



# Intro to RNG Markets for GHG Reduction Claims

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At Weaver, there are no “one-size-fits-all” solutions. We combine leading technical knowledge with specific industry experience to provide highly customized services tailored to each client’s needs.

## Industries

- ▶ Renewable energy
- ▶ Oil and gas
- ▶ Oilfield services
- ▶ Real estate
- ▶ Technology
- ▶ Manufacturing and distribution
- ▶ Professional services
- ▶ Financial services
- ▶ Financial institutions
- ▶ Private equity
- ▶ Insurance
- ▶ Healthcare
- ▶ Construction
- ▶ Hospitality
- ▶ Government
- ▶ Not-for-profit
- ▶ Higher education

## Services

### Advisory Services

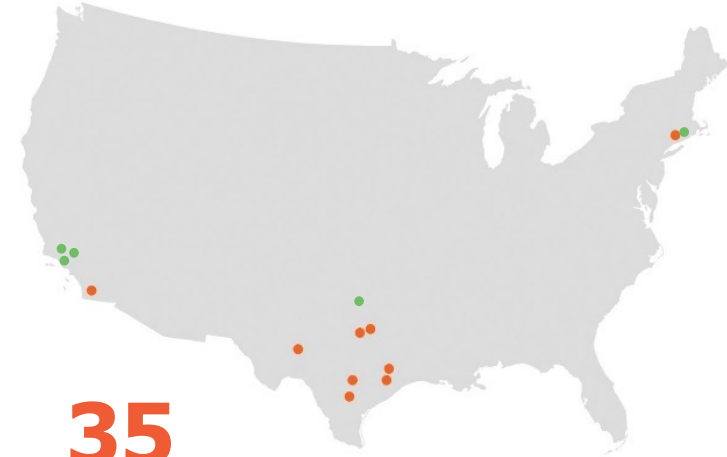
- ▶ Energy Compliance Services
- ▶ Client advisory services
- ▶ Risk advisory services
- ▶ IT advisory services
- ▶ Transaction advisory services
- ▶ Forensic and litigation services

### Assurance Services

- ▶ Audit, review and compilation
- ▶ Agreed-upon procedures
- ▶ Employee benefit plan audit
- ▶ SOC reporting
- ▶ Attestation services
- ▶ IFRS assessment and conversion

### Tax Services

- ▶ Federal tax
- ▶ State and local tax
- ▶ International tax
- ▶ Private client services



35

Top 35 Firm  
nationwide

**Best of the Best  
Firms (2022)**

Inside Public Accounting

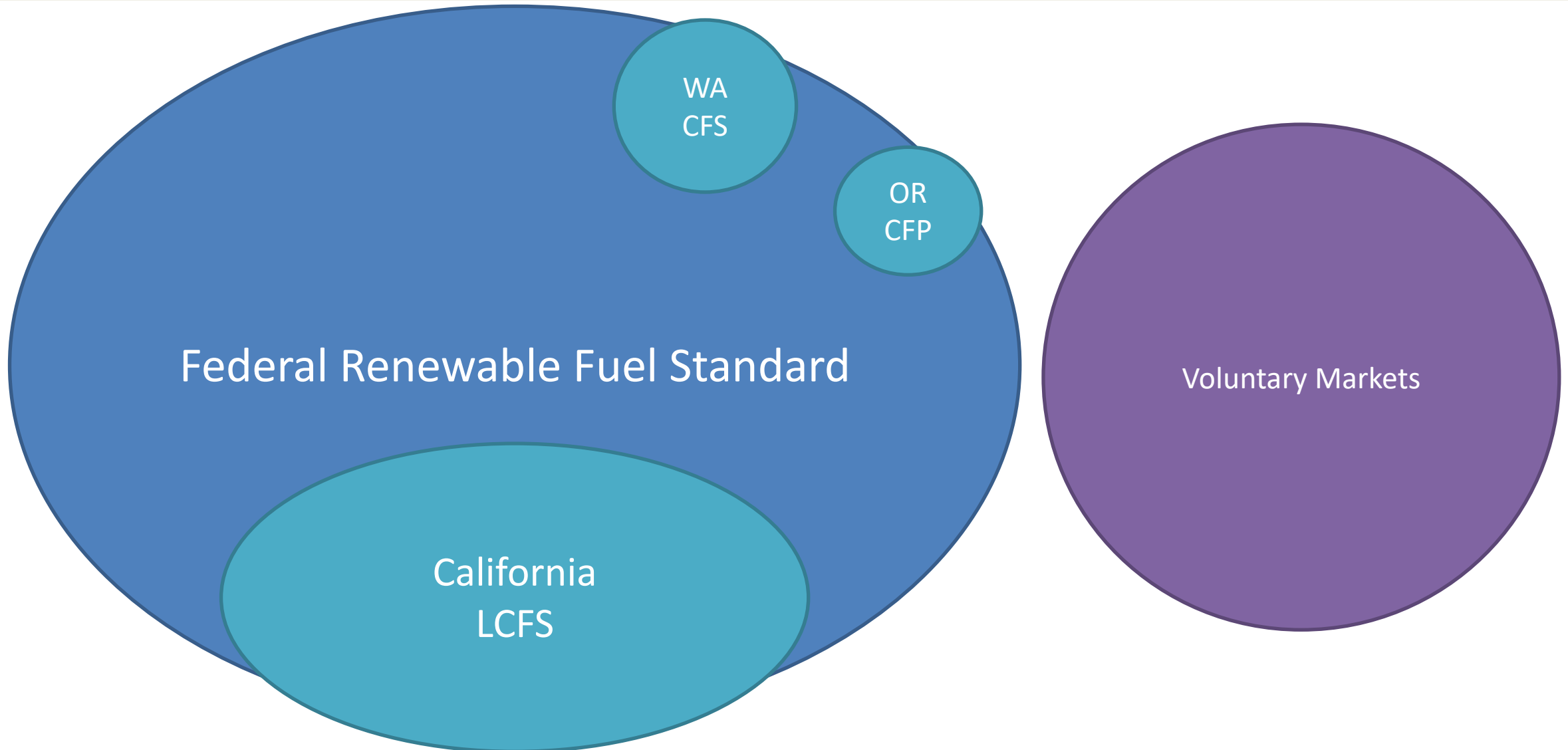


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# Domestic RNG Markets





# Renewable Fuel Standard

# RFS D Code Categories

- **Cellulosic Biofuel:**
  - D codes **3, 7**
  - At least **60%** reduction

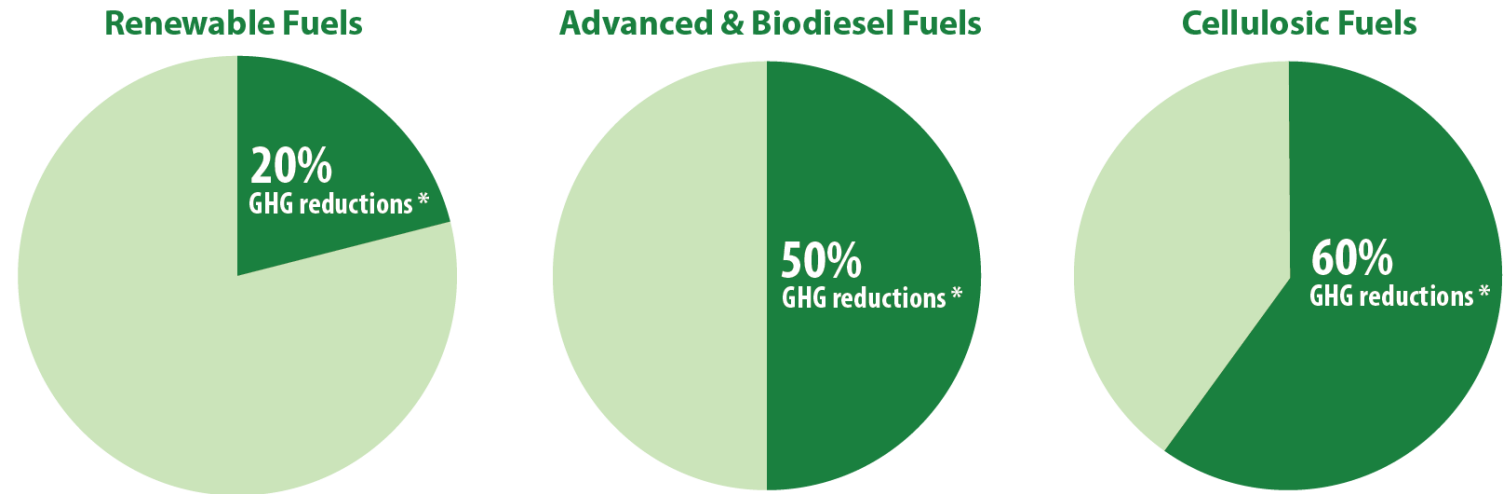
- **Biomass-Based Diesel:**
  - D codes **4, 7**
  - At least **50%** reduction

- **Advanced Biofuel:**
  - D code **5 (or 3, 4, 7)**
  - At least **50%** reduction

- **Total Renewable Fuel:**
  - D code **6**
  - At least **20%** GHG reduction; except:
  - Existing (2007) facilities are “grandfathered”, i.e., exempt to its 2007 baseline

## Lifecycle Greenhouse Gas (GHG) Emissions

GHG emissions must take into account direct and significant indirect emissions, including land use change.



\* compared to a 2005 petroleum baseline

# RFS Biogas Basics

- Anaerobic Digestion of Organic Matter (D3)
  - Landfills
  - Municipal Wastewater Treatment Plants
  - Agricultural Digesters
  - Separated MSW Digesters
- Other Digestion (D5)
  - Other Renewable Biomass Waste Digesters

- Renewable Fuel Valid Uses
  - CNG Sold/Used as Transportation Fuel
  - LNG Sold/Used as Transportation Fuel



# RFS: No Double-Counting



When any party becomes aware of any of the following, they must notify EPA and the RIN generator, if known, within 5 business days of initial discovery:

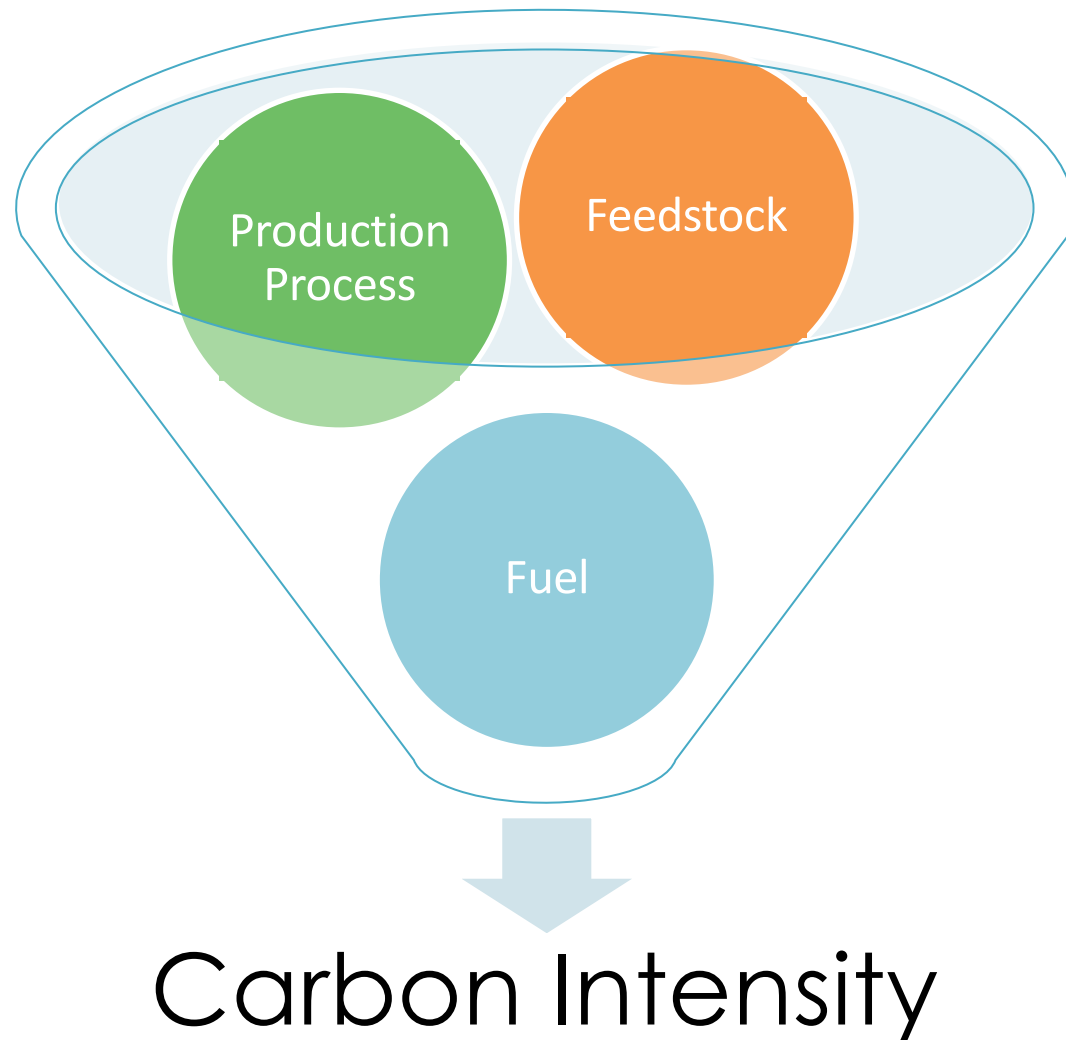
- » More than one RIN being generated for renewable fuel produced from the same volume of biogas, treated biogas, or RNG
- » More than one RIN being generated for the same volume of biogas-derived renewable fuel or RNG
- » A party **taking credit for biogas, treated biogas, or RNG under a non-transportation program** (e.g., a stationary-source renewable electricity program) **and also generating RINs** for renewable fuel produced from that same volume of biogas, treated biogas, or RNG
- » A party **taking credit for biogas-derived renewable fuel or RNG under a non-transportation program** (e.g., a stationary-source renewable electricity program) **and also generating RINs** for that same volume of biogas-derived renewable fuel or RNG
- » A party **taking credit for biogas, treated biogas, or RNG used outside the covered location** and **also generating RINs** for renewable fuel produced from that same volume of biogas, treated biogas, or RNG
- » A party **taking credit for biogas-derived renewable fuel or RNG used outside the covered location** and **also generating RINs** for that same volume of biogas-derived renewable fuel or RNG.



# State Low Carbon Fuel Standards



# LCFS Carbon Intensity (CI)



- CA-GREET 3.0 Model
  - Feedstock
  - Production Process
  - Fuel
- Simplified Tier 1 Calculators
  - Landfills
  - Wastewater Sludge
  - Organic Waste
  - Dairy and Swine Manure

# CA-GREET 3.0 Calculator

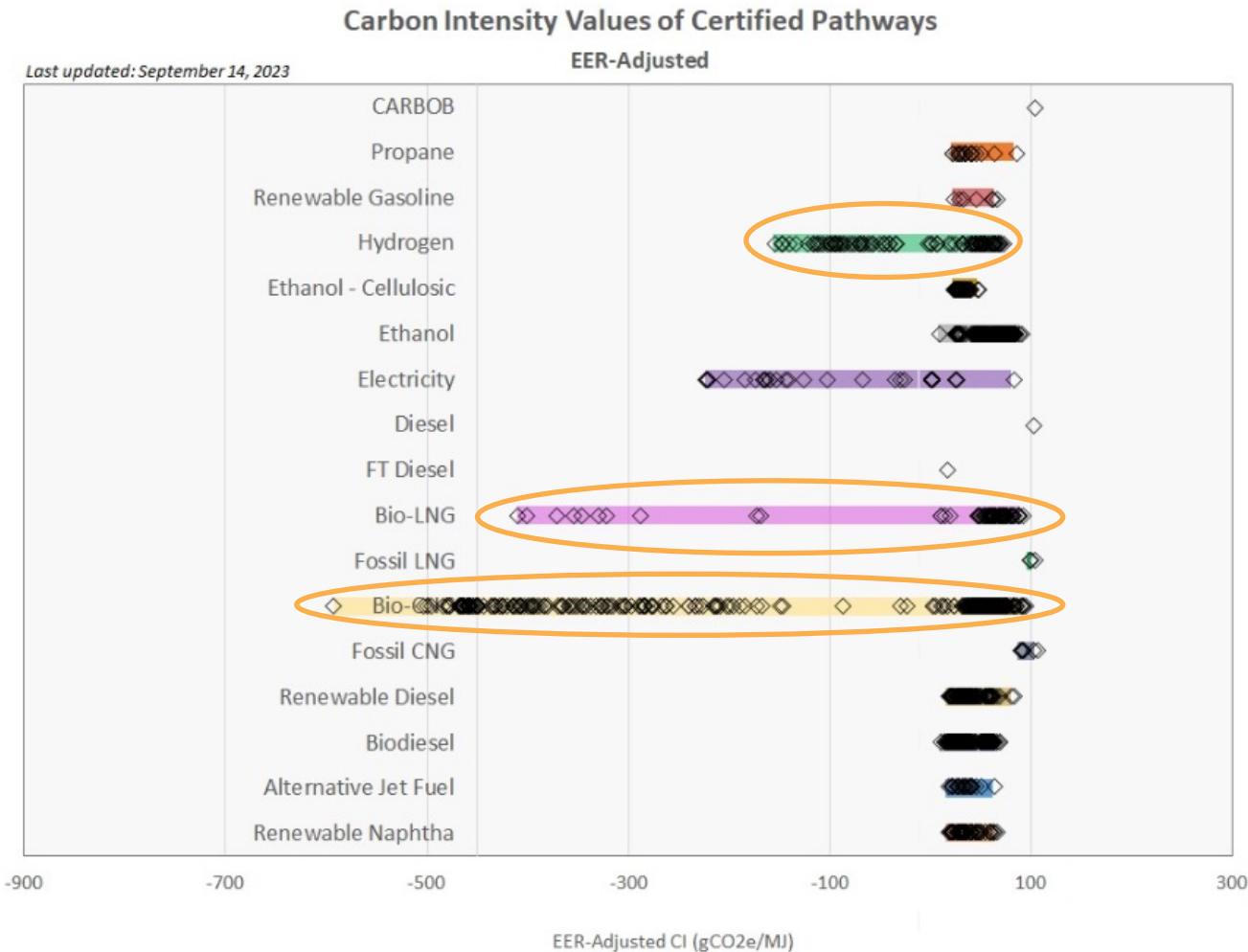


## Summary of the Tier 1 Landfill Biomethane Pathway Release Date: August 13, 2018

Pathway Descriptions and Results			
Finished Fuels	Carbon Intensity from Inputs (gCO <sub>2</sub> e/MJ)	Conservative Margin of Safety (gCO <sub>2</sub> e/MJ)	Total Carbon Intensity (gCO <sub>2</sub> e/MJ)
<b>Compressed Natural Gas (CNG)</b>	0.00	0.00	0.00
Fuel Producer: . landfill gas to pipeline-quality biomethane; delivered via pipeline; compressed to CNG in California.			
<b>Liquefied Natural Gas (LNG)</b>	0.00	0.00	0.00
Fuel Producer: . landfill gas to pipeline-quality biomethane; delivered via pipeline; liquefied to LNG at ; transported by trucks to California.			
<b>Liquefied CNG (or L-CNG)</b>	0.00	0.00	0.00
Fuel Producer: . landfill gas to pipeline-quality biomethane; delivered via pipeline; liquefied to LNG at ; re-gassified in California.			

- Operational CI < Certified CI
  - May keep Certified CI or request to Update CI
- Operational CI > Certified CI
  - **Out of Compliance**
  - **Subject to Investigation and Enforcement**
  - **Credits Adjusted Retroactively**

# LCFS Fuel Pathway CI



## Biogas Pathways (CNG)

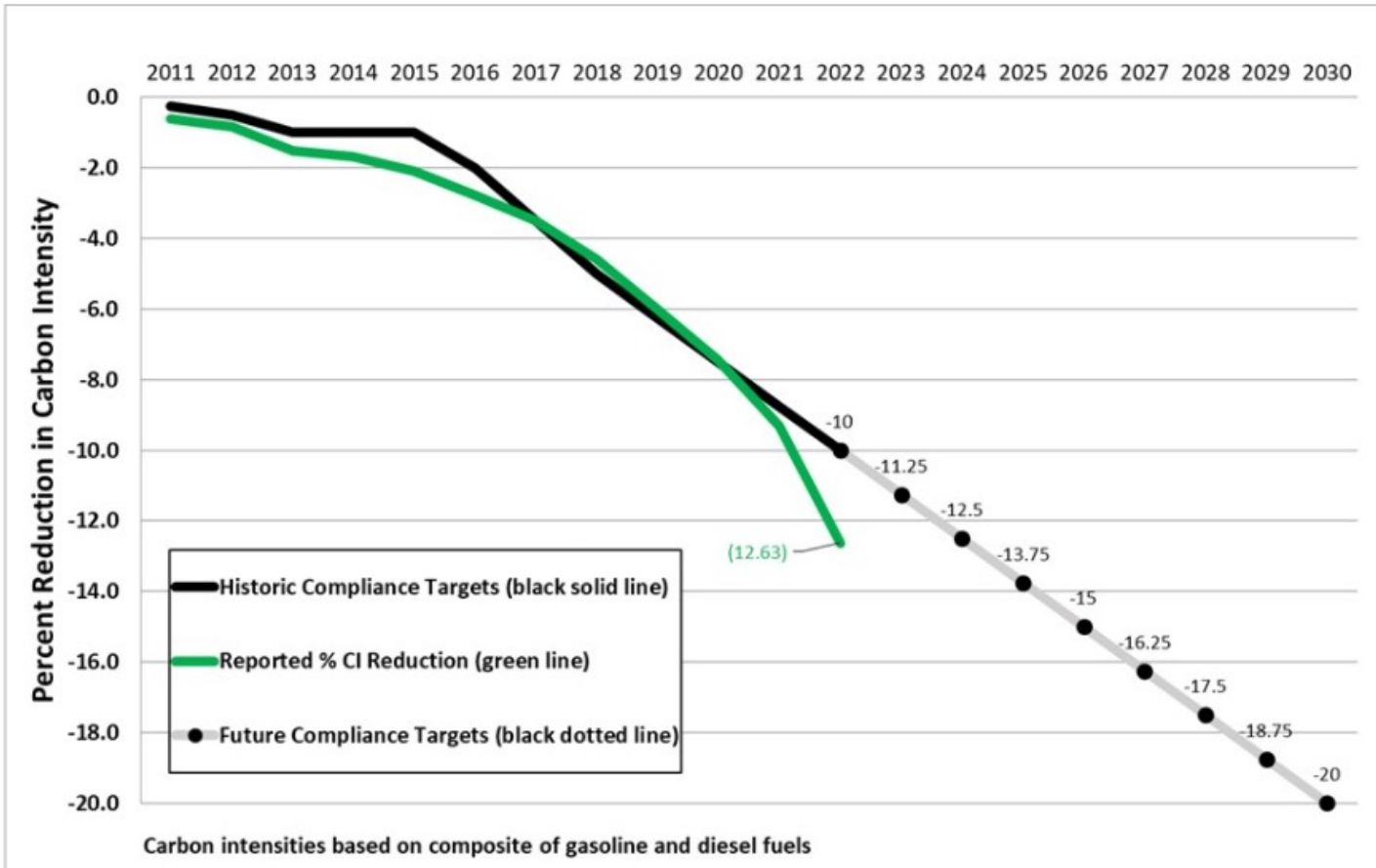
- Landfill Gas (40)
- WWTP (30)
- Organics (-10)
- Manure Digester (-300)

## Hydrogen

- Grid Electricity (160)
- Zero CI Electricity (10)
- Landfill Gas (105)
- WWTP (130)
- Manure Digester (-240)

# LCFS Fuel Pathway CI

2011-2022 Performance of the Low Carbon Fuel Standard



Carbon intensities based on composite of gasoline and diesel fuels

Last Updated 04/28/23

## Average CI Reduction

- 20% by 2030
- 11.25% for 2023

## Future Uncertainty

- Multiple Options
- Area Under the Curve
- Automatic Ratcheting

# Oregon Clean Fuels Program

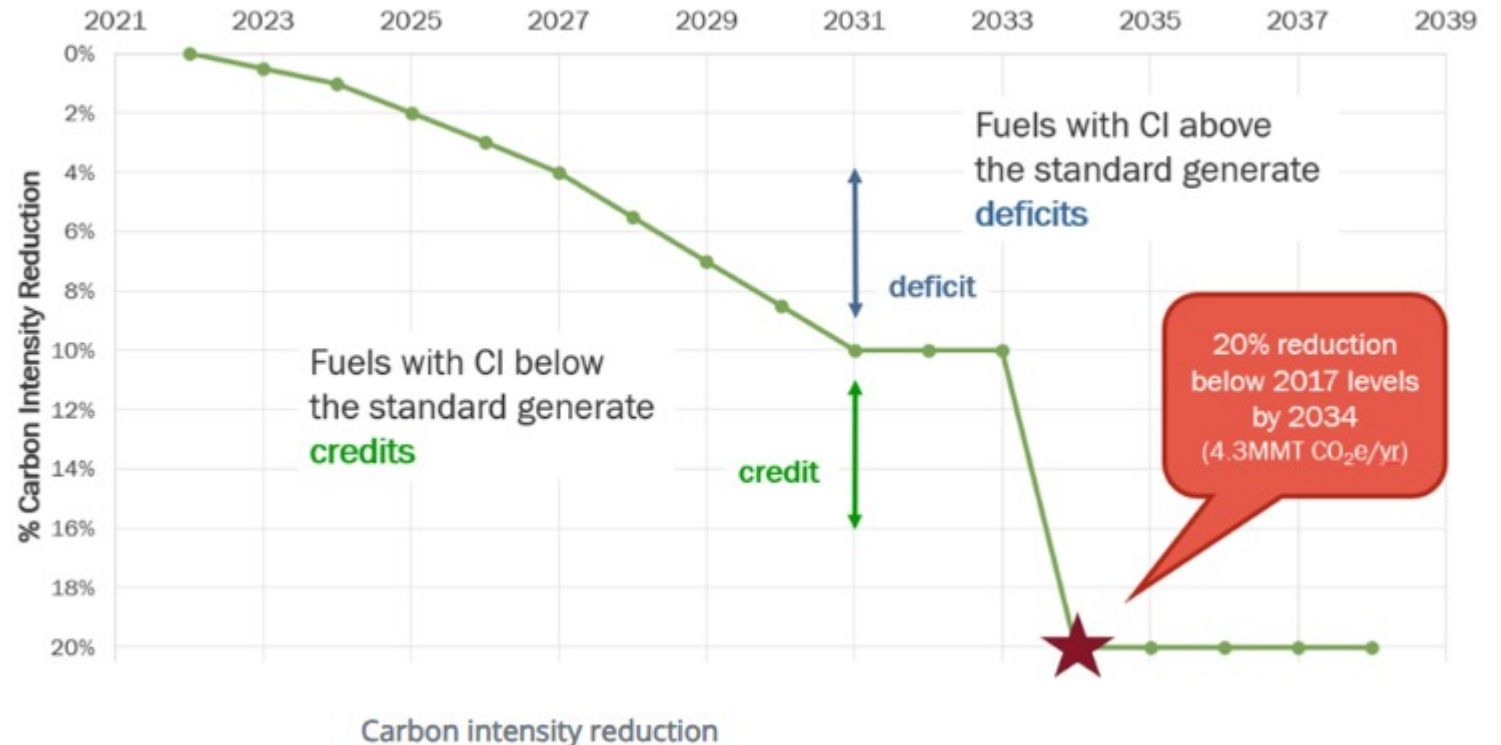
- **Closely Follows California**
  - CI Approved by CARB
  - Slight Modifications for OR-GREET
  - Credits and Deficits
  - Annual Verification
- **RNG is Voluntary**
  - CNG and LNG are opt-in
  - RNG is opt-in

## Oregon Average CI



# Washington Clean Fuel Standard

- Participation Fee
  - 2023 fee
  - Deficit (95%): \$50,649
  - Credit (5%): \$982
- Fuels Obligated
  - CNG and LNG are obligated
  - RNG is opt-in
- Follows CARB
  - CI Approved by CARB
  - Slight Mods for WA-GREET model





# Voluntary Markets

# M-RETS Renewable Thermal Tracking **weaver**

Assurance • Tax • Advisory



- **Tracking System**
  - Registers Environmental Attributes
  - Web-based system
- **Renewable Thermal**
  - Biogas
  - RNG
  - Blue/Green Hydrogen
  - Other (heat pumps, solar thermal, etc.)
- **Independent Reporting Entity**
  - Confirms data reported for RTC generation
- **Supports CI Pathway Reporting**
  - GREET, GHGenius, CA-GREET 3.0, etc.

**Dekatherm (Dth) Renewable Thermal =  
1 Renewable Thermal Certificate**

Certificate Details include:

- Serial Number (See Example)
- Account
- Project
- Thermal Resource
- Feedstock
- Vintage
- Location
- Quantity

Carbon Pathways (If Applicable)  
IRE Verification (If Applicable)

<https://www.mrets.org/m-rets-renewable-thermal-tracking-system/>



# Green-e® Renewable Fuel Standard



## The Green-e® Standard Addresses



Production



Sale



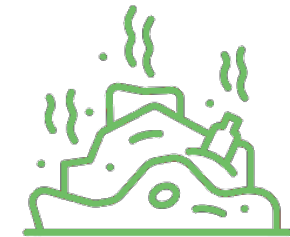
Use

Intended to support marketing claims regarding biomethane use

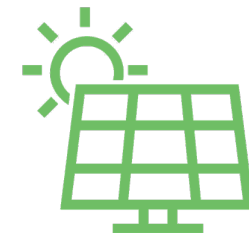
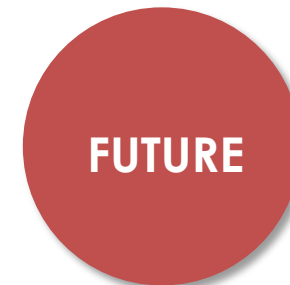
## CI Models Accepted

- CA-GREET 3.0
- GHGenius

## Certification Now and in the Future



The Standard currently allows certification of fuels products comprised of biomethane from landfill gas or the anaerobic digestion of certain organic waste material.



In the future, CRS will consider expansion of the program to address other products, such as solar thermal, geothermal, and green hydrogen.

# Voluntary Market Customers



- **Corporate Carbon Accounting**
  - Currently not mandated to disclose
  - SEC proposed a rule which would require disclosure of Scope 1, 2, and 3 GHG emission data
- **Utilities**
  - Customer opt-in programs
  - State natural gas utility mandates (not voluntary)
  - Careful of double-counting concerns
- **GHG Protocol Accounting Standards**
  - Update Uncertainty
  - RNG for Scope 1: Claim zero? Able to go negative based on CI score?



Questions?

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