



Flanders
State of the Art



THE ENERGY SECTOR IN THE USA

FLANDERS INVESTMENT & TRADE MARKET SURVEY



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THE STATE OF THE U.S. ENERGY SECTOR

May 2017

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FLANDERS INVESTMENT & TRADE

Energy production is a diverse industry in the United States, with significant activity in petroleum, natural gas, coal, renewables, nuclear, hydroelectric, and liquid biofuels. The largest share of energy consumed in the U.S. in 2016 was generated from petroleum and other liquids, with over 35 quadrillion British thermal units consumed, followed by natural gas and coal.¹ The U.S. Energy Information Administration (EIA) projects that between 2016 and 2040 renewable forms of energy will surpass coal in consumption.² The administration also projects that dry natural gas will continue to lead U.S. energy production, followed by crude oil and lease condensate.³

The U.S. is projected to become a net energy exporter in most scenarios in the EIA Annual Energy Outlook 2017.⁴ Part of the reason energy analysts are counting on a strong market for U.S. energy exports are Texas' strong trade ties with Mexico, which recently opened its Pemex oil monopoly to foreign investment. "Mexico has six aging refineries with sagging production. It now imports 60 percent of its gasoline and just under 50 percent of its diesel,"⁵ according to the Houston Business Journal.

In the coming decade there will be a reshuffling in the energy market in terms of what type of energy is consumed. Oil and gas will continue to be significant players. Natural gas demand is expected to increase at a faster rate than petroleum demand, due to increased demand in the industrial and electric power sectors¹ as a cleaner energy source than petroleum or coal. Renewable forms of energy like wind will gain a larger market share than coal.¹ University of Houston energy economist Ed Hirs recently told the Houston Chronicle that, "The marginal cost of gas for producers and getting it to market costs so much less than coal. Analysts predict that coal use will continue to decline, regardless of whether wind energy is subsidized by the current administration."⁶

1 OIL AND GAS MARKET SHIFTS

Although there are no deviations expected in market share, there are changes in how oil and gas will be extracted. Extraction will shift onshore, toward shale plays in North America with new technologies based on hydraulic fracturing. The Houston Chronicle reported this April that another shale boom could be on the horizon, citing a report from the Energy Information Administration that projects U.S. output to reach 10 million barrels a day by the fourth quarter of 2018.⁷ The decreasing cost of tapping unconventional resources like shale in recent years has increased activity in large plays in Texas and Mexico like the San Antonio Eagle Ford Shale and the West Texas Permian Basin. Of the 768 drilling sites active across the United States, 392 active drilling sites were in Texas in March 2017, according to the Houston Business Journal.⁸ Baker Hughes Rig Count figures published

in the Houston Business Journal days later reported even more active rigs, with 411 in Texas – more than double the 204 rigs active in March 2016.⁹ Experts predict that oil and gas extraction will shift away from deep-water drilling to onshore rigs, with the Houston Chronicle reporting that Houston investment banker Dan Pickering of Tudor, Pickering and Hold estimates a typical Permian Basin onshore well costs \$7 million, while a typical offshore well costs \$5-11 billion.¹⁰

2 THE RISE OF WIND ENERGY

Wind energy contributes significantly to the renewable energy sector in the U.S., with 82,183 MW of installed wind capacity through the end of 2016. \$143 billion has been invested in new wind projects in the last 10 years by the wind industry, according to the American Wind Energy Association.¹¹

Texas leads the United States in wind power production, with wind generating 10.6 percent of Texas electricity in 2014.¹² Areas with a high demand for wind energy do not always coincide with areas where a lot of wind energy is produced, so Texas funded a 3,600 mile transmission network to shift wind from West Texas to East Texas. Texas is a unique regulatory environment because it is the largest state with an electric system under the control of a single legislature and public utilities commission.¹³

Offshore wind farms are expected to remain an attractive option as wind companies diversify the locations of their wind farms to make production more stable relative to demand. The Jones Act restricts how foreign companies are able to participate in wind farm installations on the U.S. coastline. Charlie Papavizas, a maritime lawyer with Winston & Strawn, has written about how the Jones Act affects wind farm installation in the *Offshore Wind Journal*:

“Although only a handful of ruling requests have been submitted to the U.S. Government to date expressly on offshore wind, they confirm that driving of piles and the assembly of the tower components offshore can be done with a stationary foreign-flagged vessel. However, once anything is temporarily or permanently attached to the U.S. OCS, then anything brought to that point from a U.S. port (such as the pedestal, nacelle, blades and other components) would have to be brought to the construction site by qualified U.S.-flagged vessels.”¹⁴

In addition to regulations, wind energy will face challenges to growth because of the difficulty of transmission, storage and demand monitoring. Experts seem optimistic that these challenges will become major opportunities for power companies, with the *Houston Chronicle* predicting that, “Just as phone companies offer a variety of individualized services and packages rather than charging by the minute, energy companies could soon offer energy services that focus primarily on efficiency instead of selling electricity.”¹⁵ While the Jones Act limits certain wind farm installation activities performed by non-U.S. companies, there will be opportunities to sell demand monitoring, transmission or storage technologies already in use in Europe.

3 OPPORTUNITIES FOR FLANDERS

Our Flanders Investment & Trade Houston office has found through our research that there are significant opportunities in the U.S. for Flemish energy technology. Opportunities will be available for companies with technology or services related to the installation of wind turbines on-shore and off-shore, for large-scale energy storage, for demand-monitoring services and tools, and for oil and gas players to take advantage of strong activity in oil and gas extraction and U.S. oil and gas exports.

Based on our observations, we would recommend that Flemish players in the renewable energy, oil and gas, or wind energy sectors contact our Houston office to explore export opportunities or consider opening a U.S. office.

We encourage American energy companies to contact us for information on opportunities to invest in or purchase technology from Flemish companies due to Flanders’ strength as a chemicals, cleantech and renewable energy innovation hub.

4 FOR MORE INFORMATION VISIT

Energy Information Administration: www.eia.gov

U.S. Department of Energy: www.energy.gov

American Wind Energy Association: www.awea.org

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- ¹ U.S. Energy Information Administration Annual Energy Outlook p. 9-10 <http://www.eia.gov/aeo> consulted on March 30, 2017.
- ² U.S. Energy Information Administration Annual Energy Outlook p. 10 <http://www.eia.gov/aeo> consulted on March 30, 2017.
- ³ U.S. Energy Information Administration Annual Energy Outlook p. 13-14 <http://www.eia.gov/aeo> consulted on March 30, 2017.
- ⁴ U.S. Energy Information Administration <https://www.eia.gov/todayinenergy/detail.php?id=29433> consulted on March 30, 2017.
- ⁵ Houston Business Journal Texas Companies scramble to meet demand for refined products in Mexico <https://www.bizjournals.com/houston/news/2017/03/20/texas-companies-scramble-to-meet-demand-for.html> March 20, 2017.
- ⁶ Houston Chronicle Trump's orders may not save coal industry <http://www.houstonchronicle.com/business/article/As-Trump-moves-to-cut-rules-will-the-market-11034717.php> March 29, 2017.
- ⁷ Houston Chronicle For U.S. shale, another boom on the horizon <http://www.houstonchronicle.com/business/energy/article/For-U-S-shale-another-boom-on-the-horizon-11066624.php> 11 April 2017.
- ⁸ Houston Business Journal Rig count takes step back in the Eagle Ford <https://www.bizjournals.com/houston/news/2017/03/12/rig-count-takes-step-back-in-the-eagle-ford.html> 29 March 2017.
- ⁹ Houston Business Journal With new drilling activity, Texas rig count now more than double March 2016 levels <https://www.bizjournals.com/houston/news/2017/04/03/with-new-drilling-activity-texas-rig-count-now.html> April 3, 2017.
- ¹⁰ Houston Chronicle Deep-water drilling faces shallow future <http://www.houstonchronicle.com/business/columnists/tomlinson/article/Deep-water-drilling-faces-shallow-future-11123412.php> May 5, 2017.
- ¹¹ American Wind Energy Association <http://www.awea.org/wind-energy-facts-at-a-glance> accessed March 30, 2017.
- ¹² Yale Environment 360 How Conservative Texas took the lead in U.S. wind power <http://e360.yale.edu/features/how-conservative-texas-took-the-lead-in-us-wind-power> April 9, 2017.
- ¹³ New York Times Texas is wired for wind power, and more farms plug in <https://nyti.ms/InsCcBg> July 23, 2014.
- ¹⁴ Offshore Wind Journal Working with the Jones Act in the offshore wind industry <http://www.owjonline.com/news/view-working-with-the-jones-act-in-the-offshore-wind-industry-45102.htm> Oct 21, 2016.
- ¹⁵ Houston Chronicle Power companies want to move beyond electric meter <http://www.houstonchronicle.com/business/columnists/tomlinson/article/More-efficient-electricity-use-will-force-new-11041006.php> March 31, 2017.

5 DISCLAIMER

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May 2017