

Distributed Wind Vision: 35 GW by 2035

Policy Recommendations Addressing Distributed Wind’s Role in Decarbonizing the U.S. Economy

Bold Initiatives will Bring Significant Benefits

Achieving 35 GW of Distributed Wind by 2035 could create 85,000 direct and indirect jobs and reduce GHG emissions by 82 million tons annually, which is equivalent to taking 16 million cars off the road¹.

Distributed Wind

Distributed Wind has enormous potential to create hundreds of thousands of jobs where they are needed most, while efficiently cutting greenhouse gas emissions and empowering communities. NREL has determined that Distributed Wind is technically viable at 49.5 million sites in the continental U.S.² These Distributed Wind projects, installed where people live and work and sized to support the local electricity demand, can be scaled to hundreds of thousands of sites within 10 years and reach 35 GW by 2035.

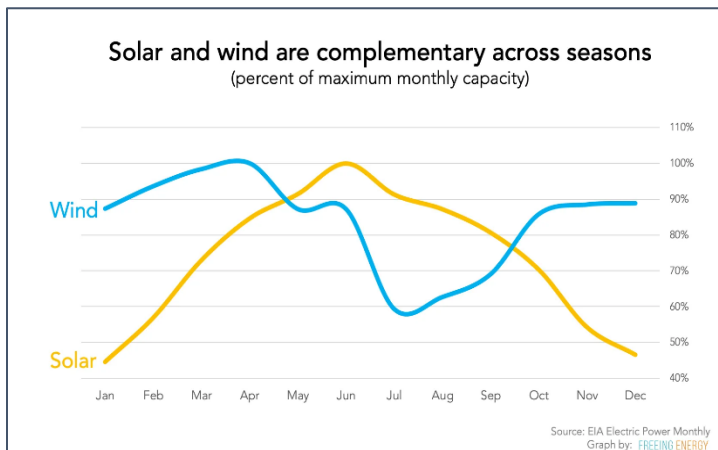


Figure 1, Typical Annual Solar and Wind Performance

Distributed Wind complements solar power by working at night and with greater capacity utilization in the winter, providing homes and buildings with a path to clean, fuel-free, heating and supporting nighttime EV charging. Figure 1 shows the seasonal complementarity of wind and solar resources.

American-made small and medium wind turbines keep jobs here at home

¹ Job’s projections calculated by DWEA based current actual labor and projected learning curves. GHG emissions reductions based on US-EPA calculator: <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>.

² Assessing the Future of Distributed Wind: Opportunities for Behind-the-Meter Projects, Lantz, et al. NREL, November 2016, Technical Report NREL/TP-6A20-67337

and through distributed manufacturing can bring opportunities to disadvantaged communities with new living-wage jobs. “BIPOC [Black, Indigenous and People of Color] and frontline communities prefer local small-scale wind so as not to encroach on sensitive and protected lands.”³ Distributed Wind is a proven technology that is “shovel ready” for aggressive deployment, with potential for a 50% reduction in LCOE by 2030 through technology innovation and market scale.⁴

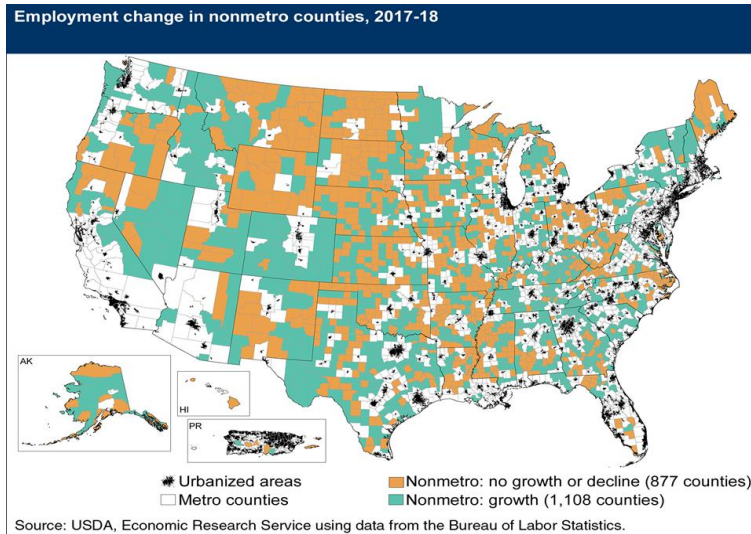


Figure 2, Rural Job Loss in the Windy Central Plains

Distributed wind is an essential part of any equitable transition to a clean grid by 2035 and clean economy by 2050. The Distributed Wind Energy Association (DWEA) believes that 35 GW of Distributed Wind can be achieved by 2035, with 50% of the new capacity manufactured and installed to benefit disadvantaged communities and communities affected by the energy transition. Many areas affected by the reduction in coal mining and areas around operating fossil power, petrochemical and

chemical plants boast usable wind resources and a labor pool that can be retrained to distributed wind manufacturing, operation and maintenance. As shown in Figure 2, vast rural areas in the Midwest are losing population due to the lack of economic opportunity but are ripe for manufacturing and deployment of Distributed Wind, expanding economic opportunities while keeping money within the communities.

Small and medium scale wind turbines and towers can be manufactured in fabrication plants located in rural communities as well as urban areas, expanding the economic impact of distributed wind development. Remotely-sited, but community based wind development can be used to provide clean energy options to urban consumers in the same way as Community Solar. For these reasons Distributed Wind has a unique ability to provide direct and indirect development opportunities to a wide range of communities across the nation.

³ The 100% Network: **Comprehensive Building Blocks for a Regenerative & Just 100% Policy**. (January 2020) https://climateadvocacylab.org/system/files/100-network_comprehensive-building-blocks-for-a-just-regenerative-100-policy-2020.pdf, Page 20.

⁴ WETO MYPP published in Dec 2020 page 16 <https://www.energy.gov/sites/prod/files/2020/12/f81/weto-multi-year-program-plan-fy21-25-v2.pdf>

American companies are global leaders in small and medium wind energy technology. Innovative new American technology has lowered costs and increased the performance and grid support capabilities of Distributed Wind, and the industry has substantial opportunity for further cost reductions with higher manufacturing volumes. If the U.S. industry is supported in ramping up manufacturing capacity, we can further capture the worldwide market in the same way that China has captured the solar market. Technology is also emerging in hybrid microgrid systems at different scales to provide resiliency and grid support services to strengthen the grid. Much of this work has been supported by the U.S. Department of Energy, whose effectiveness will now be increased by making deployment a key part of its mission.

DWEA Recommendations

To realize the potential of Distributed Wind and reach 35 GW by 2035, DWEA recommends the following programs and policies:

1. Extend and expand the Investment Tax Credit (ITC) for Residential and Commercial Purchasers and offer a cash option.

The Section 25D and 48 tax credits stimulate the market and have proven to be very effective in driving deployment of cost competitive clean energy technologies. In the case of Distributed Wind, however, the industry has been working aggressively to reduce costs with advanced technologies and new lower cost turbines are just coming to market. Extension of the ITC's will allow these new products to ramp to higher production rates which will further reduce costs. DWEA recommends an extension of at least 5-years at 30% with a several year transition or ramp down and an increase in the size cap from 100 kW per turbine to 10 MW per project (with restrictions, per HR 1484 and S 532). DWEA further recommends a 10% adder for disadvantaged and transitional communities.

DWEA members have found that the tax equity investor "solution" for customers with little or no tax obligation (e.g., nonprofits, tribes, and average retirees) does not work for smaller Distributed Wind projects due to the high administrative and transactional costs, even if one could locate a tax equity investor interested in smaller projects. Distributed Wind needs a cash grant to seed growth. DWEA recommends a complementary program to the proposal for ITC 's that offers cash rebates at 85% (or higher) of the then current ITC for projects up to \$2.5 million in total costs. DWEA further recommends an ITC-like set aside designed to reduce transaction costs on portfolio financing deals.

2. Fund US-DOE RD&D programs for Distributed Wind at \$500M over the next ten years, with 50% for deployment with a focus in disadvantaged or transitioning communities.

Program R&D focus should expand ongoing efforts on cost reduction, microgrids for resiliency and grid strengthening, and to mitigate market barriers. Continued technology improvements that lower costs are critical for scale-up, especially for small wind. There is also an opportunity for cost effective mid-scale (100 kW – 1 MW) wind technology for distributed applications. Soft costs, particularly for permitting and interconnection, are excessive and must be reduced. Emphasis should also be placed on expanding distributed wind projects and manufacturing in disadvantaged and transitioning communities, including robust consultation with the communities as a key part of the planning process. Expanded efforts are needed to document the benefits and address the challenges of hybrid DER's systems to provide year-round resiliency at critical infrastructure. The US-DOE SunShot program, which included many of the aspects DWEA recommends, has been highly successful in making solar systems affordable, promoting deployment and reducing market barriers. A similar comprehensive program for Distributed Wind would bring it into the mainstream.

3. Offer large scale distributed wind deployment financing.

Make \$250 million available at greatly reduced or treasury rates for 20-year terms in direct loans from a revised and streamlined DOE Loan Program designated specifically to provide project funding for distributed wind turbines and microgrid systems up to 2.5 MW in capacity. Affordable and accessible long-term financing is needed to facilitate deployment at scale for disadvantaged communities and in areas with low electricity rates. Due to the small size of most projects financing mechanisms would need to be aggregated through developers or local funding organizations.

4. Offer Manufacturing Scale-up Loans

Make available \$100 million at greatly reduced or treasury rates for 20-year terms in direct loans from a revised and streamlined DOE Loan Program designated specifically for establishing or scaling-up of manufacturing of distributed wind turbines up to 1MW in capacity. Large loans at very favorable terms for mega-factories was how China captured the worldwide solar supply market. The U.S. has leading Distributed Wind technology but needs mass production to further reduce costs. The program should allocate 50% of the loans for Distributed Wind manufacturing in disadvantaged, rural or transitioning communities and offer added incentives for reaching local hire, diversity and wage goals. Residential, farm and commercial scale wind turbines, electronics and towers are suitable for dispersed mini-factories (distributed manufacturing) because the processes are not high-tech or capital intensive. Distributed Wind allows directed placement of manufacturing, installation, and O&M jobs in targeted areas. Distributed wind is positioned to take advantage of existing infrastructure in rural and energy transitioning communities, bringing high quality manufacturing jobs back to rural America.

5. Institute a national “Freedom to Install Wind” regulation

Ubiquitous severe height restrictions for structures in zoning ordinances, while never intended to restrict the installation of appropriately installed small wind turbines, have nonetheless had that effect. Updating ordinances in 25,000 zoning jurisdictions is not a reasonable solution. The FCC rules for satellite dishes or Over-the-Air-Reception Devices (OTARD) provides a national model. After 30 years of field experience, there is irrefutable verification that distributed wind turbines pose no significant threat to birds or aviation, that neighboring land values and public safety are unaffected, and that the turbines can meet reasonable existing noise ordinances. Thousands of distributed wind systems are operating successfully around the country and they have become accepted features of the local landscape (just like utility poles). DWEA recommends rights be established for wind turbines up to 25 kW on any properties of 1.75 acres or more, and up to 100 kW on properties of 5 acres or more for all property zones where buildings are allowed. DWEA also recommends greatly reducing administrative barriers to tribal wind energy projects at all scales.

6. Ramp up USDA Title IX to provide grant and loan funding for rural development.

Distributed wind is particularly well suited to bring economic development and GHG reductions to farms and rural businesses. USDA REAP and RESP programs should be scaled up and, in some cases, improved. DWEA supports the Ag Energy Coalition’s call for \$2.5B for REAP over 10 years with a grants reserve fund for “underserved technologies” and we call for a 10x expansion of the RESP program, which enables rural coops to offer renewable energy and energy efficiency products to their members through low-cost financing.

7. National critical infrastructure resilience program.

Distributed Wind, along with solar and other clean energy power sources, should be deployed at scale to provide resiliency for critical infrastructure and first-responder facilities, medical facilities, water supply infrastructure, communications facilities, and critical military facilities. Addressing loss of utility power due to fire, extreme weather events and other natural disasters supports critical community services and these microgrids will strengthen the grid and will build manufacturing volumes for DER technologies. Expanding the development of distributed energy resources at schools and other governmental facilities lower energy expenditures, reduce carbon intensity and further supports local economic development. Combining solar and wind resources makes for stronger and more effective microgrids. DWEA recommends that any new infrastructure programs covering resilient power supply include distributed wind as an eligible technology and encourage the use of multi-renewables hybrid design. Further, DWEA recommends that any national infrastructure initiatives that include on-site generation should be technology neutral.

8. Institute national net metering through 2035 for underserved clean renewables up to 1 MW.

Nascent clean energy generation technologies could ramp to scale faster if their customers could operate in a simple, consistent, and favorable business relationship with their utilities. Net metering helped bring solar into the mainstream and a national mandate for nascent technologies would accelerate deployments and avoid hundreds of person-years in advocacy at the city and state level. National renewable energy policies have allowed China to ramp renewable energy development much faster than the U.S. To be effective the net metering needs to provide rollover of excess production between billing periods.

9. Institute National Interconnection Standards.

Utility interconnection costs and delays, particularly for larger Distributed Wind projects, are significant barriers to deployment. State regulatory bodies often give wide latitude to utilities to set requirements and costs and opportunities to challenge anti-competitive practices are weak or non-existent. The grid and prudent power engineering practice do not vary utility to utility, so a national standard for interconnection would be both practicable and effective in streamlining deployment. Fortunately, two detailed and well vetted models for a national standard exists in the form of the IREC Model Interconnection Procedures – 2019 and New York State Standardized Interconnection Requirements. DWEA recommends instituting one of these procedures as a national standard. DWEA further recommends establishing an appeals process at FERC and providing FERC the authority to levy fines where the national procedures are violated or anti-competitive practices (e.g., imposition of demand charges on small and medium customers) are applied.

10. Remotely-sited community wind to address urban energy equity.

Shared community ownership models for remotely-sited renewables are a proven and effective solution to urban customers without property to have their own equipment. Community solar has been successfully developed in a number of locations around the country and have not always served low income customers. Soft cost barriers and solar-oriented policies have limited Distributed Wind's contributions to this application. DWEA recommends that DOE and FERC work together to ensure that any community energy deployment programs or regulatory authority provides equal access to Distributed Wind so that project developers can choose the most suitable technology or combination of them for their location and requirements. Distributed Wind can actively support disadvantaged communities that are now only served by Community Solar.