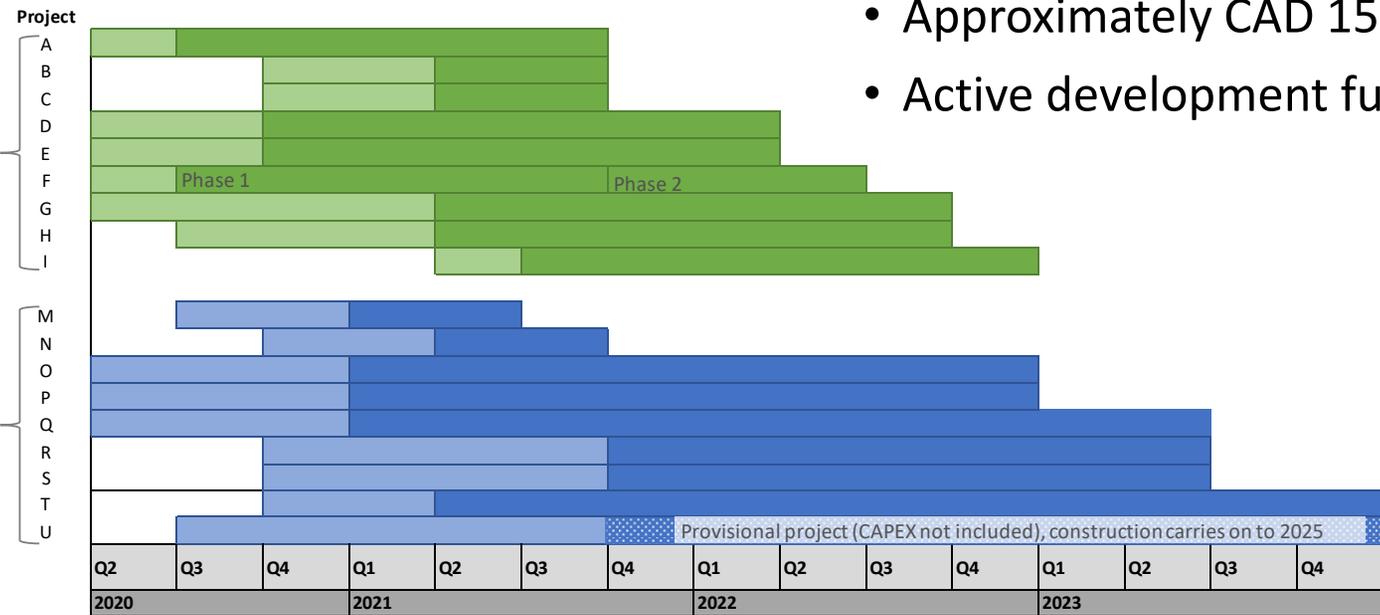
# Advanced Biofuels Canada - Capital Projects

## Shovel Ready - Fall 2020

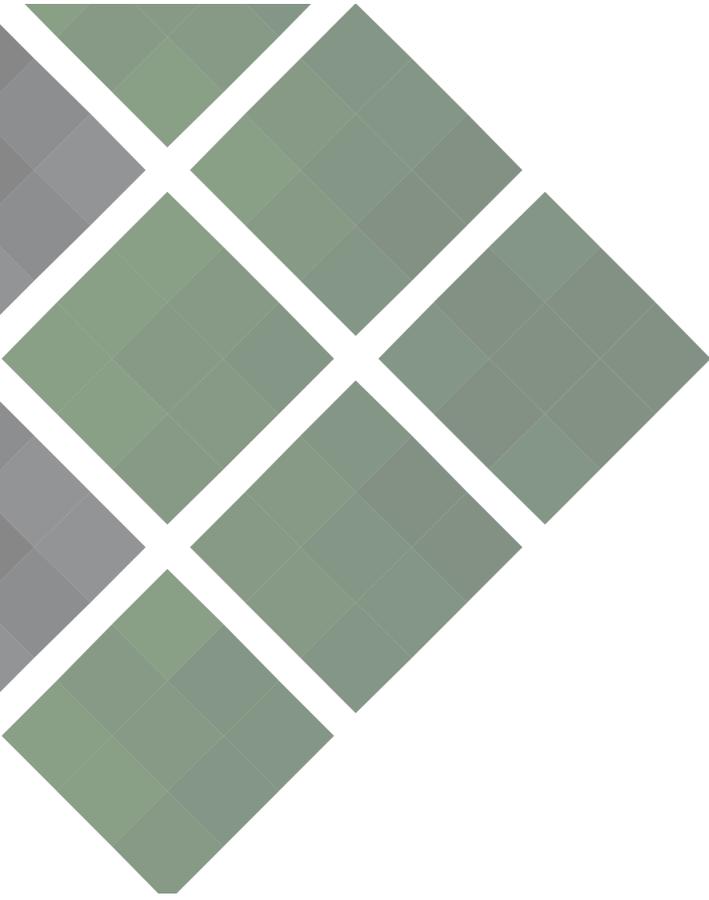


**INNOVATION**  
 Total CAPEX: \$235M  
 Project count: 9  
 Grant amount (25%): \$60M  
 Capacity gain: 29MMLY  
 Jobs (construction): 1525  
 Jobs (permanent): 400  
 Economic impact (construction): \$300M  
 Economic impact (annual): \$585M

**CAPACITY**  
 Total CAPEX: \$2.2B  
 Project count: 9  
 Grant amount (25%): \$555M  
 Capacity gain: 1,350MMLY  
 Jobs (construction): 14,465  
 Jobs (permanent): 3,783  
 Economic impact (construction): \$2.9B  
 Economic impact (annual): \$5.6B



- 60+ capital investment projects
- Approximately CAD 15 billion
- Active development funnel



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[www.advancedbiofuels.ca](http://www.advancedbiofuels.ca)

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