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Bringing Renewables to Wall Street Tackling the Challenges to Investing in Renewable Technologies

Specific Technologies: Wind

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2007 Was a Very Good Year for the U.S. Wind Industry

- Wind added more new, zero-emissions electricity to the U.S. supply than any other renewable energy.
- Wind projects accounted for about 30% of all new power generating capacity added in the U.S. in 2007.
- The U.S. Wind Industry broke all previous records in 2007, with 45% growth and over 5,200 MW installed that will generate 16 billion kWh of clean, cost-effective electricity in 2008.

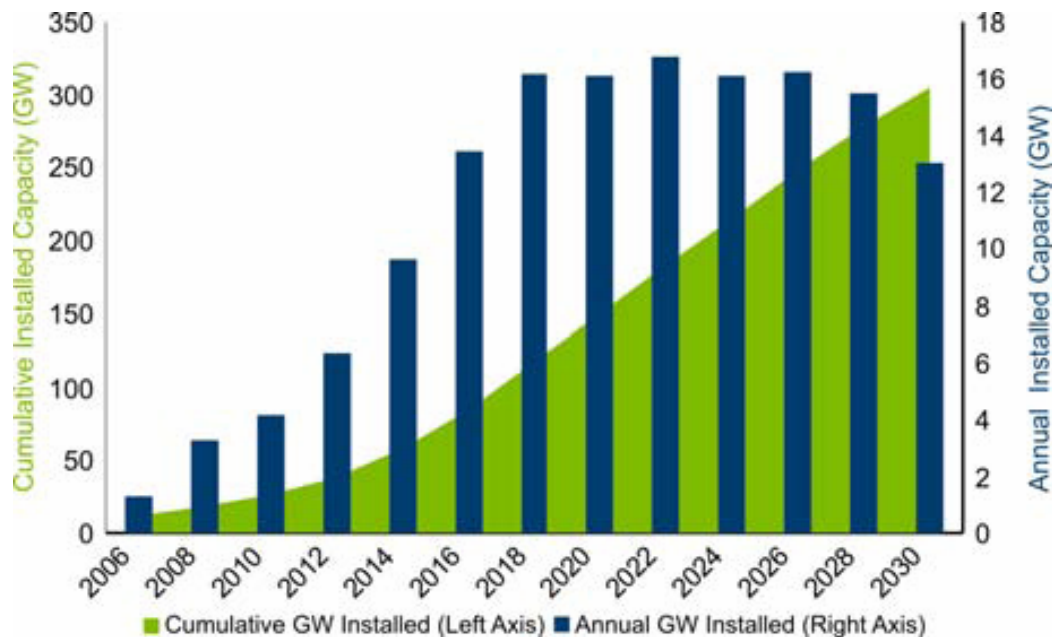


Source: AWEA



20% Wind in the U.S. Is Possible (300 GW by 2030)

Annual and Cumulative Wind Installations by 2030



RATE OF SCALE-UP: Installation rates need to increase to ~16 GW/yr by 2018 until 2030

INVESTMENTS: Over \$1 trillion in economic investment

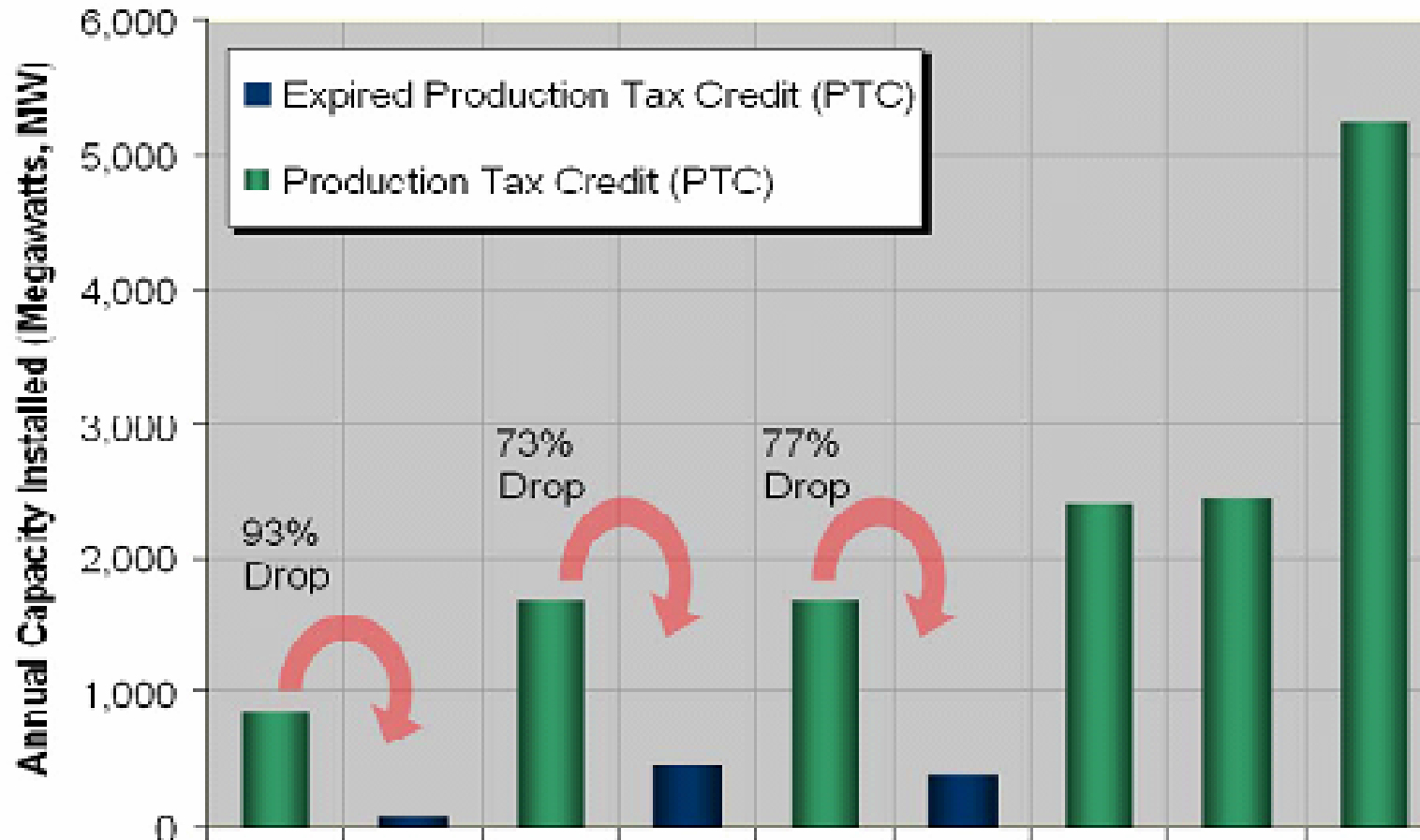
BENEFITS:

- half million jobs for manufacturing, installation and operations;
- new property tax revenues;
- natural gas demand reduced by ~7 billion ft³/day;
- 25% of expected electric sector CO₂ emissions avoided in 2030;
- 8% reduction in electricity sector water consumption

20% WIND REQUIRES: significant changes in transmission systems to deliver wind energy; improved turbine technology to generate wind power; and large expanded markets to purchase and use it

Source: Department of Energy, "Renewable Energy Build Out: Progress to Date and the Path Ahead", EPRI Summer Seminar, August 4, 2008.

Historic Impact of PTC Expiration on Annual Installation of Wind Capacity



Source: AWEA



Cost of Losing the Production Tax Credit

- The PTC is now set to expire on December 31, 2008.
- Boom and bust cycles result from erratic and short-term extensions of the PTC.
- At previous times when the credit has lapsed, installations have dropped by as much as 93% in the following year.
- As a PTC expiration approaches, major investors in the financial community stop steering capital to wind projects because of the uncertainty surrounding the tax benefits of investment.
- As the PTC nears expiration, developers rush to complete projects before the deadline, leading to smaller projects and added costs, which result in higher electricity prices.
- Failure to promptly extend the PTC places at risk 76,000 wind industry jobs and \$11.5 billion in economic investments by the end of 2009, according to a recent study by Navigant Consulting.



Some of the Other Challenges of Increased Growth in Wind Energy

- Integration
 - Transmission Development
- Intermittency
 - Storage; Smart Grid
- Technological improvements
- Significant Investment



Source: Xcel Energy, "Large-Scale Renewable Energy: The Top Challenges", EPRI 2008 Summer Session, August 4, 2008



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