

A woman with long brown hair, wearing a dark blue patterned shirt, is looking at a tablet. She is standing in front of a large window that looks out onto a city at night. The city lights are blurred, creating a bokeh effect with various colors like yellow, orange, and green. The overall mood is professional and modern.

7 for 2017: Global Energy Market Trends

The global energy landscape continues to evolve, sometimes by the nanosecond. As this landscape shifts, the effects often can be felt across multiple departments and stakeholders in multiple geographies. This paper explores a few of the key global trends influencing the energy landscape to make 2017 an interesting year.

Introduction

The global energy landscape continues to evolve, sometimes by the nanosecond. This level of complexity makes it increasingly difficult for organizations to anticipate and react to the variables that will have the greatest impact on their business. Within those same companies, these impacts are likely to be felt across multiple departments by multiple stakeholders across multiple geographies. In today's multinational corporations, energy affects not only energy managers and procurement professionals, but also sustainability officers, finance directors, and even public relations teams. A clear view of the market everywhere your organization has an operational footprint is critical to the way you purchase, use and track energy.

The convergence of energy and environmental disciplines, together with the ever-changing global market dynamics, makes 2017 an interesting year. This paper explores a few key trends in more detail:

1. Where will renewable energy grow in 2017?
2. Permian Shale takes on OPEC
3. The Continued Rise of Corporate PPAs
4. The Convergence of Efficiency, Supply and Demand Decision-Making
5. Expanding LNG Market Signals New Global Price Relationships
6. Political and Policy Changes and the Energy Implications: Part 1 (What won't change.)
7. Political and Policy Changes and the Energy Implications: Part 2 (What will change.)

1. Where will renewable energy grow in 2017?

The short answer is everywhere. While developed markets took the lead on renewable investment on a large-scale in the 1980s, 2017 is set to point to emerging markets as the clear leader in adding renewable capacity. The reason behind this global shift is simple: renewable electricity is cheap. As electricity demand in developing markets grows, renewable investment often offers the lowest cost option (even without subsidies).

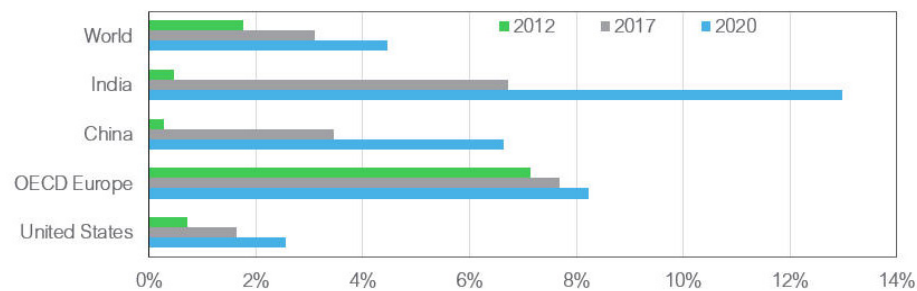
Of course, that's true in both developed and emerging markets alike. In the US and Canada, state and provincial targets drive investment, while national subsidies incentivize areas where states don't have specific targets. In parallel, the EU has had ambitious targets for more than a decade, and 2017 will see continued investment to meet them. Following ratification of the Paris Agreement in 2016 — and within the new EU policy framework — the European Commission published a new package of measures on clean energy transition for the EU Member States (November 2016). This new package includes legislative proposals on energy efficiency, renewable energy, the design of the electricity market, security of electricity supply, and governance rules for the Energy Union.

The package seeks to achieve these three main goals:

- Putting energy efficiency first.
- Achieving global leadership in renewable energies.
- Providing a fair deal for consumers.

In most cases, the developed world faces flat or falling demand, which means the cost of renewable energy often includes a fossil-fuel plant closure.

Solar Capacity as a Percent of Total Capacity



India and China are leading renewable growth in developing world markets.

However, some of the most significant strides in 2017 are set to come from emerging markets eager to accelerate their positions on the global renewable landscape. India and China are the leaders in the developing world. Their aggressive push toward a greener grid has met with significant issues that developed markets often encounter, such as transmission bottlenecks. Rather than showcase only the challenges of renewable investment though, these countries also show some of the unique approaches emerging markets can take to pursue their renewable goals.

Like many countries, demand centers in India are separated from the most attractive destinations for renewable development. Addressing these bottleneck constraints has become a paramount concern as the Indian government looks to bring online upwards of 9 GW of solar additions in 2017 alone. In response, the government has coordinated the development of “Green Energy Corridors”. These corridors are long-distance transmission lines built to ensure solar and wind resources from India’s east and western corners make it inland to demand centers like New Delhi. In this sense, India highlights a unique aspect that has allowed emerging markets to become a global leader in renewable energy.

Unlike most western markets, India’s primary task is to create capacity. Rather than replace existing capacity – as is often seen in more developed markets – India has greater freedom to structure its grid to maximize the potential of renewable investment.

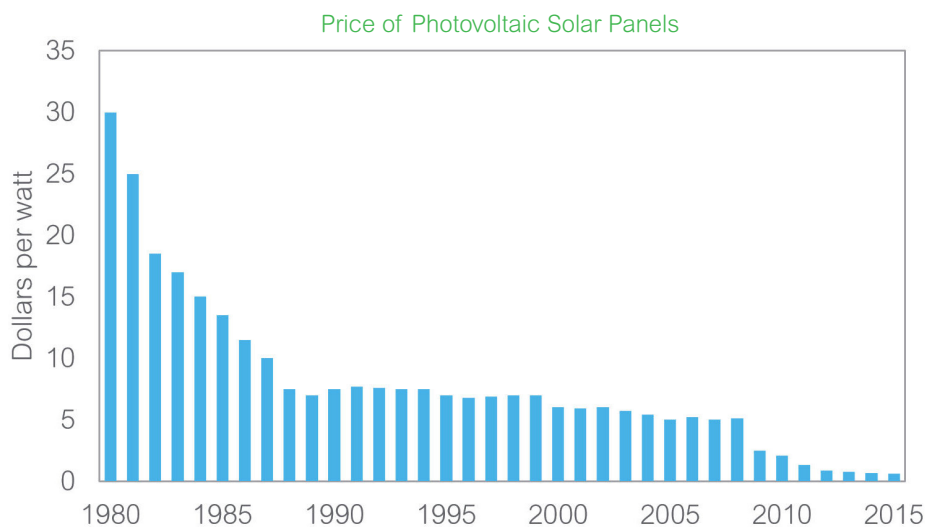


Wind turbines in Chitradurga, India at the Vanie Vilas Sagara Dam.

Elsewhere, similar factors along with significant investment in China have led to impressive growth in renewable infrastructure. In recent years, China has seen combined wind and solar generation grow by 30% annually, with installations of 30+ GW of solar in 2016 alone, adding to the 43.5 GW of existing capacity. The country’s 2020 solar target of 110 GW looks more achievable every day, which will lead to up to 20 GW of solar capacity additions in 2017. Meanwhile, wind generation has been almost equally impressive with an expectation of 16 GW to be added annually over the next five years.

While the most significant renewable energy growth is poised to come from key economic regions, such as India, China, the US and Europe, the following illustrates how 2017 is a keystone year in new and diverse markets, as well:

- 2016's inauguration of the Reventazón Dam in Costa Rica could make 2017 the first year the country runs exclusively on renewable energy.
- In Kenya, Africa's largest windfarm (310 MW) should come online in mid-2017 along the shore of Lake Turkana. This will add to the growing baseload of geothermal energy Kenya accesses in the Rift Valley.
- As the UAE targets a 25% renewable power mix by 2030, several solar projects are under construction that will provide electricity at a cost below 3 cents/kWh.
- In Morocco, the second phase of the Noor-Ouarzazate solar power station is expected to come online. The 200 MW addition is a concentrated solar power array (parabolic mirrors) with 7 hours of energy storage via molten salt. This allows electricity to be distributed long after the desert sun sets.



To better understand why renewables are growing, the chart above illustrates the declining cost of solar panels in particular. As manufacturing costs have fallen by ~ 20% annually since 2010, capital markets have opened to regions where solar was not economical only a few years ago. As a result, 2017 will be a year of proliferation and diversity for renewables as countries and regions across the globe harness newly available renewable resources. It is abundantly clear renewable energy has become a truly global trend as emerging markets take the lead in expanding renewable infrastructure.

2. Permian Shale takes on OPEC

In November 2016, OPEC formally announced its first coordinated oil supply cut in nearly a decade. OPEC teamed with several non-OPEC members to plan the removal of approximately 1.2 mmbbl/d of global oil supply. To some, this signaled the world's most well-known cartel coming out of retirement to end two years of persistently low oil prices. The truth, however, is somewhat more restrained. While the OPEC deal did send prices higher, its overall impact has been limited. Far from the \$100+ oil prices that existed before prices plunged in 2014, oil benchmarks have barely managed to hold above \$50.

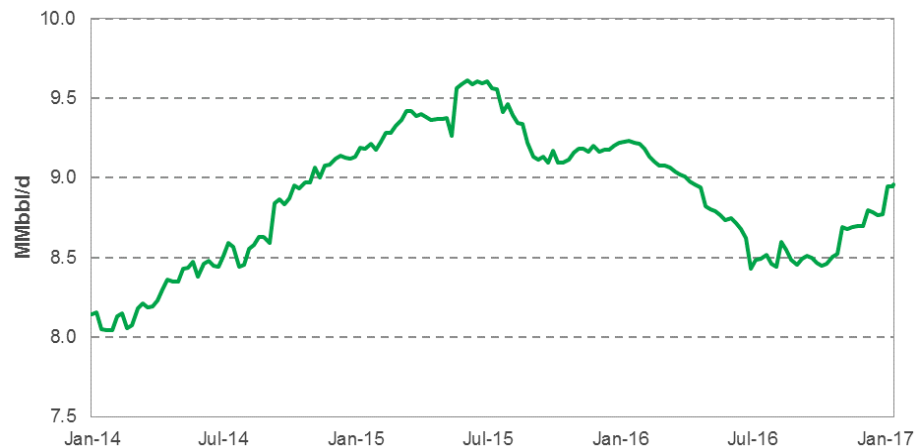
The limited response is not from lack of effort. Compared to OPEC's previous supply deals, early indications show the 2017 agreement is holding up relatively well. Global tanker traffic has indicated slower activity in major regions, and more forecasts now expect the global oil/supply-demand balance to fall into deficit for significant stretches of 2017.

However, even the most bullish 2017 oil forecasts balk at \$70 oil, let alone triple-digit oil. In fact, the reason \$100 oil still seems so far-fetched has little to do with OPEC and everything to do with the plains of West Texas.



After two years of steep declines, 2016 signals a clear rise in oil prices. Nonetheless, prices remain far below pre-2014 levels.

If you've kept up with energy politics in recent years, you've probably heard the "OPEC vs. the US Shale Boom" narrative. In fact, that was the focus of one of our 2016 global trends. We argued the US – not OPEC – was moving into the role of the world's swing oil producer. As it turned out, that's exactly what we saw: US production dropped to lift prices and rose over the latter half of the year to cap oil's rally.

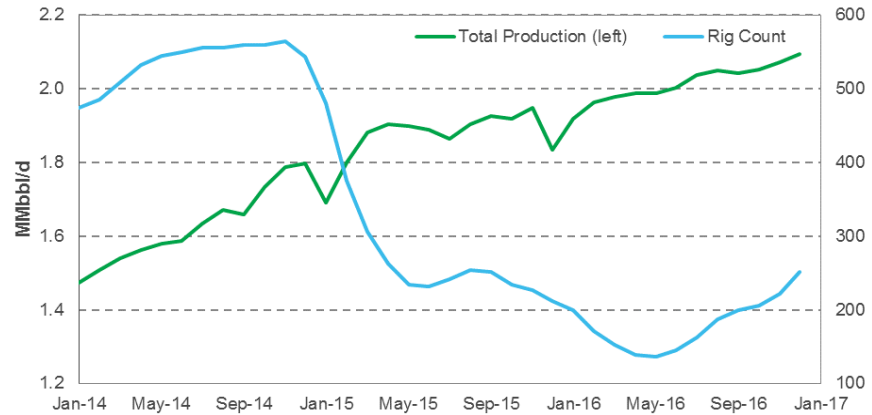


But to group US production into one homogenous category is a bit misleading. Offshore oil still remains largely out of the money at current prices, and many major shale basins remain well below their output highs of the past year. The most notable exception to this rule is the Permian shale basin in West Texas. Throughout 2016, it became even more apparent that Permian offered the most productive and most profitable oil acreage in the US. So profitable, in fact, that production increased even as oil prices dropped. As oil prices rise, then, the question has moved from "Can production keep going higher?" to "How high can it go?"

While OPEC's move to cut production offered understandable support for global prices, basic economic theory would suggest that every additional barrel from Permian offsets a barrel cut by OPEC. Looking at a few key indicators, it's clear Permian region producers are looking to do exactly that. In the weeks following OPEC's announcement, the Permian's core region has added roughly 50 new oil rigs – a gain of more than 30%. Additionally, some of the biggest names in oil production rushed to secure the claims in the area,

headlined by a recent \$6.6 billion acquisition by ExxonMobil.

Elsewhere, companies with an existing presence raced to boost their investment in Permian. Apache announced a \$200 million increase in capital spending within Permian to coincide with their discovery of an estimated 3 billion additional barrels of oil in Permian's Alpine High section.



Essentially, evidence strongly indicates Permian is prepared to rapidly add to the world's supply of oil as OPEC works to hold prices above \$50/bbl. That's not only pressuring today's price, but also already impacting oil's future value. In recent years, oil traded in a steady and often steep contango – the cost of buying cheaper oil today rather than buying oil for delivery at a later date on the futures market. However, as the market becomes more aware that Permian could lead a recovery in US oil production, the contango has been threatened. Global oil prices trading in partial backwardation means a contract to buy oil in three years is actually cheaper than a contract to buy oil in three months. Despite broad consensus that global oil demand will only increase during those years, the expectation of even stronger production levels undermines the incentive to pay a premium to secure future prices.

The stakes for the global oil market couldn't be higher. If Permian shows signs of slowing, prices will surge higher.

As the market adjusts to the new oil landscape, OPEC adjusts as well. The group that previously defended \$100+ oil prices has had several members on record calling for a \$50-60 range. This level aligns much closer with Permian's higher breakeven costs than with the breakeven price of OPEC members' budgets. As a result, the stakes for the global oil market couldn't be higher. Should Permian show signs of slowing, it will signal prices to surge higher. However, so long as Permian continues to show strength, OPEC's ability to push prices higher is capped. OPEC meetings in Vienna and Marrakesh will always attract international attention, but the true price-setters of global oil might actually be in Odessa and Midland, Texas.



Permian Shale oil rig operating in west Texas, United States.

3. The Continued Rise of Corporate PPAs

Last year was another extraordinary year for renewable energy. Following the adoption of the Paris Agreement, a new era of clean energy growth has begun. Governments and businesses are more aware that clean solutions will play a major role in a more sustainable future. At the same time, the economics must make sense, as well. Although climate change may be the inspiration for clean technology, plummeting costs have also made it more commercially viable, and in some geographies a true 'no-brainer'.

As global consensus emerges on action to combat climate change, corporations have found it challenging to play a leading role. Each company's situation is unique, but many have leveraged power purchase agreements (PPAs) as a way to achieve step-wise progress toward sustainability and financial goals. That trend has been building for several years and 2017 is set to show its strength.

A quick look at the current landscape points to a real rise in commercial & industrial (C&I) end-user focus on corporate renewable energy:



Currently, nearly 25% of global Fortune 100 have defined renewable targets, many seeking to use 100% renewables long-term.

For starters, the figure above highlights the growing number of the world's most recognizable companies that have committed to an ambitious and large-scale renewable energy and sustainability strategy. Currently, nearly 25% of the global Fortune 100 have defined renewable energy targets. Many companies are even seeking to use 100% renewable energy in the long-term.

Still, most major corporations have more ambiguous strategies to move forward. That's understandable given the perceived complexity that can come with the use of renewable energy, but the evidence is already clear: strategies exist to meet these goals and improve the bottom line.

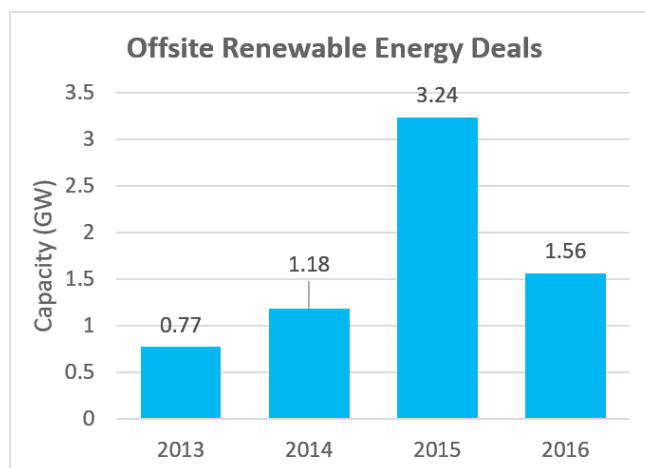
Early corporate adopters of ambitious renewable strategies provide an invaluable roadmap. Broadly speaking, these companies have made the most significant, sustainable, and cost-effective strides toward their corporate renewable goals through offsite or "virtual" power purchase agreements, often called VPPAs.



While the push for corporate sustainability has accelerated in recent years, use of corporate PPAs – and specifically VPPAs – to achieve these goals has exploded. Virtually non-existent as recently as 2012, corporate offsite PPAs accounted for 3 GW of additional renewable capacity in 2015. That's more additional capacity – renewable or otherwise – than any state except Texas. It's also greater than the amount of utility-scale solar added in the entire US. VPPAs have surged into the corporate space as an effective tool to achieve ambitious goals. They also address the typical issues of the energy trilemma – simultaneously pursuing a solution that ensures supply security, sustainability, and profitability. For a deeper understanding of how VPPAs can meet these challenges and a better idea of how they work, [check out our **whitepaper**](#).



In terms of 2017 trends, though, the chart below may seem to suggest corporate offsite deals for renewable energy are in decline. The 3+ GW inked in 2015 were followed by less than half that figure in 2016, which might suggest a further decline in 2017. In reality, the trend is poised to accelerate well beyond 2016 levels, and even challenge 2015's record growth.



That's because 2016 wasn't the start of a decline, but merely the short-term result of uncertain regulations. In the US, the production tax credit and investment tax credit (PTC/ITC) are highly favorable federal tax incentives designed to encourage new renewable projects. Those credits were only initially authorized through 2015. A gridlocked congress made an extension unlikely. Considering the credits could be applied as long as construction started in 2015, the industry saw a significant push to take advantage of the incentives and projects were fast-tracked. A rare display of bipartisan compromise led to the extension of the ITC and PTC credits through 2020. That extension, passed as part of a bipartisan spending bill in the final days of 2015, hardly had time to alter the 2016 landscape. However, the extension is critical to 2017 expectations. Corporate offsite deals are set for a return to large-scale year-on-year growth.

The short-term decline in corporate renewable deals from 2016 or the new US presidential administration might suggest renewable energy efforts would face serious headwinds in 2017. However, extension of incentives like the ITC and PTC, and the coming growth in corporate renewable deals, speak to the defining trend of 2017: the shift from renewable energy's capacity to grow at all to a gauge of how quickly it will expand.

4. The Convergence of Efficiency, Supply and Demand Decision-Making

Within many organizations, projects to reduce energy costs, consumption and carbon emissions are often managed across different departments. In leading companies, however, these departments are becoming more tightly integrated to remove silos, reduce inefficiency and conserve resources in support of a single energy and sustainability strategy.

Solving this fundamental challenge internally is a key enabler to move from concept to execution on more advanced energy and sustainability projects that straddle departmental boundaries, such as on- and off-site renewable energy procurement, predictive analytics for greater efficiency, increased automation and control of facilities, microgrids for increased resiliency, and many others. We've coined the term "active energy management" to describe this emerging convergence of strategy and decision-making.

57% of consumers have considered becoming power self-sufficient.

Externally, changes in global energy markets and new technology are also driving this shift. As energy demand continues to increase, there has been a notable shift towards electricity as the primary source. In fact, electricity consumption is projected to grow twice as fast as all other forms of energy consumption. This increase in demand and the global need to reduce emissions is pressuring utilities and businesses alike to increase energy efficiency and self-generation initiatives, such as on-site solar panels, combined heat and power, fuel cells and batteries. In fact, 57% of consumers have already considered becoming power self-sufficient and new distributed generational capacity will exceed new centralized capacity as early as 2018.

Several other emerging, long-term trends include:

- The perception of an organization's energy cost and usage as an asset rather than a cost center. In the future – perhaps even the near future -- companies will begin to make decisions based on price to increase reliability, decrease spend, and create new revenue streams — or sacrifice competitiveness.
- Long-range sustainability strategies within leading companies will be revenue drivers and cost-reduction engines. In fact, almost 60 percent of companies have already integrated sustainability into strategic planning based on a survey of 3,000 executives.¹
- Companies will embrace new business models, including energy-as-a-service (EaaS), to achieve savings, reliability, and efficiency goals using third-parties. With these models, companies will receive one bill in exchange for an agreed upon level of service across their stakeholder departments. All maintenance is then handled under a service level agreement that is either pay-for-service or similar to a performance contract whereby costs are offset by energy savings.
- The Internet of Things (IoT) will also usher in unprecedented interconnectivity to everything from the power plant to the plug. And it is not only the number of connected devices that will increase, but also the granularity of the data. In the very near future, many more energy and sustainability teams will be able to:
 - Curtail loads in real time to avoid costly peaks
 - Make better purchasing and use decisions in response to real-time grid signals
 - Improve efficiency by controlling consumption in response to changes in weather, occupancy, and production scheduling

Moving forward, businesses are increasingly likely to move toward convergence across their energy supply, energy efficiency, and sustainability domains to lower costs, increase sustainability, and improve reliability results.

¹McKinsey & Company. "Profits with purpose: How organizing for sustainability can benefit the bottom line"

New distributed generational capacity will exceed new centralized capacity by 2018.



5. Expanding LNG Market Signals New Global Price Relationships

Global LNG supply is poised to continue to outpace demand over the next few years as the US and Australia bring a wave of export capacity online. This will likely further consolidate global gas prices as competition on the spot market increases. Due to relatively cheap supply and more flexible contracts, the US is set to be the world's marginal LNG supplier, ramping up when market prices rise above the cost of delivering US supply to market. Exports have the potential to swing quickly as the US responds to demand on the global market as US LNG capacity increases.

In recent years, European dry-gas markets and the Japanese LNG benchmark began to converge with the spread dropping from \$6-10/MMBtu in July 2014 to near parity just two years later. In periods of global oversupply or low demand in Asia, we have seen traditional LNG suppliers, such as Qatar, send more cargoes to European shores, weighing on European gas benchmarks.

A wealth of supply already starting to hit the market is expected to keep the global LNG market oversupplied for the foreseeable future. The US will add roughly 8 Bcf/d of export capacity by 2019 and Australia is doubling its export capacity to more than 12 Bcf/d over the same period. This could result in supply capacity outpacing new demand by nearly 10 Bcf/d as stagnation in key importing countries counters demand growth in emerging markets.

New US export capacity allows domestic suppliers to better react to higher prices around the world. Due to its uniquely positioned location relative to other traditional suppliers, the US could potentially be the marginal supplier to Asia, South America, and Europe (depending on market conditions). However, with Japanese demand expected to decline in coming years and Australia looking to grow its market share in Asia, US supply may not be consistently economical on the spot market in the region. In this role, the US is able to set the price of the marginal cargo, which includes the cost of Henry Hub plus delivery cost.

The US witnessed its supply's ability to react quickly to market conditions in late 2016 and early 2017 when cold temperatures and other supply outages caused Asian LNG prices to spike. US exports had largely landed in South America up to that point and accounted for nearly 50% of shipments from February to November 2016. However, this trend quickly shifted in December as prices rose above \$8/MMBtu in Asia with eight of the 12 US export cargoes heading to the region for the month. Going forward, short-term supply/demand imbalances will likely determine where US LNG cargoes land, particularly as export capacity grows.

In the future, cross-energy pricing dynamics in other regions will help decide whether an additional cargo is necessary. Coal-to-gas switching in the EU could help set a price floor while the coal-oil interplay in Asia acts as a boundary for prices as well. More hub-based gas prices and a more liquid LNG market should see landed natural gas benchmarks throughout the world begin to converge. The oil-indexed contracts of the past are already being renegotiated for more gas-based hub pricing. These supply terms come into play particularly during short-term price spikes in other parts of the world. Important to its role as marginal producer, US supply contracts have more flexibility than the traditional oil-indexed deals.

Even though the market is becoming more liquid, many LNG contracts are still linked to the crude oil market and have rigid supply and delivery requirements. US contracts can be configured on a variation of liquefaction terms, pipeline contracts, storage, and shipping, which helps buyers lower their total supply costs. As LNG supply grows faster than demand and exports from new regions help balance the global market, global gas prices are likely to continue consolidation. Just as European benchmarks converged with LNG prices in Asia, natural gas benchmarks across the globe will continue to converge as relatively cheap US supply enters the market.



LNG tanker passing through Akashi Straits in Japan.

6. Political and Policy Changes and the Energy Implications: Part I (What won't change.)

Politics aren't often fertile ground for widespread agreement. But, 2017 offers at least one notable exception. After 2016's unpredictable votes in the UK and US, 2017 may usher in the first full year in a new political climate. The US certainly offers the most visible shift with Donald Trump's inauguration signaling an ideological shift away from Barack Obama's presidential policy on topics ranging from taxes and free trade to international relations. However, Donald Trump is merely the avatar of a much broader trend.

The 2017 national elections in France and Germany could reshape plans for electricity infrastructure in Europe. In Britain, Prime Minister Theresa May will likely take the first formal steps to begin Britain's departure from the European Union following a victorious Brexit vote last year. Elsewhere, France will elect a new president. Polls indicate Francois Hollande's left-aligned Socialist party is likely to be replaced by either a Republican or National Front candidate – parties frequently described as center-right or far-right, respectively.

In these and many other countries, the political climate has shifted dramatically. They are characterized by growing concerns on ideas of national identity, support for economic nationalism, and increased skepticism of free trade and open borders. These are ideas that are politically charged and extend well beyond the narrow focus of energy markets. Nonetheless, their potential impacts on the global energy landscape have been the subject of frequent discussion. Upon closer inspection, it's important not only to consider what changes events like these will mean for energy, but also those areas that are unlikely to change.

- **European Energy Markets**

With a focus on energy, the ongoing Brexit timeline is unlikely to significantly impact European energy markets in 2017. Early indications point to a continuation of major energy projects in the EU, such as the NEMO interconnection line between Belgium and the UK or a 1.4 GW interconnection link to Norway. The continuation of those projects suggests that, despite Brexit, the UK power market is actually poised to develop stronger ties to the continent rather than breaking away. Considering the UK typically sees some of the highest power prices on the continent, the push for greater connectivity is likely to weigh on corresponding future power prices while it offers support to connected market prices.

- **The UK's Membership in the European Emissions Trading System**

Additionally, the UK is likely to remain a member of the European emissions trading system (EU ETS), which provides the framework for the region's carbon market. While the market includes all EU member states, it also already includes several non-EU members (e.g., Norway, Switzerland, and Iceland). Considering the precedent, Britain's departure from the EU wouldn't necessarily require a departure from the EU ETS. That's especially important for the overall cost of carbon in the EU since a Brexit-related departure would likely be a significantly bearish factor for European carbon prices.



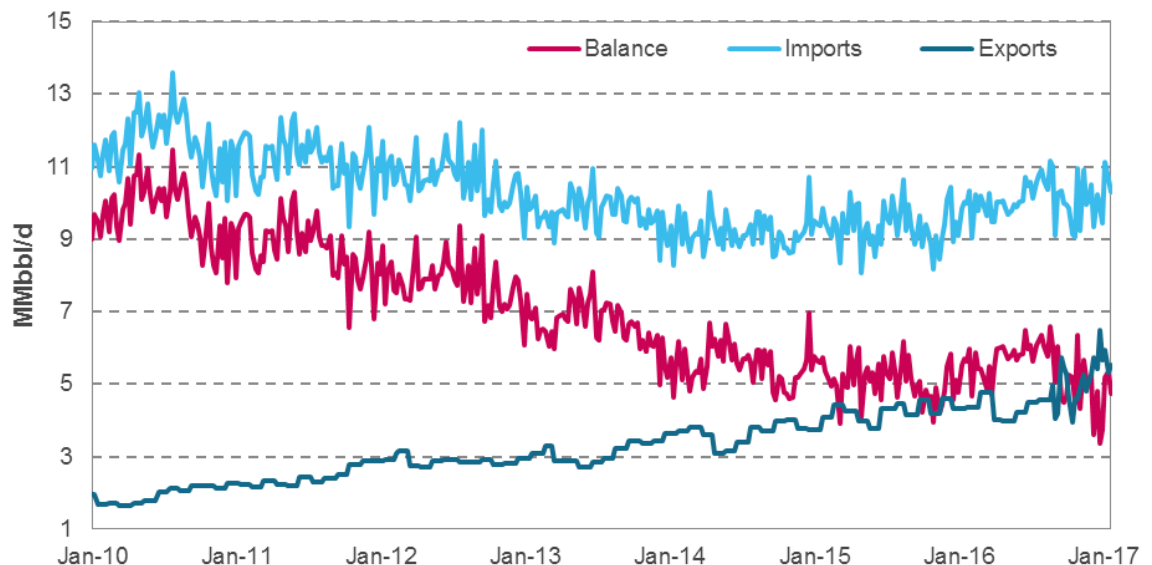
The US will import energy from foreign sources regardless of who is in the White House.

- The United States' Role as an Energy Importer

Stateside, the election of Donald Trump will bring about a number of changes, few as significant as federal energy policy. Before speculating on the changes that will unfold, several aspects still live beyond the reach of an executive order. Case in point: despite President Trump's support for the oil, gas, and coal industry, along with bipartisan calls for "American energy independence," the US will import energy from foreign sources regardless of who is in the White House. Those imports can come in many forms – from Canadian gas and electricity to Venezuelan oil to UK gasoline. The simple fact is the US will still buy energy from dozens of foreign countries.

Of course, "energy independence" doesn't have to mean an end to energy imports altogether. For many, the term may refer to the overall balance, with the US eventually becoming a net exporter of energy. The switch from net importer to net exporter is something sectors such as natural gas and propane have already achieved, mainly due to the US shale boom that unfolded over the past decade.

In terms of oil, though, while that shale boom may have succeeded in lowering the need for imported oil, the US still imports millions of barrels of foreign oil every day. Certainly, President Trump is likely to pursue policies that lower the overall need for oil imports, including supporting the construction of new pipelines and opening new areas to drilling activity. Further, trade restrictions on countries -- Mexico or Saudi Arabia, for example – could alter the origin of US energy imports and force oil from those countries to Europe, China, or other markets. Nonetheless, even the most aggressive energy policy will see the US import more oil and refined products than it exports through 2017 and well beyond.



While a rapid rise in shale production helped boost US exports in recent years, the US remains one of the world's largest importers of crude oil and refined products

- Higher Renewable Energy Capacity

Finally, one energy trend is likely to continue almost universally: renewable energy capacity will continue to trend higher regardless of geography.

Despite the Brexit turmoil, pro-Brexit Prime Minister Theresa May voiced strong support for clean energy just as anti-Brexit advocate David Cameron did during his time as Prime Minister before May. In France, far-right presidential candidate, Marine Le Pen, once a climate-change skeptic, called for a move towards a "zero-carbon" economy as part of her environmental platform.

Even in the US, where Donald Trump has been an outspoken skeptic of climate change and renewable incentives, renewables are expected to see significant growth in 2017 and in the years ahead. While Democrats and Republicans don't often find common ground, polls show the idea of renewable energy is popular on both sides of the aisle. As mentioned earlier, the US Congress extended the investment tax credit (ITC) and production tax credit (PTC) through 2020, which significantly boosts the incentive to build new wind, solar, and other renewable energy projects in the near future. That means even a removal of certain regulations on coal and other traditional brown power sources wouldn't tarnish renewables as an attractive investment in US markets.

Ultimately, long-term trends and planned projects are difficult to reverse, even in the face of a changing political climate.

7. Political and Policy Changes and the Energy Implications: Part II (What *will* change.)

Looking specifically at the US, Donald Trump's administration is likely to usher in visible and significant shifts in energy policy and outlook, not only for the US, but for the global energy landscape. From the fate of the Clean Power Plan to trade policy and tax reform, President Trump's platform has the potential to fundamentally reshape the way one of the world's largest energy consumers uses energy. That impact may be most visible in the US, but political and economic ties ensure changes in US energy will shape global energy trends in 2017.

- **The End of the Clean Power Plan**

One of the more certain shifts in a Trump administration is a virtually guaranteed end to the Clean Power Plan. Under the Obama administration, the Clean Power Plan (CPP) was rolled out under the authority of the Environmental Protection Agency (EPA) to regulate carbon emissions at the state level. While the CPP was designed to allow states flexibility in achieving carbon reduction goals, the targets required a clear reduction in electricity generation from coal power plants in favor of renewable generation.

Before the plan was fully implemented, though, a number of states challenged the rule in federal court with expectations that the Supreme Court would eventually issue a ruling. However, Donald Trump has been a vocal opponent of the CPP, as has his pick to run the EPA, Scott Pruitt. To prevent the CPP from taking effect, the Trump administration considered many options, from refusing to defend the rule in court to using a Supreme Court appointment to overturn the rule. The administration could also simply allow the EPA to ignore the CPP's requirements. One way or another, the CPP is effectively finished.

Individual states are still free to set requirements informed by the CPP – many already have – but those states won't be required to comply. That's especially important for coal-heavy states that were among the CPP's most vocal critics. The result is likely a greater demand for coal from the US in the years ahead, often at the expense of renewable generation. While US renewable capacity is still poised for growth in the years ahead, that capacity won't grow as quickly as it without the CPP.



- **Tax and Trade Policy Under the Trump Administration**

An end to the CPP may be the most likely change, but it may not ultimately be the most impactful. If enacted, some of Donald Trump's favored policies on tax and trade would have vastly wider-reaching implications.

Donald Trump, as well as many Republicans in congress, favor rethinking the way the federal government addresses tax and trade. Of note, the idea of a "border adjustment tax" has gained increasing traction since Trump's election. The plan calls for an overhaul of corporate tax structure in a way that favors US exports and discourages foreign imports. The core of the plan would make exports tax-exempt and place the highest effective tax rate on imported products.

This relatively straightforward policy (relative to most tax policy, at least) would likely force a complex overhaul of global trade flows and currency exchange rates. For energy, that could offer a huge boost in the value of US oil compared to foreign oil and lead to significantly stronger production. The policy could also be a boon for global natural gas supply as US LNG exports become even more viable in foreign markets. That said, complete corporate tax overhaul is unlikely in the current political climate, and passing a bill would still require at least some bipartisan support. Still, these policies could be implemented on a smaller scale. Trump has posited the idea of a border adjustment tax specifically for trade with Mexico, for example.

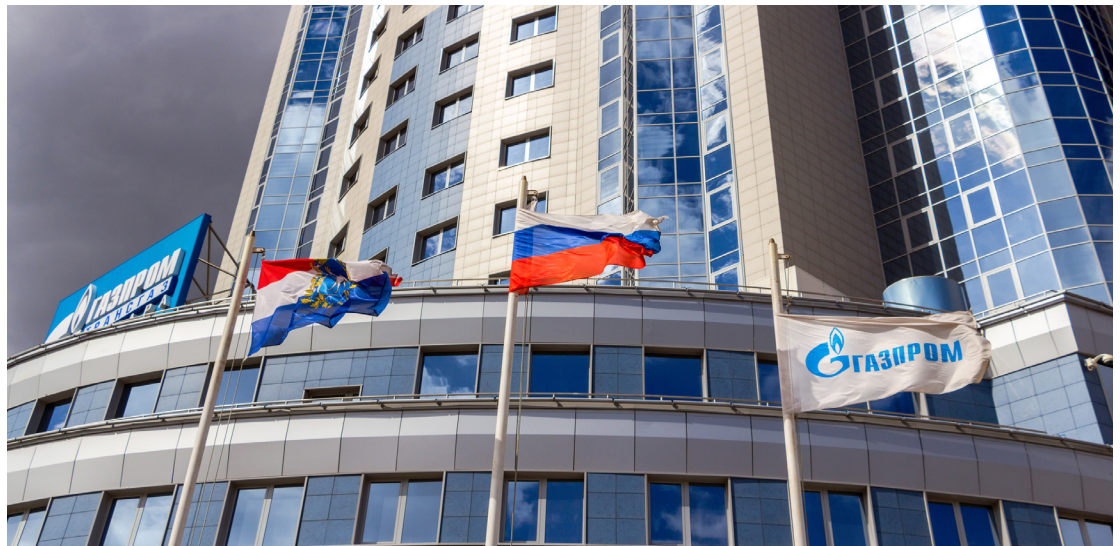
Most certainly, the simple possibility of a shifting tax policy is positioned to impact global energy in 2017. If global oil traders perceive new tax and trade policy, the value of US oil prices is likely to rise relative to global prices. Additionally, Mexico and other countries have already indicated the likelihood of moving their oil and refined product exports to other receptive markets to decrease reliance on US demand and possible tariffs ahead. Those shifts are a strong reminder that many policies can influence global energy before they even become official policy.



- Russian Energy Regulations with the EU

In recent years, Russian energy relations with the EU have been complicated to say the least. While the EU has implemented sanctions in response to Russia's annexation of Crimea, the continent is still highly reliant on Russian exports of natural gas. The net result has been a tenuous and often volatile relationship between Brussels and Moscow in a diplomatic standoff that presents few simple answers. To a large extent, that's unlikely to change over the year ahead with the EU and Russia likely to remain on opposing sides of the conflict in Ukraine and Syria for the foreseeable future. However, political shifts continue to take place beneath that rocky surface with potential for direct and meaningful energy impact.

Most notably, the two sides appear to be converging on a deal to address EU anti-trust charges against Russia's state gas giant, Gazprom. The bulk of those charges stem from the fact that, while Russia is forced to compete with increasing global LNG supply in the gas markets of Western Europe, Russian gas has a virtual monopoly in the markets of a number of eastern European countries. A potential deal would likely undermine this barrier and could allow eastern European and Baltic states to benefit from transparent pricing and negotiable contract terms more common in competitive markets.



Administrative and supervisory office of Gazprom in Samara, Russia.

Importantly, the motivation to act appears to be on the rise for both sides. As Russia prepares for greater competition from US and Australian LNG ([see trend #5](#)), the stability of Russia's EU energy relations is a chief concern. At the same time, political shifts have pressed Europe into action. A number of countries in the bloc have seen political parties and politicians supportive of better relations with Russia leap higher in the polls. Similarly, the perceived willingness of Donald Trump to take a less rigid stance on Russian deterrence has caused some in the EU to worry that their negotiating power may be on the decline, boosting motivations to reach an agreement. While none of these factors are enough to say the EU and Russia will soon solve all their political differences, they are already raising the odds of energy cooperation.

Of course, in the geopolitical sphere, little is guaranteed. Though a general trend may be apparent, countries within the EU remain considerably divided in their views of how to best approach EU-Russian energy ties. What is already clear, though, is that shifting politics are already looking to solidify the terms of energy ties between the EU and Russia -- and even energy ties within the EU itself. A broader rivalry will remain, but a more connected and transparent gas market should boost European energy interconnectivity while also weighing on the price of natural gas in the markets that have been most impacted by a Russian gas monopoly.



Conclusion

Energy markets throughout the world will continue to respond to geopolitical changes, regional dynamics, emerging technology, and traditional supply and demand influences. Understanding how those trends converge to impact your enterprise could improve the way you secure energy supply, reduce your consumption and operate more sustainably in 2017. Continue to watch the market dynamics closely as the landscape is sure to evolve in the year to come.

About Energy & Sustainability Services

Schneider Electric Energy & Sustainability Services has an extensive global team with detailed expertise and experience in every energy market. Our focus is helping our clients to be more effective and act on opportunities across all areas of their organizations' energy and sustainability management program: supply, efficiency, and sustainability.

If you have a specific question about a market that impacts you and your business, contact us at seESS.co/watch2017.



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