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North America

Fossil Fuels | Oil

Spending Bill Lifts U.S. Oil Export Ban And Extends Tax Credit For Renewables

Boon to Oil Producers, Wind and Solar Companies, while Domestic Refiners May Suffer

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Policy Brief

Author

Erin Carson
Chief Policy Strategist

Janis Kreilis
Analyst

Contact

(212) 537.4797
info@enerknol.com
www.enerknol.com

Key Takeaways:

- Removal of crude oil export restrictions expands U.S. access to the global market, but an immediate boost to U.S. crude exports is unlikely due to the global oil-supply glut and low prices
- Crude oil exports could harm the domestic refining industry, although the level of impact depends on the refining sector growth and the response to U.S. exports by global oil producers
- Multi-year extensions of federal incentives for wind and solar generation facilities provide regulatory certainty to and make long-term commitments and continue current growth
- Renewable energy tax extenders will improve access to and lower costs of renewable technologies for utilities seeking compliance with Clean Power Plan
- Grid operators will play a critical role in resolving intermittency issues due to increasing solar and wind generation

Entities Mentioned:

- American Petroleum Institute
- American Wind Energy Association
- Bureau of Industry and Security
- Energy Information Administration
- Solar Energy Industries Association

Related Research

Regulators Reconsider Utility Hedging Policies Given Shifts In Natural Gas Flow

Wind Generators To Provide Reactive Power Under Revised Interconnection Agreements

Insight for Industry –Repeal of Crude Oil Export Ban Expands Access to Global Market; Tax Extenders Stabilize Regulatory Environment for Wind and Solar Industry

On December 18, 2015, President Obama signed into law the Consolidated Appropriations Act, 2016 (H.R. 2029), which includes multi-year extensions for federal tax incentives for wind and solar generation facilities and lifts the 40-year-old ban on crude oil exports from the United States. The $1.1 trillion spending bill, which funds the government through September 2016, passed the U.S. House of Representatives by a 316-113 vote and the Senate by a 65-33 vote. Among the obvious winners from the bill are the solar and wind industries, which will receive long-needed regulatory certainty, as well as crude oil producers in the U.S., currently seeking for export outlets to alleviate the domestic oil supply glut. Domestic refiners could see their margins shrink, however, as the price differential between West Texas Intermediate (WTI) and Brent is expected to shrink.

With the elimination of crude oil export restrictions, the United States, which is currently the world's largest oil and gas producer, can export crude the same way it currently exports other refined products, including gasoline. However, taking into account potentially negative effects on employment, the new law also authorizes the President to impose licensing requirements or other restrictions on crude oil exports for national security reasons or if such exports are found to cause sustained material oil supply shortage or sustained oil price increase above world market levels. Lifting the crude oil export ban will provide U.S. producers with unlimited access to the global market at a time of low prices and new competition from Iranian oil. While the repeal is unlikely to immediately boost exports due to current low prices, it will provide flexibility for producers to develop contracts and explore options.

Lifting the crude oil export ban will provide U.S. producers with unlimited access to the global market at a time of low prices and new competition from Iranian oil

The bill extends the production tax credit (PTC) for wind and certain other renewable sources of electricity including geothermal and biomass. The PTC for wind energy will remain in place through 2016, followed by incremental reductions for 2017, 2018, and 2019 before expiring in January 2020. The investment tax credit (ITC) for solar will continue at 30 percent levels for commercial and residential systems for the next three years, and then decrease incrementally each year to settle at 10 percent in 2022. The renewable energy tax credit extensions will reduce costs and eliminate regulatory uncertainty associated with wind and solar technologies, thereby boosting installations. The multi-year predictability will also help continue advancements in the wind industry, ending the repeated boom-bust cycles over the previous two decades stemming from uncertain tax policies. However, grid operators will have a critical role in resolving issues of intermittency when integrating the expanded solar and wind generation.

The renewable energy tax credit extensions will reduce costs and eliminate regulatory uncertainty associated with wind and solar technologies, boosting installations

With a stable federal policy in place, the renewable energy industry can focus on state and local policies, permitting issues, and compliance strategies for the Environmental Protection Agency's (EPA) Clean Power Plan (CPP). From the utilities perspective, the renewable energy tax extenders assist in the planning process to displace fossil fuel loads with renewable power by facilitating a

measured approach and better access to renewable energy technologies at favorable prices before the subsidies expire. Utilities currently not investing in wind and solar are expected to begin shifting capital to these technologies, especially as installation costs continue to decline and intermittency and interconnection issues are addressed. States can also expand their wind and solar capacity to earn credits under the CPP in 2020 and 2021, and store them to offset emissions in later years.

Removal of Crude Oil Export Restrictions Provides Avenues to Absorb Increasing Production

Removal of crude oil export restrictions comes as a relief for an industry that has been seeking export avenues to accommodate increasing domestic production. It increases flexibility for producers and provides an opportunity for the U.S. oil industry to compete worldwide. The American Petroleum Institute (API) called it a historic moment in the nation's energy renaissance, saying the ban will put downward pressure on gas prices, support economic growth, create jobs, and lower the U.S. trade deficit. Given the administration's push to allow Iran to export its oil, the API noted that U.S. producers would now have a similar opportunity and that the ban would enable the U.S. allies to reduce their dependence on energy from less friendly nations. The policy could also attract investments from foreign oil companies. Sen. Murkowski (R-AK), Chairman of the Senate Energy and Natural Resources Committee, applauded the move, saying it will benefit Alaska by alleviating competition at West Coast refineries, increasing the price of Alaska North Slope crude, and removing remaining uncertainty over the state's long-term export ability.

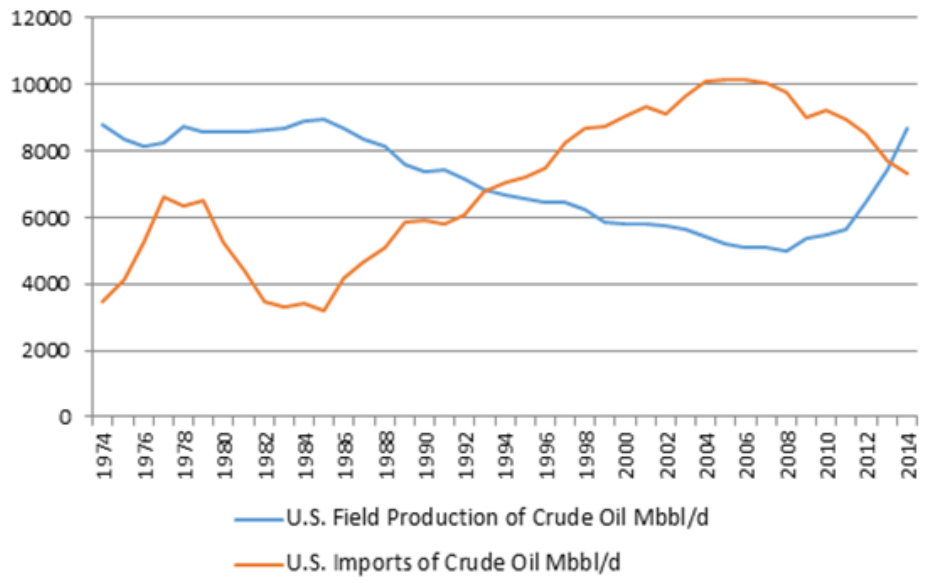
Repealing the oil export ban is unlikely to provide an immediate boost to U.S. crude exports, given the global oil-supply glut which has pushed prices to their lowest levels in nearly seven years

However, the repeal is unlikely to provide an immediate boost to U.S. crude exports, given the global oil-supply glut which has pushed prices to their lowest levels in nearly seven years. In addition, U.S. crude is not yet favorably priced compared to international grades. Shipping to refineries outside the U.S. could be rendered uneconomic by transportation costs.

The crude oil export ban dates back to the 1973 Arab oil embargo, when the Emergency Petroleum Allocation Act set price controls and allocated oil to the end users in the U.S. In 1975, the Energy Policy and Conservation Act prohibited crude oil and natural gas export with some exceptions. Exports to Canada for use there, exports from Alaska's North Slope (ANS), re-exports of foreign-sourced crude, and certain exports from California are preemptively granted licenses. In addition, recent rulings by the U.S. Department of Commerce's Bureau of Industry and Security (BIS) have clarified that condensate processed through a distillation tower is classified as a petroleum product and is therefore exportable without a license. In August, BIS announced the approval of licenses for limited exchanges of crude oil between the U.S. and Mexico; namely, swapping Mexico's heavy grade crude with lighter grade U.S. crude. The decision, which addressed the mismatch between the light sweet crude oil produced in the U.S. and its refinery configuration

that is better suited to process heavy crudes, also reflected the need for export avenues to absorb growing U.S. oil production.
To date, the domestic light crude oil glut has been absorbed by the U.S. refining industry and Canadian exports. From 2010-2014 the refining industry has accommodated the glut by displacing crude imports from countries other than Canada, and increasing refinery utilization rates. Over this period, domestic production increased by 3.2 million barrels per day (b/d), crude imports fell by 1.9 million b/d), and refinery crude inputs increased by 1.1 million b/d. Domestic crude oil production increased from 5.4 million b/d in 2009 to 8.7 million b/d in 2014, and 9.5 million b/d in the first five months of 2015 (Figure 1).

Figure 1 - U.S. Daily Crude Oil Production and Imports, 1974-2014



Source: EIA

In September, the Energy Information Administration (EIA) released a report analyzing the impact of export policies to crude oil and petroleum product markets over the next decade. The EIA found that if the U.S. oil production remained below 10.6 million b/d through the next decade, retaining or removing the export restrictions would not have a significant impact. However, if production increased beyond that level, removing export restrictions would result in increased domestic oil production, higher crude exports, slightly lower gasoline prices, but reduced product exports.

Significantly, the EIA report predicts that petroleum product prices in the U.S., including gasoline prices, would be either unchanged or slightly reduced by the removal of export restrictions, contrary to fears that allowing crude oil exports would lead to higher gasoline prices. This is because petroleum product prices throughout the U.S. are more strongly related to North Sea Brent, an international crude oil benchmark price, than to WTI, a domestic benchmark

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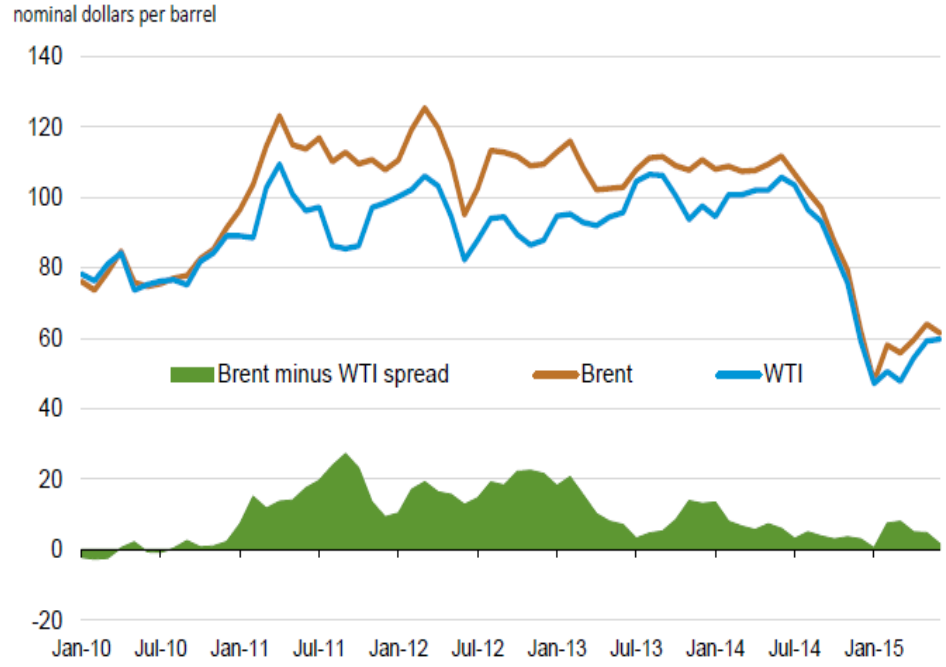
price (Figure 2). In the high production case, based on resource and technology assumptions, removal of export restrictions would narrow the Brent-WTI spread by raising the WTI price. Increased domestic production in response to the higher WTI price would alter the global supply-demand balance, with supply surpassing demand unless increased production is offset by reductions elsewhere. The increased supply would lower Brent prices, potentially leading to a decline in petroleum product prices for U.S. consumers.

Figure 2 – Monthly Average Brent and WTI Prices, January 2010 to June 2015



Source: EIA

The narrowing of the Brent-WTI spread would hurt the refiners, who currently benefit from access to relatively cheap domestic crude

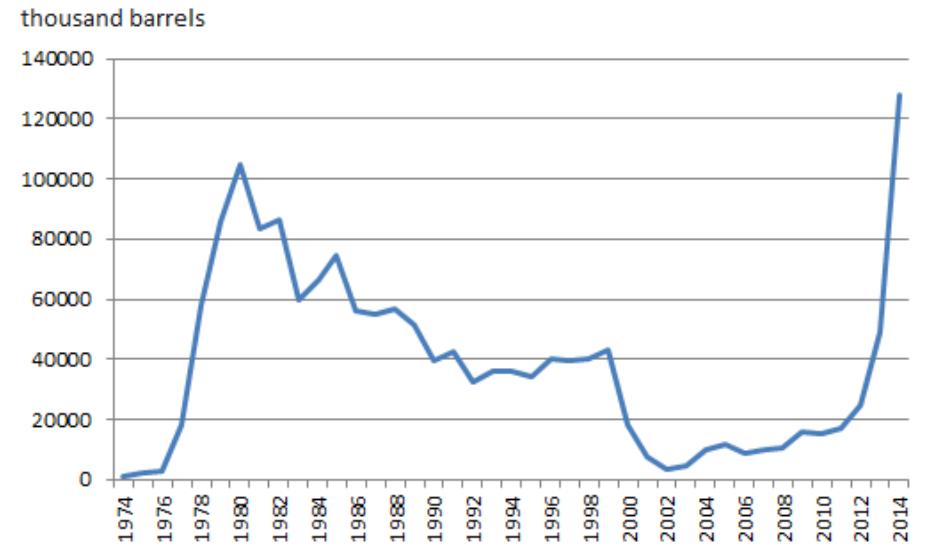
Crude Exports Could Hurt Domestic Refiners, Depending on Sector Growth and Global Oil Producers' Response

However, removal of export restrictions could affect domestic refining margins. The narrowing of the Brent-WTI spread would hurt the refiners, who currently benefit from access to relatively cheap domestic crude. With domestic refiners able to use cheaper inputs to sell products abroad at a premium, the U.S. has become a massive exporter of refined products in recent years. Although product exports could take a hit, the level of impact depends on the refining sector growth and global oil producers' response to U.S. exports. If more refineries come online, there would be a smaller impact from allowing crude exports. Increased refining capacity can partly close the WTI-Brent spread, restraining the impact of the policy change. Domestic refiners are also expected to maintain a significant advantage from continued projected availability of low-cost domestic natural gas, which is used as a fuel by refiners.

Despite export restrictions, increased crude oil exports have played some role in accommodating the increasing volumes of U.S. crude oil production. The

U.S. exported more than 128 million barrels of crude oil in 2014. Notably, gross exports of crude oil to Canada increased from 46,000 b/d in 2011 to 324,000 b/d in 2014 and averaged 460,000 b/d through the first five months of 2015 (Figure 3). Several shipments of ANS crude have also occurred recently. Although the volumes are rising in absolute terms, the U.S., despite the size of its petroleum industry, remains outside of the top twenty oil exporting countries to date.

Figure 3 - Annual U.S. Exports of Crude Oil, 1974-2014



Source: EIA

Wind PTC Extension Provides Stability for Steady Industry Growth and Technology Advancements

The extension of the PTC provides much needed certainty for the wind industry, which has shown marginal growth in the absence of stable and long-term federal incentives. The PTC expiration and uncertainty over its renewal has created uncertainties for wind deployment beyond 2016. The new tax legislation addresses this uncertainty by extending the PTC for wind and certain other certain renewable sources of electricity, including geothermal and biomass. It phases down the wind PTC to 80 percent in 2017, 60 percent in 2018, and 40 percent in 2019. Wind projects that commence construction before the end of the period will qualify for the tax credits.

The American Wind Energy Association (AWEA) said that the tax extensions allow for predictable policies that support the advancing technology while driving down costs and allow for more supply commitments and projects. The PTC has helped to more than quadruple wind power in the U.S. since 2008, spurring innovation in wind turbine technology and contributing to 66 percent decline in wind energy costs in six years. Expirations and short-term extensions of the federal tax incentives have created notable fluctuations in wind deployment, resulting in boom-and-bust cycles over the previous two decades.

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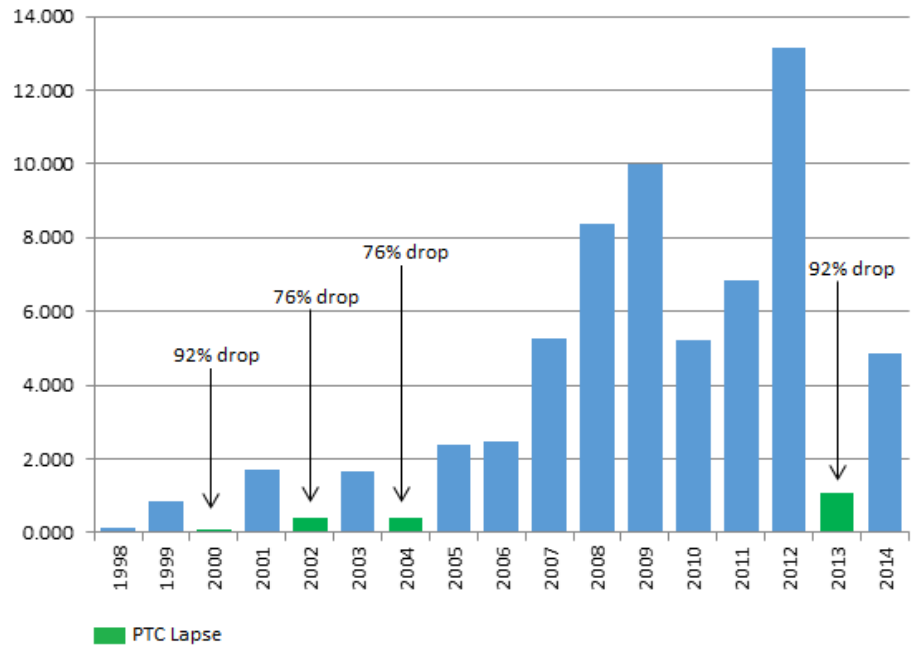
The 2005 and 2009 PTC extensions, which extended the tax credit for roughly three years – compared to the one- and two-year extensions of recent years, demonstrates the role of policy stability in wind industry growth. In 2013, after the renewable energy tax credits were allowed to expire even briefly, installations of new wind farms fell by 92 percent (Figure 4). After a setback in 2013 following the expiration and delayed renewal of the PTC, the U.S. wind industry recovered in 2014, with wind representing the third largest source of new generation capacity after natural gas and solar, accounting for 24 percent of capacity additions. U.S wind installations increased from 16,702 MW at the start of 2008 to 69,470 MW by Q3 2015.

After a setback in 2013 following the expiration and delayed renewal of the PTC, the U.S. wind industry recovered in 2014, with wind representing the third largest source of new generation capacity after natural gas and solar, accounting for 24 percent of capacity additions

Figure 4 - Annual U.S. Wind Power Capacity (GW), 1998-2014



Source: DOE, AWEA

The PTC – originally enacted through the 1992 Energy Policy Act – provides a $0.023/kWh tax credit for the first 10 years of utility-scale wind electricity generation. The renewable energy investment tax credit (ITC) – available as of 2013 – provides a credit for 30 percent of investment costs, in lieu of the PTC. The extension of the PTC and the investment tax credit (ITC) in December 2014 – allowing projects that began construction in 2014 to apply for the credit – has spurred strong growth in wind capacity additions in 2015. In January 2013, the PTC and ITC were extended through the American Taxpayer Relief Act, allowing projects larger than 100 kW qualify if construction commenced before January 1, 2014 (turbines under 100 kW are eligible until 2016) and placed into service by 2015 year-end.

The policy certainty is well-timed for the wind industry given the growing corporate demand for wind power and state-level policy discussions in response to the CPP. Among recent measures, the Federal Energy Regulatory

Commission's (FERC) November proposal to require reactive power from wind generators will spur the use of advanced inverter-based turbines that provide the ability to produce and control dynamic reactive power. The FERC proposal would eliminate a decade-old exemption for wind plants from reactive power requirements considering ongoing technological advances that have drastically reduced costs and the advancing the role of wind energy in an economically optimal generation mix. These requirements, coupled with wind industry advancements and PTC extension, provide the necessary motivation to spur investments in both offshore and onshore wind energy development.

The PTC encourages private sector investments and plays a critical role in the wind industry's decisions to make long-term investments in U.S. manufacturing facilities. According to AWEA, the wind industry takes approximately 2-3 years to complete a design cycle and bring the next evolution of wind turbine design to market. The PTC extension provides the policy stability for necessary investments to advance new design technologies. The wind industry is developing technologies to access wind resources at higher altitudes, which could open up wind development in areas that have not seen large amounts of wind deployment to date.

Multi-Year Solar ITC Extension Sends a Market Signal to Attract Investment and Continue Current Growth

With the multi-year ITC extension, solar investors and project developers will have the market signal needed for investment and business growth. The ITC will remain at 30 percent for projects started through 2019, reduce to 26 percent in 2020, then to 22 percent in 2021, and remain at 10 percent after 2022. Prior to this extension, the ITC was set to lapse for residential installations and shrink to 10 percent for commercial developers by the end of 2016, at which point the solar industry boom was expected to slow down. The tax extender will help the solar industry to continue the current growth trend. Through Q2 2015, solar power accounted for 40 percent of new electric generating capacity. U.S. Solar power is expected to offset 100 million metric tons of carbon dioxide emissions each year.

The SEIA expects the five-year extension of the ITC to spur more than $133 billion in new, private sector investment by 2020, with solar power reaching 100 GW to represent approximately 3.5 percent of U.S. electricity

The Solar Energy Industries Association (SEIA) said that the five-year ITC extension will facilitate broader participation and deployment of solar applications, especially in regions where local markets are less mature. The SEIA expects the five-year extension of the ITC to spur more than $133 billion in new, private sector investment by 2020, with solar power reaching 100 GW to represent approximately 3.5 percent of U.S. electricity. It attributes much of the projected growth to small businesses, which represent more than 85 percent of the nation's 8,000 solar companies. With the ITC set to expire at the end of 2016, SEIA expected the installed solar capacity to decline by approximately 8 GW from 2016-2017 and solar project levels to plummet from 11.2 GW to 3.2 GW over the same period – the lowest annual level since 2012.

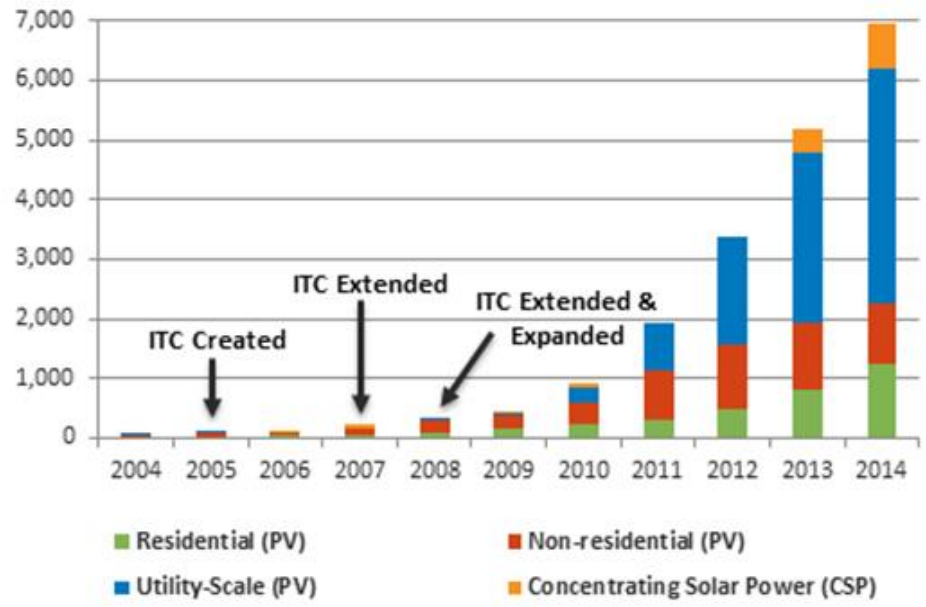
The Energy Policy Act of 2005 created the 30 percent ITC for commercial and residential solar energy systems that applied from January 1, 2006 through

December 31, 2007. In its first year of implementation, the ITC spurred significant growth by almost doubling the installed solar electric capacity by 2007. The ITC was extended for one year in December 2006. An eight-year extension in 2008 removed a $2,000 monetary cap on the total credit that could be claimed for residential rooftop installations and permitted utilities to use the credit, increasing solar affordability for ratepayers.

The market certainty provided by a multiple year extension of the residential and commercial solar ITC has helped annual solar installations grow by more than 6,500 percent, driving down the average cost of solar by more than 73 percent since 2006 (Figure 5). Since 2010, utility-scale costs have dropped by approximately 64 percent reaching $1.49 per watt in Q2 2015, while residential costs have dropped by 48 percent to $3.50 per watt in Q2 2015.

The market certainty provided by a multiple year extension of the residential and commercial solar ITC has helped annual solar installations grow by more than 6,500 percent, driving down the average cost of solar by more than 73 percent since 2006

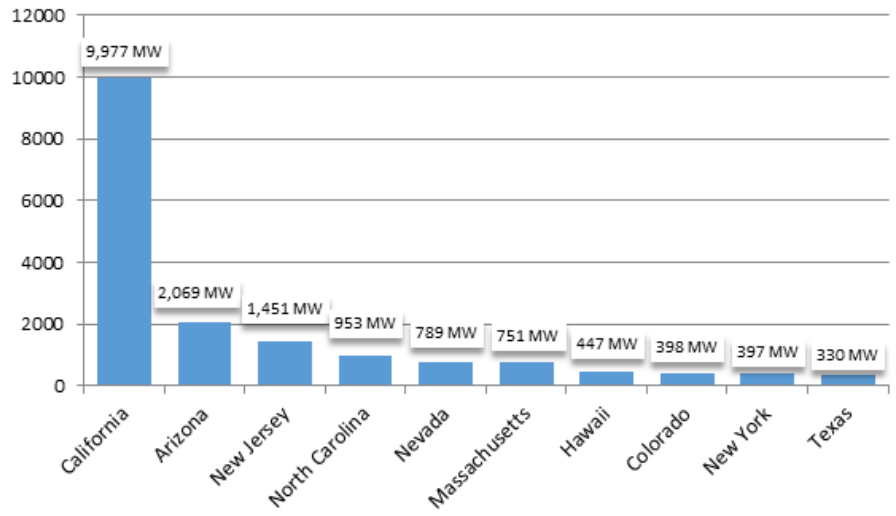
Figure 5 - Annual U.S. Solar Installations (MW), 2004-2014



Source: SEIA

The ITC extension will boost solar growth in booming solar states such as California and Arizona. Both states are already reviewing their net energy metering (NEM) policies, which has been vital to the growth of the residential and commercial photovoltaic market (Figure 6). As increasing levels of distributed solar generation burdens grid equipment and aging infrastructure, several states and utilities are reviewing their NEM policies with proposals to expand or revise programs, or devise alternatives.

Figure 6 – 2014 Top Ten States for Cumulative Solar PV Capacity (MW) Installed (Utility, Nonresidential, and Residential Installations)



Source: SEIA

Tax Credits Assist Utilities in Preparation for CPP Compliance

Wind and solar will have a key role in reducing the U.S. power-sector emissions over the long term. The benefits of the ITC and PTC extenders also pertain to their ability to streamline renewable energy expansion as states prepare for their first set of set compliance deadlines under CPP in 2022. The CPP requires a 32 percent reduction in power-sector carbon emissions from 2005 levels by 2030, with each state assigned a specific carbon emissions reduction target based on its unique circumstances. States have discretion to devise strategies to achieve the goal, with some states facing reduction requirements as high as 45 percent. The electric power sector is making decisive moves towards implementation, and utilities currently not investing in wind and solar will begin shifting capital to these technologies, especially as installation costs continue to decline and intermittency and interconnection issues are addressed.

States can also expand their wind and solar capacity to earn credits under the CPP in 2020 and 2021, and store them to offset emissions later. Under the CPP, mandatory emissions reductions begin in 2022, with requirements phased in gradually until 2030, when states must meet their overall target. These tax credits would encourage manufacturers and companies to advance innovation with regard to technologies and financing models, facilitating states to qualify for EPA incentives when they take effect. By stimulating the development of renewables such as wind and solar, the tax extenders, combined with the CPP, are expected bring a significant boost to the U.S. climate goals.

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Disclosures Section

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