NAWEA 2015 Symposium
Wind Industry Market and Policy Overview

Hannah Hunt, AWEA
Overview of the Wind Energy Industry

- U.S. Wind Market Data and Trends
- Policy Drivers of Wind
U.S. Annual & Cumulative Wind Power Capacity Growth (Utility-Scale Wind)

Utility-Scale wind capacity includes installations of wind turbines larger than 100-kW for the purposes of the AWEA U.S. Wind Industry Annual Market Report. Wind turbines 100-kW and smaller are included in the U.S. Department of Energy Market Report on Wind Technologies in Distributed Applications. Annual capacity additions and cumulative capacity may not always add up due to decommissions and repowers. Wind capacity data for each year is continuously updated as information changes.
Wind Capacity Installations, by State
Wind provided 80% of all new capacity installed in IA, MN, ND, and SD.
Wind Projects, by Hub Height
U.S. is Reliably Integrating Large Amounts of Wind
Global Wind Power Generation over Time

- U.S. leads the world in wind energy generation, producing over 181 billion kWh of wind energy compared to China’s 153 billion kWh.
Under Construction Activity
Record number of long-term contracts signed 2013-14
 Merchant projects in Texas may include hedge contracts
62% of all wind energy procured through long-term PPAs between IPPs and the power purchaser.
Who’s Purchasing Wind Power?

- Top Cooperative Utility: Basin Electric Power Cooperative (716 MW)
- Top Public Utility: CPS Energy (1,059 MW)
- Cooperative utilities signed 23% of the 3,300 MW of total new PPAs during 2014.
Growth in Non-Utility Purchasers

Non-Utility Purchasers of Wind, by Type of Purchase
Policy Drivers of Wind
Federal Policy: Production Tax Credit (PTC)


- Two week PTC extension in December 2014 included language to qualify physical construction activity or 5% safe harbor; expired again on December 31, 2014.
Boom and Bust Cycle

Incremental Capacity Additions (MW)

-92%
-76%
-76%
-92%
## Manufacturers with Turbines Installed in US, by Year

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<th>Year</th>
<th>GE Energy</th>
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<th>Vestas</th>
<th>Mitsubishi</th>
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- PowerWind
- Aernnovaica
- Aeromarca
- Sany
- Elecon
- Turbominds
- WES
- Vergnet
- Sila
- Refurbished
73,000 Jobs Supported by Wind Industry in 2014
Renewable Portfolio Standard Policies

www.dsireusa.org / March 2015

29 States + Washington DC + 2 territories have a Renewable Portfolio Standard
(8 states and 2 territories have renewable portfolio goals)

- ME: 40% x 2017
- NH: 24.6% x 2025
- VT: 20% x 2017
- MA: 15% x 2020 (new resources)
- 6.03% x 2016 (existing resources)
- RI: 14.5% x 2019
- CT: 27% x 2020
- NJ: 20.38% RE x 2020 + 4.1% solar by 2027
- PA: 18% x 2021
- DE: 25% x 2026
- MD: 20% x 2022
- DC: 20% x 2020

- HI: 40% x 2030
- TX: 5,880 MW x 2015
- NM: 20% x 2020 (IOUs)
- AZ: 15% x 2025
- NV: 25% x 2025
- CA: 33% x 2020
- CO: 30% by 2020 (IOUs)
- UT: 20% x 2025
- ND: 10% x 2015
- SD: 10% x 2015
- WI: 10% x 2015
- WI: 10% x 2015
- IL: 25% x 2026
- MI: 10% x 2015
- IN: 10% x 2026
- OH: 12.5% x 2026
- NC: 12.5% x 2021 (IOUs)
- VA: 15% x 2025
- MA: 15% x 2020
- MN: 26.5% x 2025 (IOUs)
- 31.5% x 2020 (Xcel)

U.S. Territories

- NMI: 20% x 2016
- Guam: 25% x 2035
- PR: 20% x 2035
- USVI: 30% x 2025

- Renewable portfolio standard
- Renewable portfolio goal

* Extra credit for solar or customer-sited renewables
† Includes non-renewable alternative resources
Successful State Policy
DOE Wind Vision: 20% Wind Energy by 2030

Figure 3. The Wind Vision Study Scenario, with contributions from land-based and offshore technology
EPA Clean Power Plan

- Carbon regulations for both new (under 111(b) of the Clean Air Act) and existing power plants (under 111(d))
- 30% reduction in power sector CO2 emissions by 2030, below 2030 levels
- Final ruling expected at the end of the summer, states will have 13 months to submit final plan but expect extension requests
- Assigns each state an emissions rate goal, in pounds of carbon dioxide (CO2) per megawatt hour (MWh), proposed option for mass-based goal
- “Building block” options to cut carbon emissions
  - Fossil fuel plant efficiencies
  - Shifting generation from coal to natural gas
  - Renewable energy capacity additions
  - Energy Efficiency in buildings and industries
- Additionally, states can also join together in multi-state or regional compacts to find the lowest cost options for reducing their carbon emissions.
EIA Analysis of CPP Impacts

- In Base Policy Scenario, optimal compliance mix results in wind adding 317 million megawatt-hours (MWh) by the year 2030 compared to Reference Scenario, more than half of the optimal compliance mix.