

SMART Wind Roadmap

A Consensus-Based, Shared-Vision Sustainable Manufacturing, Advanced Research & Technology Action Plan for Distributed Wind

The Distributed Wind Energy Association (DWEA) convened the targeted SMART Wind Consortium to develop a consensus-based, shared-vision Roadmap that identifies common distributed wind research and manufacturing gaps and barriers, prioritizes solutions to those gaps for today and for future scalability, and facilitates a rapid transfer of innovation into American-manufactured wind turbines in order to open up new market opportunities and expand the number of distributed wind applications, thereby maintaining U.S. global competitiveness and leadership.

Key Take-Aways

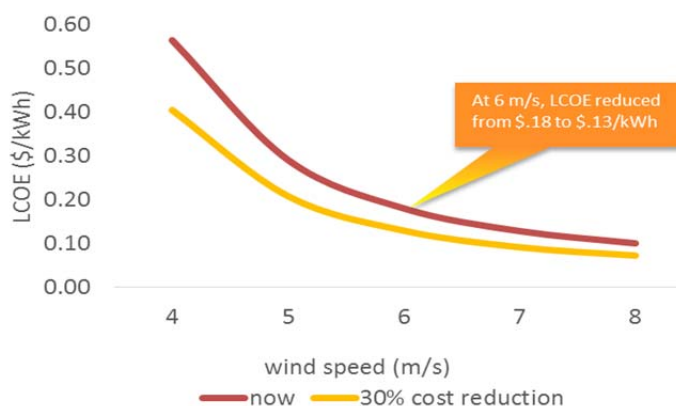
Top priority action steps include:

- 1) Optimizing and harmonizing wind turbine designs to improve levelized cost of energy (LCOE) and achieve parity with U.S. retail electricity rates in more markets, including developing a common core modular inverter, utilizing wide bandgap materials (advanced semiconductors) in power electronics, and creating new standard support structure designs
- 2) Improving manufacturing processes and materials including incorporating lean manufacturing practices, new approaches to hot-dip galvanization, efficient fixturing and tooling, and non-destructive testing methods
- 3) Optimizing standards and certification processes to enable technology evolution and maintain quality, including conducting a gap analysis for certification requirements for various global markets
- 4) Streamlining installation and maintenance of wind turbine systems; develop low-cost prognostic condition monitoring to provide a feedback loop on field performance to equipment manufacturers
- 5) Sustaining SMART Wind Consortium activities and partnerships to allow for further refinement of costs and benefits of top actions, creation of a supplier directory and industry-wide reliability and materials databases, and funding for R&D and workforce training

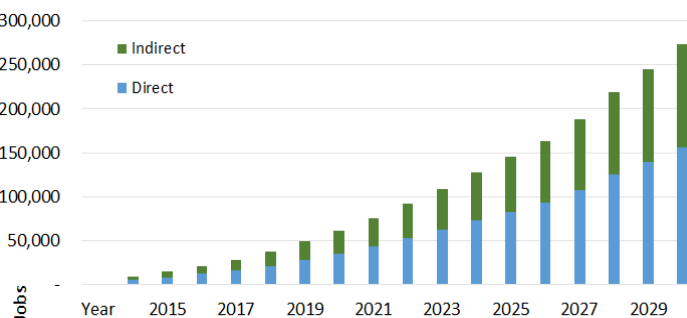
These prioritized action steps will help reach DWEA's "30 GW by 2030" vision, aiding distributed wind industry growth and advancing innovative manufacturing techniques by increasing production volumes and reducing lifecycle costs while maintaining high quality.

Applying the action steps identified by the Consortium will result in more competitive systems and greater market share for U.S. manufacturers. This will accelerate deployment of U.S. technology, helping to generate clean, renewable energy, increase employment in the sector, and bolster the capabilities of this U.S.-led industry.

LCOE Example - Residential Turbine
Impact of 30% Installed Cost Reduction



Potential U.S. Distributed Wind Job Growth



SMART Wind Consortium Collaborators

