

# Bio-Feedstocks: Fueling a Path to a Net-Zero Future

**Monday, March 20 or Friday, March 24**

**8:00 am - 5:00 pm (CDT)**

## Topics Addressed

The energy industry is in transition given the impact of legislation in response to climate change, refinery. Biofuels will play an increasingly important role in the transportation fuels industry for gasoline, diesel, jet fuel and bunker fuel. The course will cover current and emerging process technology together with energy transition issues and industry developments with respect to decarbonization. The biofuels to chemicals interface will also be discussed.

- Essential background on the biofuel value chain, together with its historical development from the earliest days of motor transport, through to a discussion of the changing regulatory environment.
- A review of market and pricing dynamics and how these will influence and be influenced by the impact of the energy transition in the refining industry in the short to medium term.
- Insight into biofuel manufacturing technology covering established 'First Generation' processes for ethanol and biodiesel, together with insight into emerging technologies for 'Advanced Biofuel' development.
- Supporting background on conventional and emerging feedstocks for biofuels production, as well as insight into waste products that also serve the industry like used cooking oil.
- A review of the key players in the biofuel and feedstock supply chain to understand the structure of the market.
- A review of the strategic impact of the role of biofuels in refining industry decarbonization efforts and the need to better take advantage of the biofuels-chemicals interface.

## Key Benefits

Acquaints the learner with the complete biofuels value chain from agriculture, biofuel manufacturing and downstream into retail transportation fuels as well as impact on chemicals markets

# Course Outline

## **SESSION 1: Biofuels Fundamentals**

- Introduction, Historical Development and Value Chain
- Why is policy so important? - Near Term Legislation, Quotas and Mandates

## **SESSION 2: Biofuel Demand and Outlook**

- Biofuel Demand Drivers

## **SESSION 3: Agricultural Crops**

- Background on Agricultural Feedstocks for 1st Generation Technologies (Grains, Natural Oils, Sugars, etc.)
- Crop Technology to Serve Biofuel Production

## **SESSION 4: Fundamental Biotechnologies**

- 1st Generation Bioethanol Technologies (from Grains, Sugarcane and Others)
- Background on Alternative Feedstocks
- 1st Generation Technologies, from Natural Oils
- Background on Alternative Feedstocks for Advanced Biofuel Technologies (Farmed Wood, UCO, Energy Crops, etc.)

## **SESSION 5: Advanced Biofuels Technologies**

- Advanced Bioethanol Technologies from Biomass
- Advanced Biodiesel/Jet Fuel Technologies, ex Natural Oils and Biomass
- Background on Alternative Feedstocks for Advanced Biofuel Technologies (Farmed Wood, UCO, Energy Crops, etc.)

## **SESSION 6: Market Dynamics Revisited**

- Biofuel Supply, Valuation and Pricing

## **SESSION 7: Decarbonization**

- Refinery decarbonization with biofuels integration
- Refinery and Petrochemical decarbonization biofuel/biobased Chemicals Integration