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NREL Analyzes Production Tax Credit Extension Implications for U.S. Manufacturing

Apr 17, 2014

Reading Time : **7 min**

The report notes that U.S. manufacturing of wind components was motivated by the high cost of importing such large parts from abroad. That same factor makes it difficult for U.S. factories to shift from the domestic market to exports. Thus, more wind component factories are likely to close, resulting in the loss of manufacturing jobs, if there is not a meaningful extension of the PTC.

The report makes the insightful observation that a refundable PTC (i.e., one that can be converted to cash without regard to tax liability), as the President has proposed, would have the same cost to the Treasury as the traditional PTC, while providing more benefit to wind developers. This is because a refundable PTC would eliminate the need for costly tax equity transactions with banks and corporations with tax appetite. Unfortunately, this observation appears lost on Congress which has a negative knee-jerk reaction to refundable tax credits.

Key excerpts from the report are below:

- Through 2012, more than 60 gigawatts (GW) of land-based wind generation capacity have been installed nationally, including an average of 8.7 GW per year from 2008 through 2012. To meet recent growth in demand for wind capacity, the wind industry has invested heavily in U.S.-based manufacturing facilities. In 2012, an estimated 550 U.S.-based manufacturing facilities produced turbines, blades, towers, and their components. Of these, over 60 were dedicated suppliers to the wind industry. Due to growth in U.S. manufacturing capacity, the estimated import fraction for new plant installations has steadily declined from 75% of total turbine costs in 2006-2007 to less than 30 percent in 2012.

- Current and near-term state renewable portfolio standard (RPS) targets have largely been met and are not expected to support more than 1–3 GW per year of new wind construction through 2020. Abundant new sources of low-priced natural gas have altered the competitive landscape in the power sector, and the modest economic recovery, coupled with successful energy efficiency investments, has limited growth in demand for new electricity generation of all types.
- Under a scenario in which the PTC is not extended and all other policies remain unchanged, wind capacity additions are projected to be between 3 GW and 5 GW per year from 2013–2020.
- U.S. wind power manufacturing production generally aligns with average annual wind power capacity additions from 2008 to 2012. In the absence of U.S. domestic demand for new wind capacity, global markets are unlikely to offer many opportunities for U.S.- based manufacturers. Given the limited export market, a reduction in domestic wind power deployment is likely to have a direct and negative effect on U.S.-based wind turbine manufacturing production and employment.
- In the current low-priced natural gas regime, modeling results indicate that future wind deployment will be relatively low unless additional incentives are provided that result in wind being cost competitive with existing gas-fired generation.
- U.S. wind capacity is estimated to supply approximately 4.4 percent of the nation's electricity demand. Utility-scale wind capacity has been installed and is operating in 39 states; in 9 of these states wind generation exceeds 12 percent of in-state electricity demand, and in 3 of these states—Iowa, South Dakota, and Kansas—wind is estimated to supply more than 20 percent of electricity. Moreover, in 2012, wind power was the largest single source of new electric power generating capacity, constituting more than 40 percent of total U.S. additions. Installations in 2012 represented approximately $25 billion in new investment.
- In 2012, an estimated 550 U.S.-based manufacturing facilities produced turbines, blades, towers, and their components. Of these, more than 60 were dedicated suppliers to the wind industry. Due to growth in the U.S. manufacturing capacity, the estimated import fraction for new plant installations has steadily declined from 75 percent of total turbine costs in 2006–2007 to less than 30 percent in 2012. The American Wind Energy Association estimates that employment from manufacturing has also grown over time. Approximately 25,500 individuals were employed in U.S.-based wind turbine component and equipment manufacturing facilities, and total U.S.

wind industry employment—including manufacturing and facility installation, operation, and maintenance—was estimated at approximately 80,000 in 2012.

- Current and near-term state renewable portfolio standard targets have largely been met and are not expected to support more than 1–3 GW per year of new wind construction through 2020. Abundant new sources of low-priced natural gas, resulting largely from advancements in production techniques for shale reservoirs, have altered the competitive landscape in the power sector. And, the modest economic recovery, coupled with successful energy efficiency investments, has limited growth in demand for new electricity generation of all types.
- The PTC has provided substantial assistance to the U.S. wind industry. The presence of the PTC enables wind power project developers to reduce the price at which their electricity can be sold, effectively making them less costly for power purchasers and ultimately consumers. Current estimates indicate that the PTC reduces contracted prices for wind power by approximately $20/MWh (2012 dollars) or roughly 25 percent –50 percent.
- The on-again, off-again historical policy environment has created substantial uncertainty and deployment volatility. Past PTC expirations have resulted in reductions in yearon- year installations between 73 percent and 93 percent. The impact of such boom and bust cycles is diverse. Most notably, short-term planning timeframes associated with PTC uncertainty can discourage investments in domestic manufacturing capacity, deployment capability, component orders, and private sector research and development.
- In its most recent assessment, which includes the PTC extension through year-end 2013, the Joint Committee estimates forward-looking tax expenditures associated with credits for wind energy to be approximately $7.7 billion cumulatively for fiscal years 2013–2017.
- Twenty-nine states and the District of Columbia have mandated that a certain amount or percentage of generation capacity come from renewable energy sources. Historically, state RPSs have been a critical driver for wind capacity. While it remains difficult to discern precisely how much wind capacity is a direct result of RPS policies, 83 percent of wind installations in 2012 occurred in states with an RPS.
- Under certain conditions, wind power is directly competitive with other electricity generation sources and procured based on immediate or projected cost savings. To date, the PTC and other federal tax incentives (e.g., accelerated depreciation) have

boosted wind power's economic position relative to alternative generation sources, enabling wind to be lower cost than other generation technologies in some regions (e.g., Texas). Wind is also sometimes credited as a hedge against potential natural gas price escalation.

- Utilities, corporations, and others can make investments in wind power to supply voluntary green pricing programs because of a preference for wind or non-emitting energy sources or for various other reasons. This demand driver is not considered in the analytical modeling work conducted here.
- State tax and other incentives and state or regional carbon markets have also supported wind installations in the past but are generally considered to be secondary drivers.
- Trade flows of wind products are generally limited in the global industry due to relatively high shipping costs for major turbine components. As a result, foreign direct investment in regions with strong demand for wind products is common as the cost structure of the industry favors regional manufacturing hubs. In the United States, the factory gate prices for components like blades, which are labor-intensive to produce, also tend to be higher than the prices of the same goods manufactured in many other regions, further limiting export opportunities from U.S.-based facilities.
- Given the limited export market, a reduction in domestic wind power deployment is likely to have a direct and negative effect on U.S.-based wind turbine manufacturing production and employment.
- The effects of reduced demand for 2013 equipment deliveries became evident as early as 2012 as year-over-year employment in wind manufacturing fell by nearly 5,000 workers, and 12 facilities exited the U.S. wind market.
- Under nearly all conditions analyzed, a PTC that expires or ramps down prior to 2022 is unlikely to generate levels of wind deployment consistent with the 2008–2012 5-year average.
- At the same time, stable wind deployment is only one of many objectives that might be served by a PTC extension. Other factors, although not explored in this study, could also be considered as objectives and include:
    - Greater certainty for foreign and domestic investment in U.S. industry
    - Sustained conditions for continued technology innovation
    - Reduced electric sector greenhouse gas emissions, air pollution, and water use

    - Greater diversity of electric generation sources • Reduced electric sector demand for natural gas, potentially enabling reduced pipeline congestion in critical regions, lower gas prices, or increased exports
    - Maintained or improved global competitiveness of U.S.-based manufacturing
    - Maintained or reduced cost of generation as a key economic input to U.S. economic competitiveness.
- Chiefly, the PTC, in its current form, is widely recognized as costly to monetize due to lack of financial market fungibility and constraints to tax equity supply. In contrast, a refundable form of the credit would obviate the need for project sponsors lacking tax appetite to rely on third-party tax equity, with its associated transaction costs. As such, this refundable form could result in a higher level of wind deployment for the same cost to the federal government. Alternative policies, such as opening public capital vehicles (e.g., master limited partnerships) to wind power technologies or federal carbon standards, also offer the opportunity to support wind deployment and provide associated manufacturing and installation-related employment support at potentially lower total cost.
- Modeled PTC extension options that ramp down and cease support by year-end 2022 appear to be generally insufficient to support deployment close to recent levels and therefore may be insufficient to sustain the current industry domestic manufacturing and supply chain through 2020.

Categories

Renewable Energy

number 267321. A list of the partners is available for inspection at Eighth Floor, Ten Bishops Square, London E1 6EG. For more information about Akin Gump LLP, Akin Gump Strauss Hauer & Feld LLP and other associated entities under which the Akin Gump network operates worldwide, please see our Legal Notices page.