

# Scaling Up

November 27, 2024



Canadian Fuels  
ASSOCIATION

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canadienne des carburants

[canadianfuels.ca](http://canadianfuels.ca)

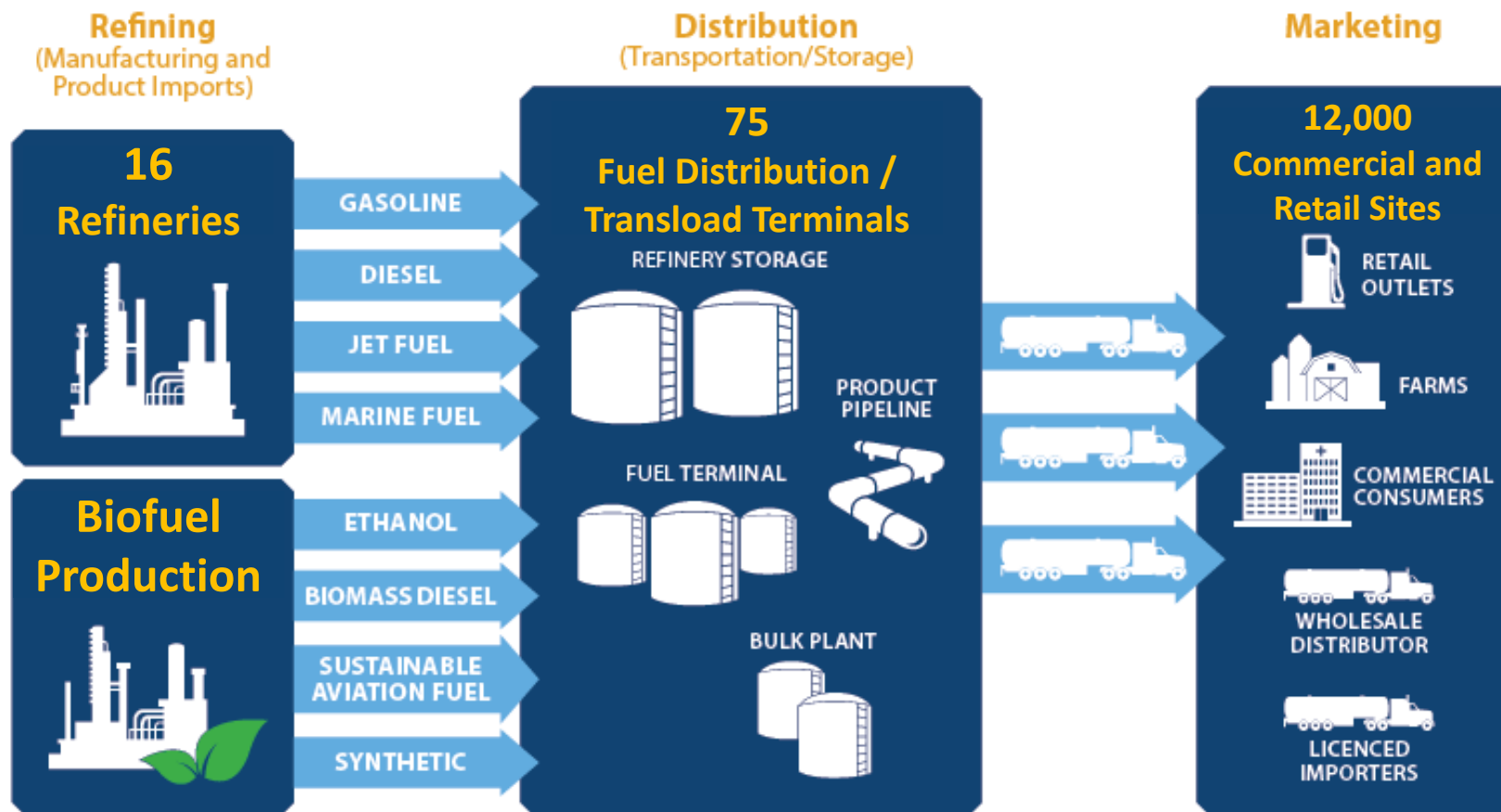


# Who We Are



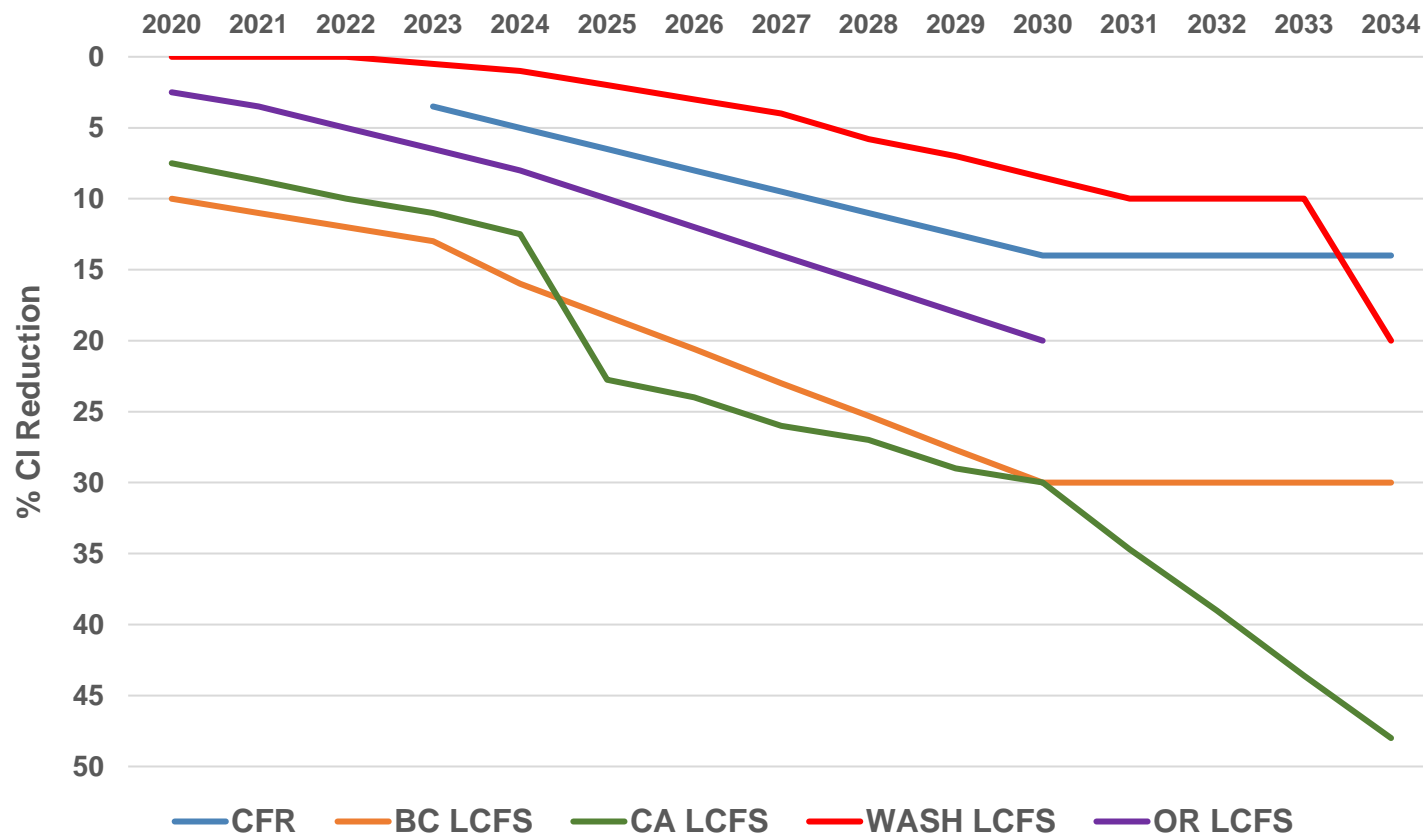
- We represent Canada's transportation fuels sector
- Supply 95% of transportation fuels in Canada (gasoline, diesel, jet, marine, biofuels, hydrogen, etc.) and soon, sustainable aviation fuel
- Our members make more than 70% of Canada's biofuels

# Canada's Fuel Production – Retail Sector



# Carbon Intensity Matters: Regulations

## Comparison of Low Carbon Fuel Policies



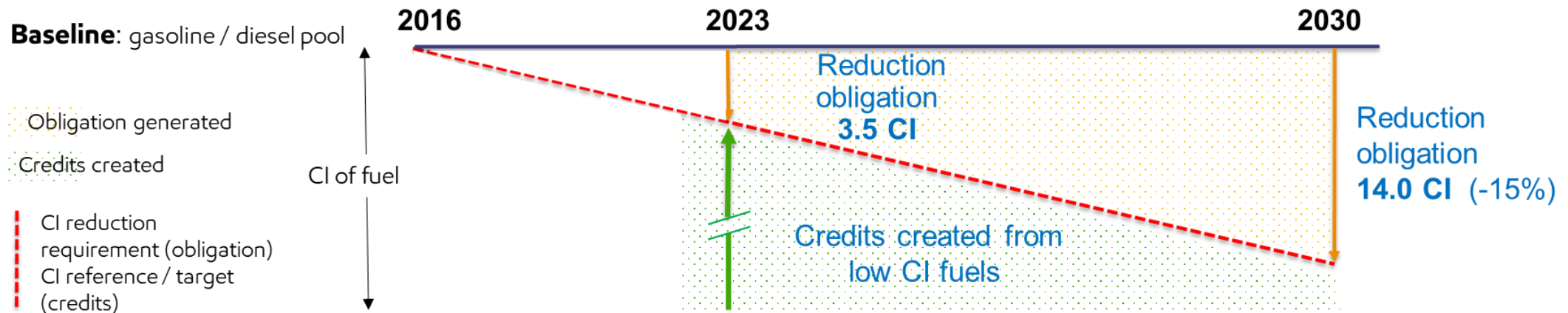
## CFR CI Reduction Trajectory

	Gasoline	Diesel
<i>Baseline</i>	<i>95 (gCO<sub>2</sub>e/MJ)</i>	<i>93 (g CO<sub>2</sub>e/MJ)</i>
2023	91.5	89.5
2024	90	88
2025	88.5	86.5
2026	87	85
2027	85.5	83.5
2028	84	82
2029	82.5	80.5
2030	81	79

# Carbon Intensity Matters: Fuels Policy Credits

- LCFS program credits created using difference in fuel CI compared to target CI
  - Lowest CI fuels create most credits
- Recognition and reward through increased credits creates value for lower CI fuels
  - Driver for investments to continue to lower fuel CIs

## CFR Example: Credit Creation for Low-CI Fuels



# Carbon Intensity Matters: Carbon Markets

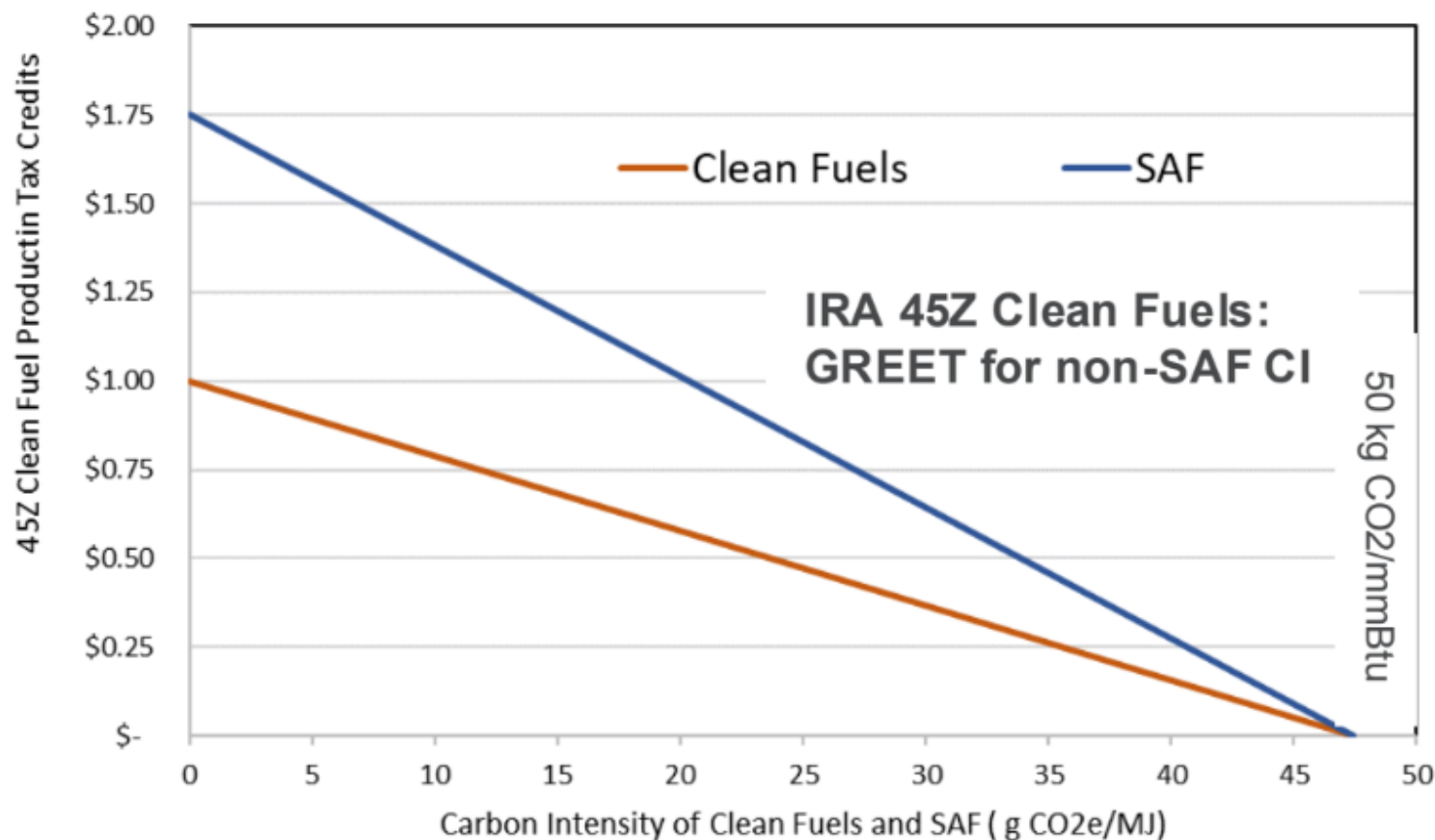
- CFR market nascent and maturing
  - Seeking greater frequency of reporting similar to BC LCFS
- Significant swings in BC LCFS credit prices over last 6 months
- US policies have played impact – time needed to assess impacts of recent California approved amendments that will strengthen stringency beginning in 2025

Compliance Period	Transfers	Total Credits	Avg Price	Min	Max
<b>CFR</b>					
2022	77	1,222,594	\$ 141.8	\$ 9.77	\$ 300
2023	163	1,780,206	\$ 127.3	\$ 6.75	\$ 300
<b>BC LCFS</b>					
Q4 2024	5	11,211	\$ 308.46	\$ 225.00	\$ 485.00
Q3 2024	8	192,379	\$ 446.22	\$ 205.44	\$ 471.50
Q2 2024	12	142,803	\$ 457.25	\$ 374.00	\$ 495.00
Q1 2024	68	653,756	\$ 482.72	\$ 400.00	\$ 512.06
Q4 2023	30	220,464	\$ 496.60	\$ 450.00	\$ 510.00

# Carbon Intensity Matters: Incentives

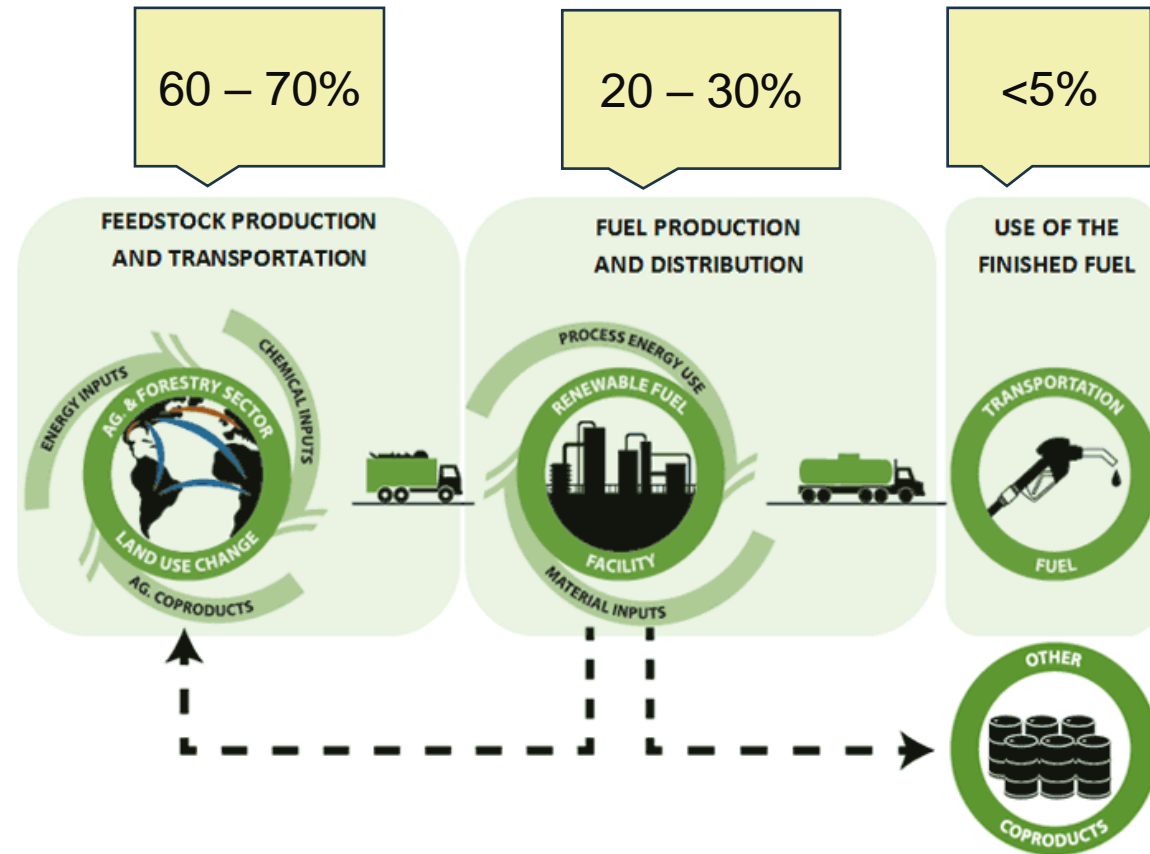
- Incentive policies and programs increasingly based on CI giving heightened significance

Canadian Clean H2 ITC	
CI (kg CO <sub>2</sub> e/kg H <sub>2</sub> )	Rate
Less than 0.75 kg	40%
0.75 to 2.0 kg	25%
2.0 to 4.0 kg	15%
Above 4.0 kg	0%



# Carbon Intensity Matters: Life Cycle Analysis

- Standardized LCA is critical for technology neutrality
  - Jurisdictions use different LCA models adding complexity and impacts on trade flows
- Canada – Fuel LCA Model, GHGenius (different versions)
- US – variations of GREET
- International (ICAO, IMO) – further variations
- LCA policy choices impact CI values – inclusion of indirect land use change, co-product allocation





# Canada's Renewable Diesel CI Value Chain

Opportunities exist through the Renewable Diesel value chain to optimize and reduce Carbon Intensity

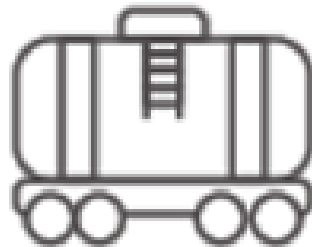
## Canola Oil based Renewable Diesel example



Canola  
Production



Seed Crush  
Plants



Seed Oil  
Transport



Renewable Diesel  
Production



Renewable Diesel  
Distribution



Carbon Capture  
Utilization and  
Sequestration



Low-CI Hydrogen  
Production

# Why does carbon intensity matter?

- Each unit of carbon reduction from renewable fuels earns a credit.
- Lower carbon intensity fuels earn more credits per liter of output.
- Credits can be lucrative, often > \$100/t of carbon reduced.
- Fuel producers earn more credit revenues from lower carbon fuels/feedstock.

