North Dakota Energy Situation and Outlook

David Ripplinger
State of the Economy
November 18, 2020
Key Points

• North Dakota as energy supplier
• Covid as
  **Disruptor** – causing **unexpected** short and long-term impacts
  **Accelerator** – speeding changes that were expected
• Economic and social uncertainty
• Energy Transition – Technology, Resources, and Policy
US Transportation Statistics, 2019-2020

Data: Bureau of Transportation Statistics
US Refined Products Prices, Diesel-Jet Fuel Spread

Data: Energy Information Administration

NDSU EXTENSION AGRIBUSINESS
Breakeven Prices for New Wells

Dallas Fed Energy Survey—In the top two areas in which your firm is active: What WTI oil price does your firm need to profitably drill a new well?

Dollars per barrel

- Permian (Midland): $46
- Eagle Ford: $46
- Permian (Other): $50
- Other U.S. (Non-shale): $50
- Bakken: $51
- Other U.S. (Shale): $51
- Permian (Delaware): $52

Number of responses:
- Permian (Midland): 22
- Eagle Ford: 7
- Permian (Other): 23
- Other U.S. (Non-shale): 44
- Bakken: 5
- Other U.S. (Shale): 8
- Permian (Delaware): 18

NOTES: Line shows the mean, and bars show the range of responses. 92 E&P firms answered this question from March 11-19, 2020. SOURCE: Federal Reserve Bank of Dallas.
Shut-in Prices for Existing Wells

Dallas Fed Energy Survey—In the top two areas in which your firm is active: What WTI oil price does your firm need to cover operating expenses for existing wells?

Dollars per barrel

- Eagle Ford: $23
- Permian (Delaware): $26
- Permian (Midland): $26
- Bakken: $28
- Other U.S. (Shale): $30
- Permian (Other): $32
- Other U.S. (Non-shale): $36

Number of responses

- Eagle Ford: 8
- Permian (Delaware): 18
- Permian (Midland): 22
- Bakken: 5
- Other U.S. (Shale): 9
- Permian (Other): 23
- Other U.S. (Non-shale): 44

NOTES: Line shows the mean, and bars show the range of responses. 95 E&P firms answered this question from March 11-19, 2020. SOURCE: Federal Reserve Bank of Dallas.
Production per Rig or wells?

Technological innovation, efficiency.

Calculated Data: Energy Information Administration, ND DMR
ND Completed and Producing Wells.

Data: Energy Information Administration, ND DMR
Ethanol reacted to the downturn more quickly. It has recovered to a level similar to gasoline. Margins have tightened due to a short corn crop, strong export sales, and weak gasoline market.

*Data: Energy Information Administration*
Relative Electricity Use by Sector, US 2016-2020

Electricity Use
- Location, Sector
- Shift to residential Heating.

Data: Energy Information Administration
Coal Power Plant Retirements

Announced in 2020
Coal Creek (Great River Energy)
Dakota Spirit, Spiritwood (GRE) to be converted to fully natural gas

Previously Announced
Stanton Station (GRE)
Lewis & Clark Station (Sydney, MT)
R.M. Heskett to be replaced with natural gas units
Outlook
A note on horizons

Short-term (next 12 to 18 months)

Long-term Next Decade, Next Thirty Years
Oil Outlook

Short-term: Covid-19
  Economic Recovery (by end of 2021)
  OPEC
  Iran
  Policy

Long-term: Consumer Behavior
  Technology
  Resource availability
  Policy
2021 Oil Prices

West Texas Intermediate (WTI) crude oil price and NYMEX confidence intervals
dollars per barrel

Note: Confidence interval derived from options market information for the five trading days ending Nov 5, 2020. Intervals not calculated for months with sparse trading in near-the-money options contracts.

Sources: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2020, CME Group, and Bloomberg, L.P.
Electrification of Transportation

Light-duty vehicle sales by fuel type (AEO2020 Reference case)

- history
- projections
- other
- hybrid electric
- plug-in hybrid electric vehicle
- battery electric
- diesel
- flex fuel
- gasoline

Data: Energy Information Administration

NDSU Extension Agribusiness
Electricity

Electricity generation from selected fuels (AEO2020 Reference case) billion kilowatthours

Renewable electricity generation, including end use (AEO2020 Reference case) billion kilowatthours

Data: Energy Information Administration
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
CCUS

Given the high price of carbon, there are projects across the globe looking at ways to capture use/sequester carbon.

Among the highest profile is Project Tundra that is looking to manage carbon emissions from MinnKota Power’s Milton Young Station.

Blue Flint Ethanol (near Underwood) is looking to do the same as is Red Trail Ethanol.
Renewable Diesel

The recent price of renewable diesel in California is ______.

Renewable diesel is biofuel produced using various bio-based feedstocks (vegetable oil, grease, fat) and traditional crude oil refining processes.

Meets diesel spec. Has an extremely low carbon footprint.
Hydrogen/Ammonia

Renewed interest in hydrogen fuel cell technology

- Use of hydrogen as fuel/converted to electricity

Three colors

Grey Hydrogen – fossil fuels

Blue Hydrogen – fossil fuels, low-carbon (sequestration)

Green Hydrogen – renewables
Policy - What to Watch for

Georgia Runoff Elections
Regulation
DAPL
Net Zero
Clean Power Plan
Courts
States, Net Zero
15 Years Ago

an inconvenient truth
A GLOBAL WARNING

“it doesn’t matter whether you’re a Republican or Democrat, liberal or conservative... your mind will be changed in a nanosecond.”
- Roger Friedman, FOXNEWS.com

ECONOMIC DEVELOPMENT

NDSU
EXTENSION AGRIBUSINESS
David Ripplinger
701.231.5265
david.ripplinger@ndsu.edu