Economic Outlook

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NDSU | EXTENSION AGRIBUSINESS

Key Factors

The Economy (Demand for passenger travel and freight transportation)

COVID-19 as disrupter and accelerator

Carbon and other Ecosystem Services Markets are changing everything.

and some Caveats

Time Horizon

Specific Firm Expectations

The US Economy

Recap

Recovery Expectations

--Disruptions

Business as usual, temporary disruption, permanent upheaval

Demand disruption

Transportation

Covid as disrupter

Covid as accelerator

Passenger Travel

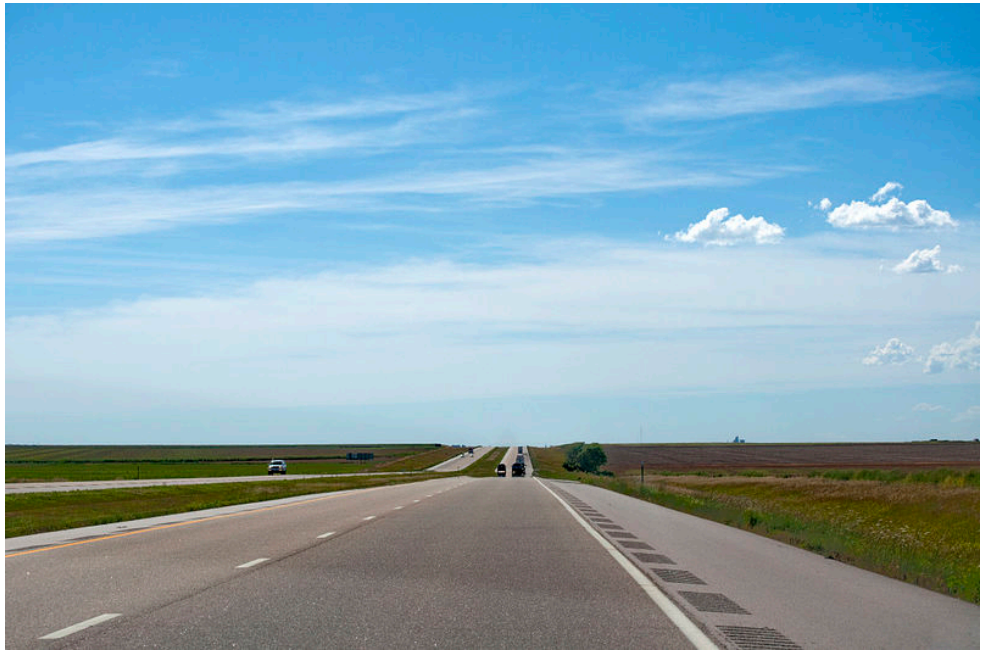
Freight

Air

Electrification of transportation

Transition

How many miles, using what power system?



Corn-Ethanol

Excess capacity

Fuel Additive: Economic recovery, continued dominance of the ICE

Fuel (E15, E85): small, but growing; E15 – consumer access

Exports – making US Corn-Ethanol ‘the’ global oxygenate

Low carbon fuel

Carbon & Climate Change

Growing concerns about climate change and anthropogenic Greenhouse (GHG) emissions has caused many governments to revisit a variety of policies especially as they relate to energy.

--Paris Agreement--

California Low Carbon Fuel Standard

California has assumed international leadership

Nation's largest transportation fuel market (~10% of the total)

Goal: Reduce the Greenhouse gas emissions associated with transportation

Uses a Cap and Trade system

Works, legally tested, "built" and is serving as a model for other states and nations

The Environmental Lens

Transition away from
high-carbon intensity fuels
(like gasoline)

Carbon Efficiency ≈ Energy Efficiency ≈ Financial Efficiency

Expand marketshare

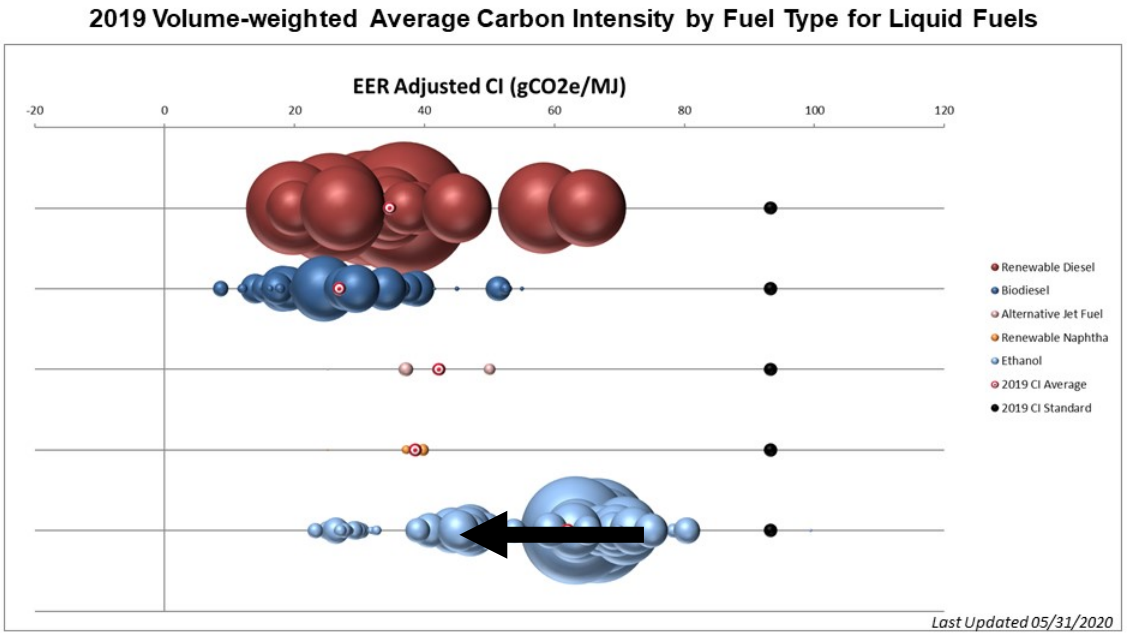
Doing good while doing well.

Implications for Corn Ethanol

Re-optimizing plant operations given new incentives

Major investments in carbon and energy reducing technology

<u>Next step is to incentivize low-carbon corn production</u>



This figure provides perspective on the performance of actual quantities of fuel consumed in California. Each sphere represents a certified fuel pathway; the size of the sphere represents the reported volume of the fuel in 2019, while its position on the horizontal axis indicates the carbon intensity of that fuel.

The alternative fuel's CI value is divided by its Energy Economy Ratio (EER) in order to obtain the EER-adjusted CI value, representing the emissions which occur from the alternative fuel per MJ of conventional fuel displaced.

Other Implications

Everything is back on the table. Advanced biofuels, fuel cells, **especially renewable diesel**.

Low carbon fuel standard markets are and will continue to expand.

-Increased demand for low-carbon fuels, including ethanol

Drive the marketplace, innovation in place of federal policy.

Quick Comments of Power

The levelized cost of solar and wind continues to decline.

State and federal policies that support solar and wind development.

Power generation from coal continues its decline, remaining plants are trying to find a future by sequestering carbon.

Recap

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