

ESG and Biofuels: Sustainability Connections

FELC 2022 – Bart Plocher



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Agenda

- What is ESG?
- How do ESG goals align with Biofuels?
- So what?
- Now what?

Environmental, Social, and Corporate Governance (ESG)

ESG

Environmental

Waste & Pollution Resource Depletion
Greenhouse Gas Emission Deforestation
Climate Change

Social

Employee Relations & Diversity
Working Conditions Local Communities
Health & Safety Conflict

Governance

Tax Strategy Executive Remuneration
Donations & Political Lobbying
Corruption & Bribery Board Diversity & Structure

What are ESG Goals for Sustainability?

- Carbon Net Zero by
- Reduce GHG impact by by ...
- Only source from sustainable partners
- Have a sustainability role...

EVOLVE

The airline race for a breakthrough fuel to cut one billion tons of carbon is just starting

PUBLISHED SAT, SEP 24 2022-10:01 AM EDT | UPDATED SUN, SEP 25 2022-9:53 AM EDT

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Newsroom

News
Jan. 18, 2022



ExxonMobil announces ambition for net zero greenhouse gas emissions by 2050

Reuters

New York state to adopt California 2035 EV rules

Published Sep 29, 2022 by Reuters

New York state plans to adopt California's rules approved in August that would require all new vehicles sold in the state by 2035 to be either electric or plug-in electric hybrids, Governor Kathy Hochul said on Thursday.

Press Release

Cisco commits to net zero greenhouse gas emissions by 2040

DET

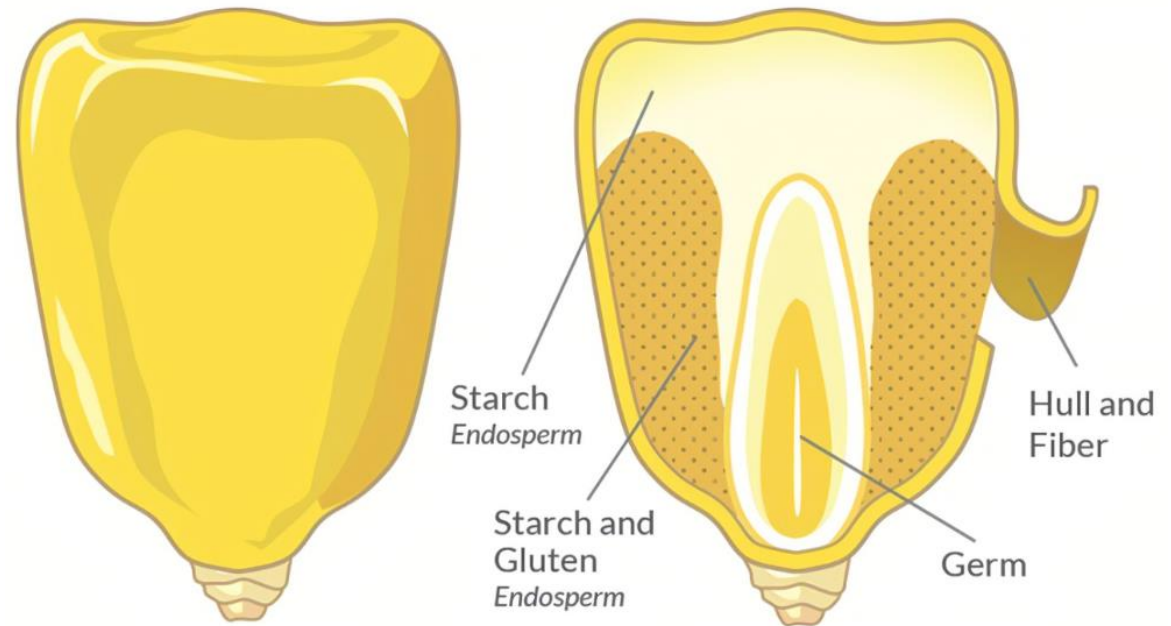
Connections to Biofuels

- GHG emissions
- Low Carbon Fuel Standards
- Carbon sequestration
- Fiber gallons and relative CI
- Corn Oil
 - Biodiesel
 - Renewable Diesel
- SAF



A (brief) Background on Kernel Fiber

- The EPA has identified fiber from the corn kernel as a cellulosic feedstock.
- Classifying it as a 'waste' product from a normal starch fermentation means that any conversion is saved primary energy attribution = conversion is free
- The result? The relative carbon intensity score of kernel fiber gallons is roughly 1/3 that of starch gallons.
- Why has this been important?
 - Pursuit of a D3 RIN
 - LCFS Markets
 - International Markets



So what?



- Customers want to buy sustainable products
- By proxy, companies want to claim sustainability as a value proposition.
- That translates into all sorts of things:
 - Monitoring their own energy streams
 - Only sourcing from sustainable companies
 - Leveraging alternative fuels for their fleets
 - ...
- Sustainable products and processes can demand a premium

So what for us?

- Bioethanol is (kernel fiber), or can be (starch via advanced tech, CCS, etc.), a low carbon feedstock for any number of things:
 - Sustainable aviation fuel
 - Ethylene production
 - Vinegar production
 - ...
- It is attractive because its users can add more energy to convert it, thus increasing the CI score, but keep the net result low enough to still be categorized as <insert title>.
- The more efficiently we can make ***all of our products*** and ingredients, the better the opportunity for our industry to capitalize on diesel alternatives, sustainably motivated food and feed companies, and regulatory expectations/goals.

We're in a moment

- ESG goals are encouraging companies to seek additional avenues to support climate initiatives.
- The EPA has yet to grant an advanced biofuel (D3) RIN to current pathways, but they might yet do so.
 - *They issued a [new guidance document](#) on 9/28/2022 which articulates some potential pathways to acceptance.*
- The EPA would like to see some alignment on these methodologies in the form of a voluntary consensus body.
- ASTM E48 kicked off a working group at this summer's meeting to attempt to assemble (not develop) the best ideas in the industry into a viable, ASTM method to measure cellulose.

Come find me if you're interested in joining!

Now what?

- Does your company have a sustainability or ESG report?
- Is it marketable by your company?
- Where are your products going today? Are there alternative markets that haven't been pursued?
- Are you capitalizing on your drive to be more efficient (reduce cost per gallon) by aligning with sustainability-supporting programs?
- How do you utilize the growing portfolio of marketed technologies – yeasts, enzymes, etc. – to take advantage of everything the corn kernel has to offer?
- Have you engaged with your regulatory teams/consultants/marketers to better understand how you're positioned in the market?
- Where do you sit with respect to carbon sequestration?

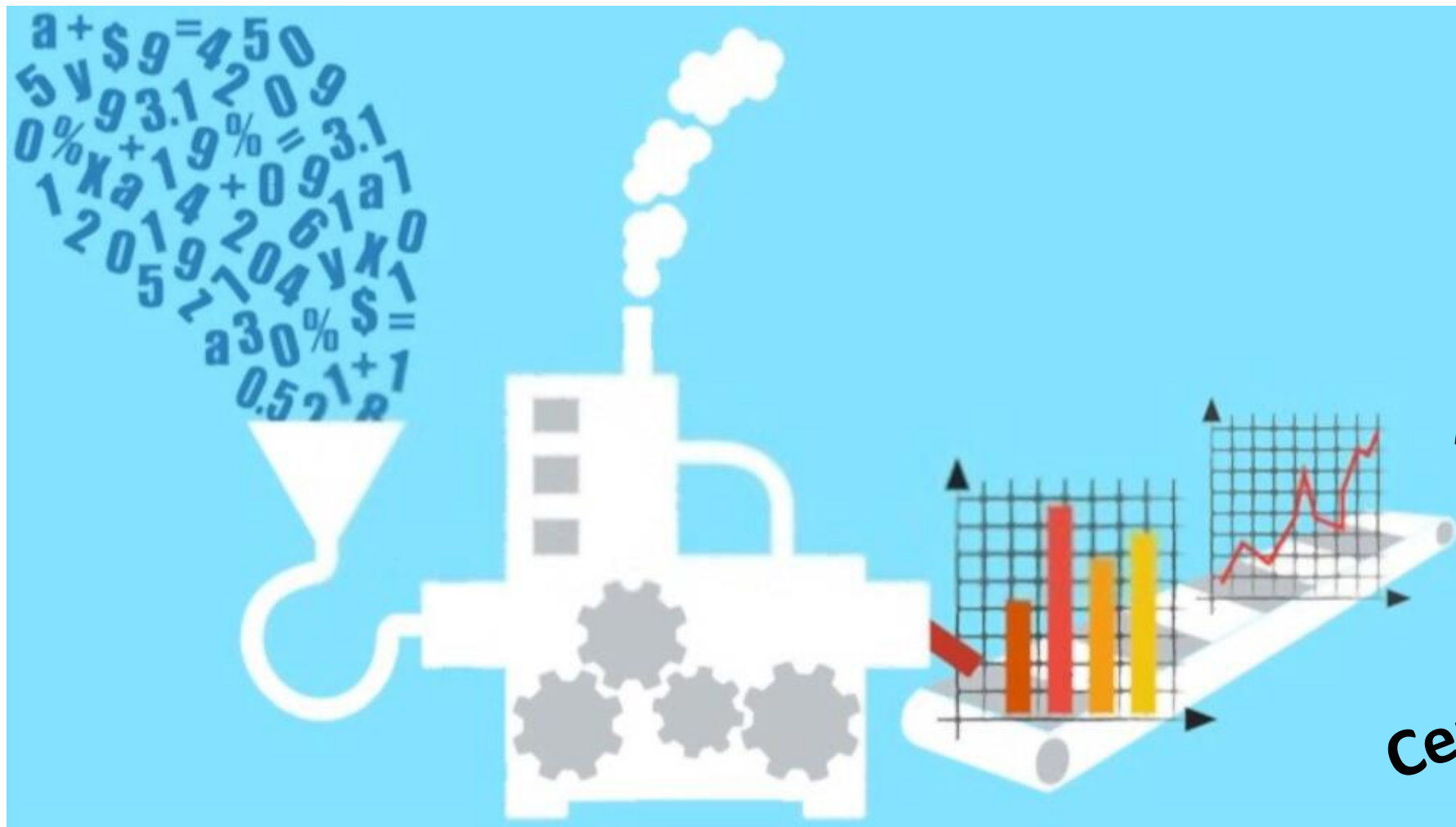
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Access**

**Value
Realization**

Certifications



THANK YOU!