

# Energy

Update: North American energy independence: reenergized | **14 June 2017**

**Chief Investment Office Americas, Wealth Management**

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## What's new?

We provide an update on our outlook for North American energy independence. We review our list of recommendations which we believe will best position investors to benefit from projected trends in North American energy over the next 12 months.

In the coming 12 months, we project ongoing improvement in global oil market fundamentals. This should be supportive of oil prices, though oil prices may be capped in the near term by growth in supplies from the US and elsewhere in the second half of 2017. As such, we focus on the industry participants that are best positioned to sustain long-term, valued-added growth with oil in the USD 50's/bbl.



Source: UBS

**A version of this report is available with specific security recommendations for the US onshore investors. For a copy, please consult your UBS Financial Advisor**

## Theme synopsis

We project North America will be energy independent by the end of this decade, and that the US will no longer be reliant upon imported oil from OPEC nations. Our thesis centers on three primary tenets: 1) higher US oil production; 2) rising crude oil imports to the US from Canada; and 3) efficiency, conservation, and diversification away from oil and other non-renewable energy resources. All three tenets support significant expansion for North America-based energy providers and energy infrastructure in the US over the next several years.

In the five years since we introduced our thesis, the trends have been supportive of our view. Despite weaker oil and natural gas prices, our thesis for North American energy independence is intact. In fact, productivity and efficiency gains achieved by US operators increase our conviction that energy independence is achievable.

We see investment opportunities around North America's emerging energy independence. As oil market fundamentals improve, we project resumption of growth in most phases of the US onshore oil and gas business, particularly exploration and production, oil services, and energy infrastructure. Alternative energy suppliers and developers of technologies to improve energy efficiency should also continue to experience growth, and fit well into our theme.

### Progress toward energy independence growing more evident

Since the beginning of the decade, North America has grown increasingly energy independent. Oil imports to the US from OPEC nations declined by over 40% in 2010–2015 (see Fig. 1). OPEC imports rose in 2016 due to production declines in the US and Canada in response to low oil prices, coupled with a surge in OPEC production to maximize revenues. However, we expect OPEC imports to the US to resume their downward trend as North American production recovers.

There have been other benefits of the US's growing energy capabilities, namely to the US economy. For instance, the US trade deficit has been positively impacted by energy trends. The US in the past three years has transitioned from being a large importer of refined product to a large exporter of refined product. The US is also an exporter of coal, and in early 2016 it became an exporter of liquefied natural gas (LNG). In addition, increased natural gas production has enabled growth in exports of natural gas liquids and other refined gases. And finally, with the longstanding US oil export ban lifted, exports of oil and condensate are rising.

### Shale gas plays important role in the US

The US has long been self-sufficient when it comes to natural gas. However, early last decade, existing US fields were maturing and the US was preparing to become an importer of liquefied natural gas (LNG), which is a high-priced source of gas supply due to processing and shipping costs.

Today, ample supplies of natural gas from onshore US resource plays should be sufficient to satisfy US demand for several decades at least. This eliminates the need to import gas, and helps to ensure plentiful and reliable supply domestically at an affordable price.

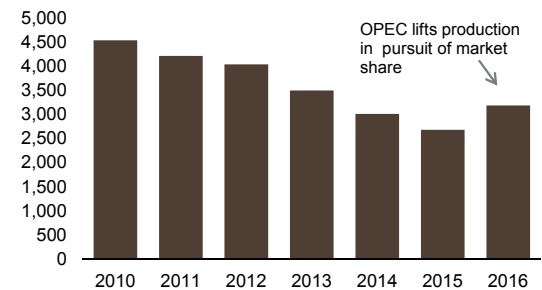
What's more, the US, which is the largest consumer of natural gas in the world, benefits economically from a cost advantage versus other large natural-gas-consuming nations, including the UK and Japan (see Fig. 2). Most natural-gas-consuming nations around the world are at least partially reliant on supplies of higher-cost LNG.

For the US, low-cost natural gas has supported growth in manufacturing as large industrial consumers look to exploit the benefits of low-cost energy through expansion of US-based operations. This has been most evident in energy-intensive sectors such as petrochemicals, where natural gas is also used as a feedstock. As an example, eight ethane crackers are under construction on the Gulf Coast – an investment of over USD 10 billion, based on the attractive price of natural gas and natural gas liquids in the US. The new facilities are scheduled to enter commercial operation between 2017 and 2019.

Reliable and affordable natural gas supplies have emboldened wholesale consumers to shift away from more costly and carbon-intensive fuels such as coal and oil. The US has reduced the use of coal for power generation (see Fig. 3), and we expect the trend to continue, particularly as older coal-fired facilities are retired over the next 5–10 years. The majority of these older coal-fired power generation resources are likely to be replaced with natural gas-fired power generation facilities.

**Fig. 1: Imports to the US from OPEC**

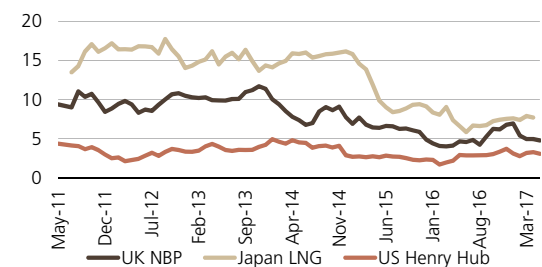
Down by over 40% in 2010 through 2015 (in thousands of b/d)



Source: Energy Information Administration

**Fig. 2: Natural gas prices in major consuming markets -US, UK and Japan**

US gas consumers enjoy a price advantage due to abundance of domestically-produced supply; in USD/mcf



Source: Bloomberg, UBS

ties, which are generally more economic. However, though we expect coal-fired generation to decline as a percentage of total utility-scale power generation over the next 10 years, coal will not be phased out entirely in the near term. We expect coal-fired generation will remain a significant part of a diverse energy mix for the next several decades.

### Additional energy infrastructure required

The shale revolution driving oil and natural gas production growth in the US should also continue to drive energy infrastructure investments in pipelines, storage, and processing facilities. Of note, we expect growth in oil production in the US to drive the need for oil infrastructure expansion to support that growth over the next several years.

Rising demand for natural gas and a significant change in the geographic and directional flows of natural gas in the US will continue to require additional natural gas gathering, processing, and transportation infrastructure over the next several years. A lot of this investment is in the eastern half of the US with some concentration around the Marcellus shale, though a rapid increase in activity in the Permian basin is driving the need for additional infrastructure in Texas.

To put the capital spending opportunity in perspective, in April 2016, the Interstate Natural Gas Association of America (INGAA) released an update of a 2014 study of oil and natural gas midstream infrastructure capital spending expectations for the next 20 years through 2035. The forecast suggested midstream infrastructure spending of USD 22–30 billion annually, some of which would be front-end loaded as a result of additional natural gas pipeline capacity needs. This highlights the growth opportunity in energy infrastructure and our focus on master limited partnerships (MLP) and energy infrastructure companies in the North American energy independence theme.

### Conservation and diversification of energy resources

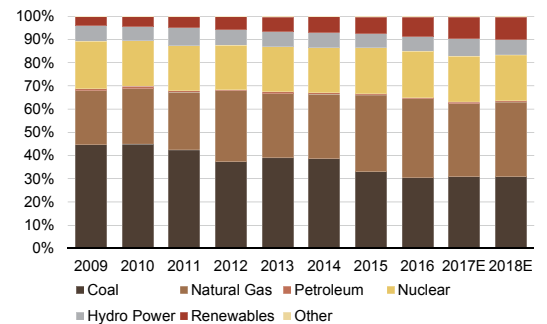
A key tenet of our thesis for North American energy independence is conservation and diversification of our energy resource base. We see investment opportunities in the near term, which yield both energy savings and reduced carbon dioxide emissions.

Prior to 2017, stricter regulation with a view to protecting the environment and securing a renewable supply of energy had been a powerful driver, boosting efficiencies in buildings, automobiles, and power generation. Energy efficiency addresses a whole range of issues in addition to the reduction of energy consumption, such as the potential reduction in the use of fossil energy sources and the increase in renewable energy production. Companies manufacturing energy-efficient equipment benefit from this trend.

Importantly, though certain catalysts driving energy efficiency appear altered under the new US president, we do not foresee any slow-down in the trend driving energy efficiency in the context of our North American energy independence theme.

Technological advances in wind and solar continue to drive down costs, making these renewable resources more competitive in the US power generation business. While still representing just a small part

**Fig. 3: Sources for US power generation**  
As a percent of the total



Source: Energy Information Administration

of the total US energy resource base, the rate of growth in these resources has exceeded any other in the US over the past five years. Wind and solar accounted for approximately 9% of all power generation at utility-scale facilities in the US for the 12 months ended March 2017, up from 4% in 2010. As a result of technological and economic advances in renewable energy to date, and our expectations over the next three years, we do not expect the expiration of renewable energy tax credits over the next several years to slow the growth in renewable energy materially.

In transportation fuels, many municipal car and truck fleets – public transportation, garbage removal, mail delivery – have converted to natural gas powered vehicles, helping the US to diversify away from oil as the sole transportation fuel. Long-haul trucking fleets are also converting to natural gas. Use of electric and hybrid cars is rising, powered with electricity generated increasingly from natural gas, wind, and solar. The Energy Information Administration (EIA) predicts battery electric vehicle sales will increase from less than 1% to 6% of total light-duty vehicles sold in the United States over 2016–2040, and plug-in hybrid electric vehicle sales will increase from less than 1% to 4% over the same period. Hydrogen fuel cell vehicle sales are projected to grow to approximately 0.6% of sales by 2040. Driven by rapidly declining battery costs and state incentive programs, the EIA projects the most pronounced growth to occur over the next 10 years. By 2025, the agency projects sales of light-duty battery electric, plug-in hybrid electric, and hydrogen fuel cell vehicles reach 1.5 million, about 9% of projected total sales of light-duty vehicles. By 2040, we estimate these alternative-powered vehicles could reduce oil consumption in the US by roughly 1 million barrels per day, or 11% of current US gasoline consumption.

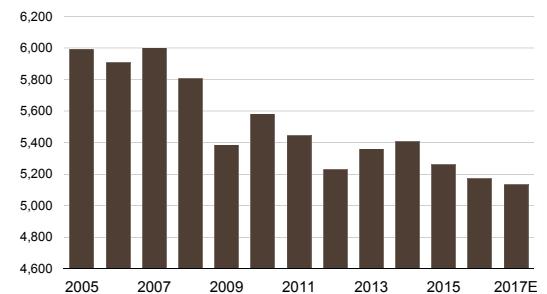
### Environmental impacts continue to improve

Despite an upward trend in activities such as manufacturing, vehicle miles traveled, and air travel capacity in the US, diversification and efficiencies have supported a downward trend in CO<sub>2</sub> emissions (see Fig. 4). In 2016, US energy-related CO<sub>2</sub> emissions were estimated by the Energy Information Administration to be 14% below the 2007 peak level.

The new administration in Washington DC has promoted policies that appear more supportive of fossil fuels, including oil, natural gas, and coal than the last administration. However, our view is that public preferences and many state-level environmental initiatives, including renewable portfolio standards, will continue to support progress in the development of renewable energy and alternative fuels, and to promote energy efficiency. This is due in part to customer demand for renewable power and energy efficiency. Therefore, we see no meaningful impact on current trends toward diversification and greater efficiency in the near term.

**Fig. 4: US energy-related CO<sub>2</sub> emissions**

In million metric tons carbon dioxide



Source: Energy Information Administration

**Outlook and investment conclusions**

Since we introduced our thesis for North American energy independence in June 2012, significant progress has occurred. The sharp decline in oil prices which began in 2014 does not derail our thesis. In fact, given the productivity and efficiency gains achieved by the best on-shore US producers during the downturn, we have greater confidence in the North American energy independence theme.

We project ongoing recovery in oil market fundamentals to support growth in the US oil and gas industry. We believe the oil markets have flipped to a supply deficit (see Fig. 5). The decline in US oil production through mid-2016 contributed to improving fundamental trends. The recent agreement by OPEC and major non-OPEC producers to reduce output has accelerated the global oil market rebalancing. As the oil markets tighten and inventories decline, we project oil prices will rise from current levels. Therefore, our current list of recommendations for investors in this theme is heavily oriented to energy production.

US production growth, which we expect to resume in a meaningful way by late 2017, could keep oil prices temporarily range-bound – in approximately the USD 50–60/bbl range. For this reason, we focus on a select group of operators who are positioned to grow in this price environment. These advantaged operators – predominantly North American oil and gas producers, oil and gas services, and energy infrastructure – will be the largest beneficiaries of recovery and stabilization of oil prices.

We also look for opportunities in renewable energy, and technologies that target energy efficiency, providing new approaches to satisfy energy demand in a sustainable manner. In many cases, the technology for development of a more sustainable energy future remains immature, though we expect more investment opportunities to emerge. Over time, renewable energy will likely become a larger component of our recommendations for investors in our thesis for North American energy independence.

**Positioning for the coming year**

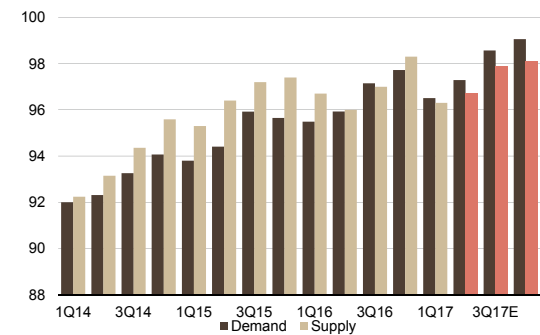
The North American energy independence theme is long-term in nature, but new challenges and new opportunities arise as progress continues, and as macro conditions evolve. We monitor the trends in search of the best opportunities for investors in this theme. Below we highlight some sectors that we believe will benefit from trends relating to North America's emerging energy independence in the coming 12 months. (Fig. 6 provides a view of sectors included in our current recommendations in this theme.)

**Oil and gas.** Drilling activity has begun to recover as oil prices have risen from recent lows seen in early 2016. This supports a resumption of sector growth. Given our view for a shallow price recovery in the near term, we target the strongest oil and gas operators and service providers.

**Energy infrastructure.** The shale revolution in onshore US oil and natural gas production continues to drive the need for additional energy infrastructure. Though 2014 may prove to be a peak in annu-

**Fig. 5: Global oil supply and demand**

In millions of barrels per day

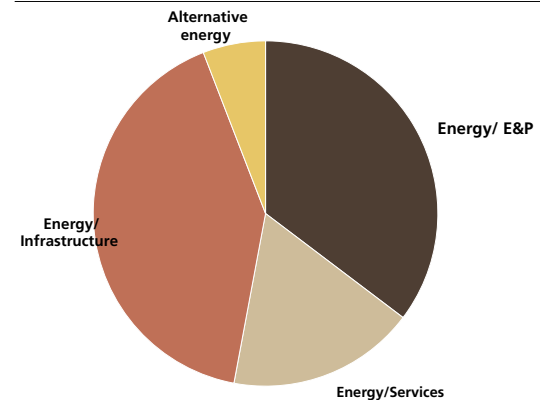


Source: International Energy Agency, UBS

Note: Figures for 2Q-4Q 2017 are estimated. CIO WM, Americas depict 2017 global supply based on IEA forecast for non-OPEC production, and assumption of a 600,000 b/d cut in production (half of pledged amount).

**Fig. 6: Sector allocation**

Our recommendations include energy producers and service providers, energy infrastructure, and renewable & alternative energy providers



Source: UBS

al investment, we see several years of investment opportunity ahead for MLPs and energy infrastructure companies to add investment in gathering, storing, processing, and transporting crude, natural gas, and other petroleum products throughout North America. This will drive investment and growth opportunities for the strongest and best positioned MLPs and energy infrastructure companies.

**Renewable and alternative energy.** Diversification of the electric generation fuel mix through the deployment of utility-scale renewable energy resources (primarily wind and solar) remains a key element of our thesis for North American energy independence. We see investment opportunities beginning to emerge as the technologies mature into competitive and growing alternative energy resources.

## Appendix

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