



Renewable Fuel Standard

Canola Oil Pathways to Renewable Diesel,
Jet Fuel, Naphtha, and Liquid Propane Gas

Office of Management and Budget

January 31, 2022

Attendees



Overview

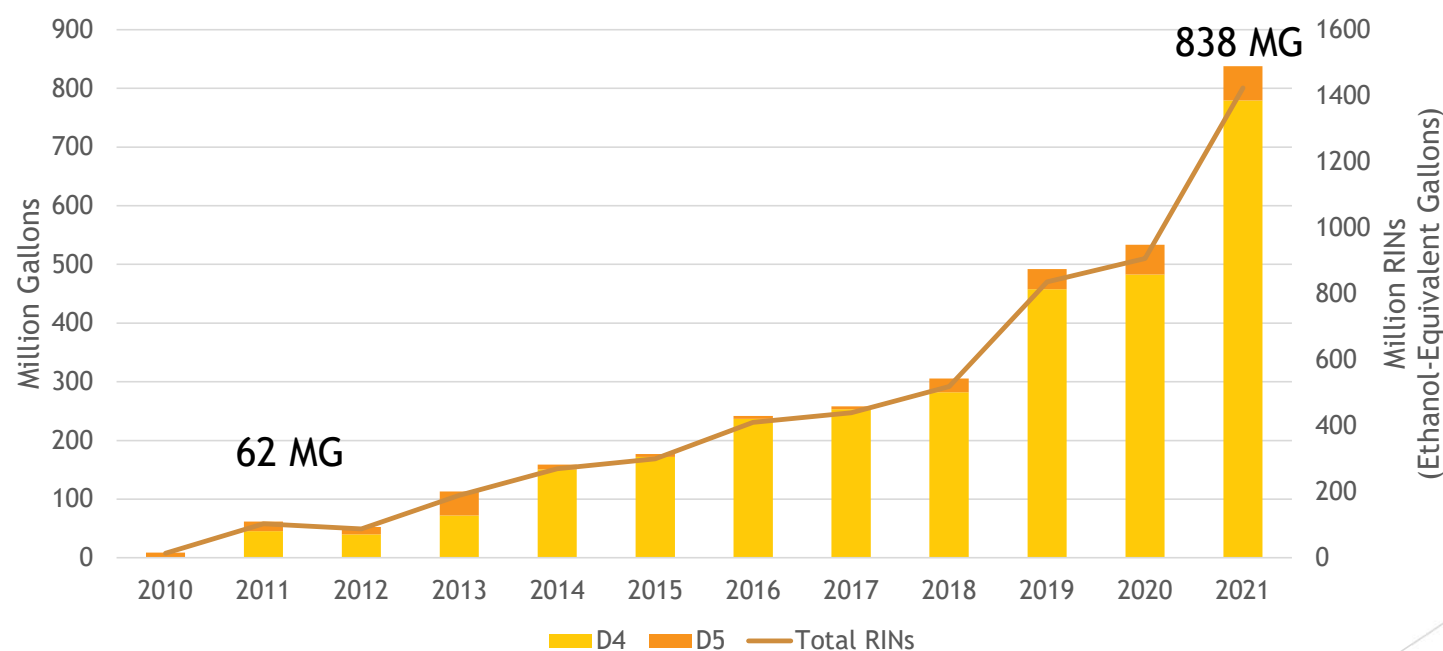
- ▶ Renewable Diesel and the Renewable Fuel Standard
 - ▶ Canola oil is an ideal, alternative biofuel feedstock
- ▶ EPA Pathway Petition Process
 - ▶ Process for canola oil began in 2010
 - ▶ USCA petition March 2020
- ▶ Advanced Biofuel Pathways Approval is a “Win-Win”
 - ▶ Broad support from stakeholders along entire supply chain
 - ▶ Economic and environmental benefits



Renewable Diesel and the Renewable Fuel Standard (RFS) Program

- ▶ RFS program is to require increasing volumes of advanced biofuels (including biomass-based diesel) to be used annually in the transportation fuel market
 - ▶ Advanced Biofuels (including biomass-based diesel) require a finding by EPA that the fuel has at least a 50% reduction in lifecycle greenhouse gas (GHG) emissions compared to the baseline petroleum fuel
 - ▶ Based on this determination, EPA approves general pathways or company-specific pathways for the generation of Renewable Identification Numbers (RINs), which are used to show compliance
 - ▶ D4 - Biomass-based Diesel
 - ▶ D5 - Advanced Biofuel (non-cellulosic and not biomass-based diesel)
 - ▶ Renewable diesel generates 1.6 to 1.7 RINs due to higher energy content than ethanol
- ▶ In 2021, all U.S. renewable diesel production under the RFS program qualified as advanced biofuel

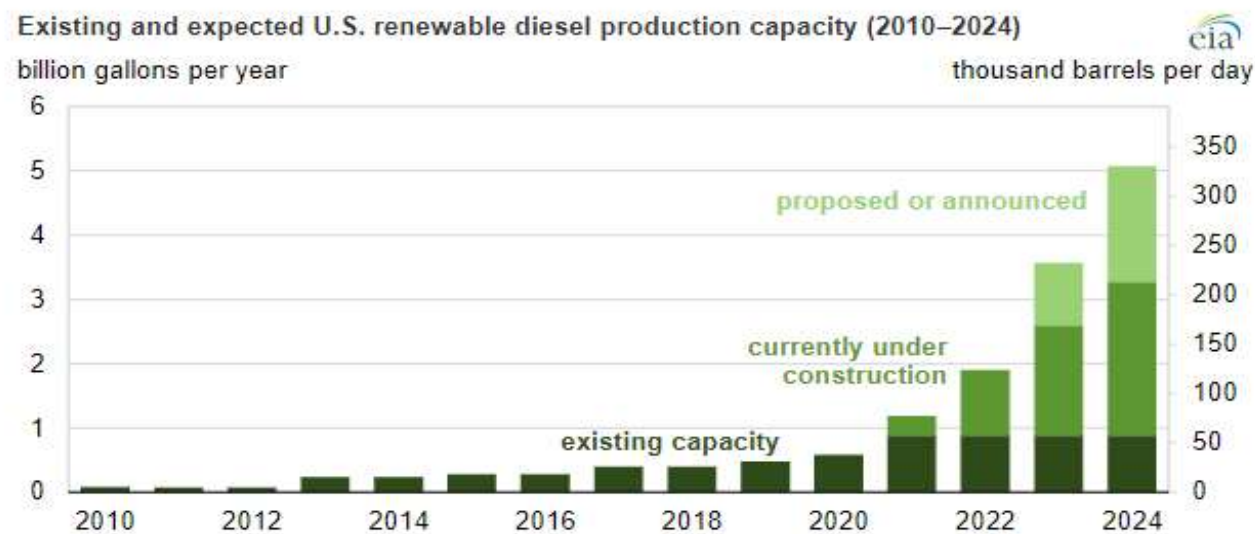
U.S. Renewable Diesel Production Under the RFS Program (EMTS)



Source: EPA, Public Data for the Renewable Fuel Standard (as of Jan. 10, 2022)

U.S. renewable diesel production increased almost 14 times from 2011 to 2021 and continues to grow.

Renewable Diesel Plants - U.S. Renewable Diesel Production Capacity is Growing



Based on energy content, US Renewable Diesel Production could represent approximately 8.7 billion RINs.

“If all [announced] projects come online as intended, U.S. renewable diesel production would total 5.1 billion gal/y (330,000 b/d) by the end of 2024.”

U.S. EIA, Today in Energy: U.S. renewable diesel capacity could increase due to announced and developing projects, July 29, 2021, <https://www.eia.gov/todayinenergy/detail.php?id=48916>

U.S. Renewable Diesel Production Under the RFS Program

- ▶ Renewable Diesel production facilities are located throughout the US.
 - ▶ Existing facilities: California (expanding), Kansas, Louisiana (expanding), North Dakota, Wyoming
 - ▶ Under construction/Planned: California, Kansas, Louisiana, Montana, Nebraska, Nevada, New Mexico, Oklahoma, Oregon, Texas, Wyoming
 - ▶ Includes refineries converting to renewable diesel
- ▶ Additional volumes may come from:
 - ▶ Co-processing
 - ▶ Renewable jet fuel
 - ▶ Naphtha
 - ▶ LPG
 - ▶ Heating oil



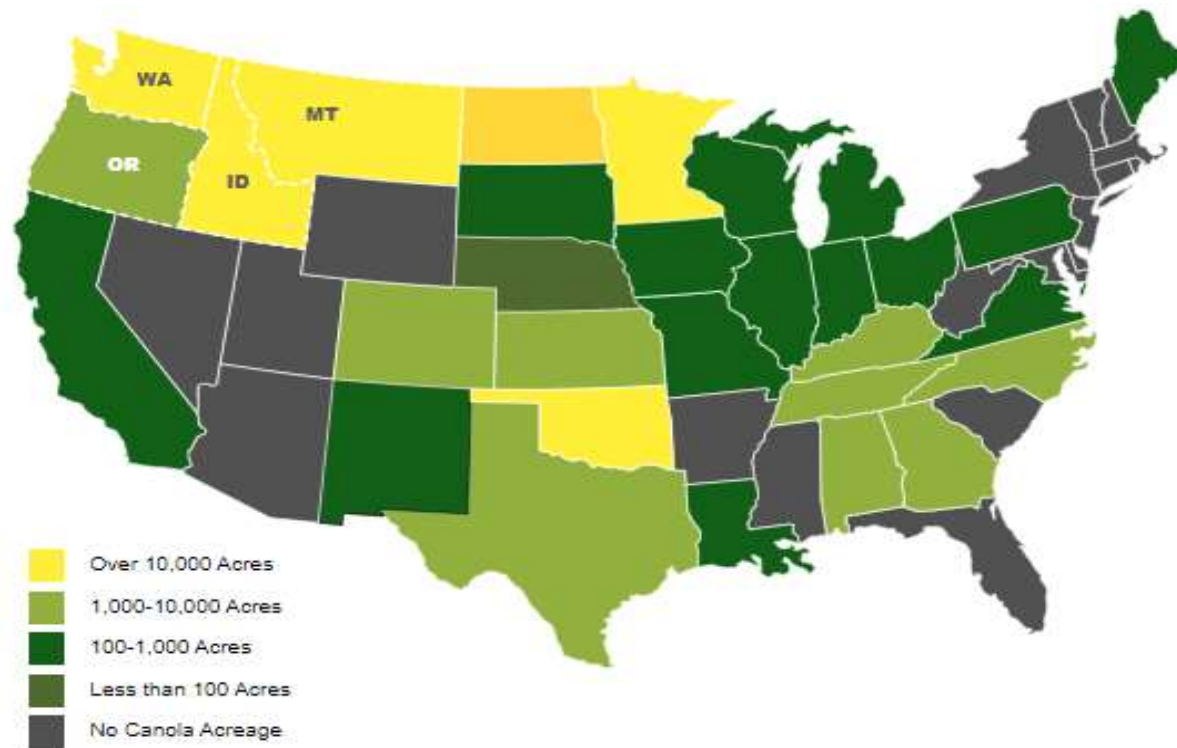
Source: Robert Brelsford, REG tripling renewable diesel capacity of Louisiana biorefinery, Oil & Gas Journal, Oct. 6, 2020.

Benefits of Canola Oil as a Biofuel Feedstock - Renewable Diesel

- ▶ Canola oil is a feasible, alternative feedstock for renewable diesel plants
 - ▶ Canola contains a higher percentage of oil (40-45%) and has better cold weather properties than other oilseeds
 - ▶ Co-processing with canola oil does not affect desulfurization, produced intermediate fuel fractions with less aromatics, and improved cetane number
 - ▶ Canola oil can also qualify for state incentives
 - ▶ Indirect Land Use Change emissions for canola oil have been found to be lower than those from similar feedstocks under low carbon fuel standard (GTAP-modeling)



Benefits of Canola Oil as a Biofuel Feedstock - Renewable Diesel



EPA Pathway Petition Process

- ▶ EPA established a pathway for canola oil in 2010 but limited it to biodiesel
 - ▶ Original “ask” included same pathways as soybean oil
 - ▶ Little renewable diesel in production at time of approval
- ▶ With increased renewable diesel production, USCA submitted petition to EPA in March 2020, requesting approval of advanced biofuel pathways for renewable diesel fuels
 - ▶ The petition builds on the analysis EPA conducted for canola oil biodiesel, providing data and rationale to support finding additional reductions of GHG lifecycle emissions well above the 50% threshold to account for renewable diesel production
 - ▶ As a drop-in, commercial-scale fuel, USCA Petition to approve canola oil renewable diesel pathways meets EPA’s criteria for prioritization

RFS Pathway Will Open Markets for Farmers and “Level the Playing Field”

- ▶ Canola is an ideal crop that can be used in rotation with other crops, improving their yields, diversifying their markets, and providing added value for farmers
- ▶ Canola-based biofuels are proven to work and are already delivering tangible emissions reductions now in Canada, the US, and the EU
- ▶ Feedstock is needed to meet growing renewable diesel demand
- ▶ *BUT, without an EPA-approved pathway under the RFS, canola oil will not be utilized for renewable diesel production.*

A “Win-Win” for All RFS Stakeholders

- ▶ Biofuel producers
 - ▶ Diversification of feedstocks can lead to greater efficiencies and reduced production costs
 - ▶ Alternative sources of feedstock can address supply issues, reducing volatility in the market
- ▶ Obligated parties
 - ▶ Several refineries are “co-processing” and building dedicated renewable diesel plants that can take advantage of refinery infrastructure, which can also take advantage of diversification of feedstocks
 - ▶ Additional feedstock sources for renewable diesel would support investments being made and help reduce price volatility for feedstocks and, thereby, fuel costs

A “Win-Win” for All RFS Stakeholders.

- ▶ Farmers and Processors
 - ▶ Supports sustainable agriculture practices
 - ▶ Additional markets for products provide benefits to farmers
 - ▶ Additional source of income and benefits to production from adding canola to rotation
 - ▶ Supports investments in additional crushing providing economic benefits
- ▶ Consumers, the environment and public health
 - ▶ Achieves greenhouse gas emissions reductions
 - ▶ Renewable diesel reduces air emissions due to higher cetane value, resulting in reduction in tailpipe pollution, such as particulate matter, nitrogen oxides, and carbon monoxide
 - ▶ Increased competition and efficiencies to lower costs at the pump
 - ▶ Diversification of energy sources provides improved national security and energy independence

Questions and Discussions

Thank you