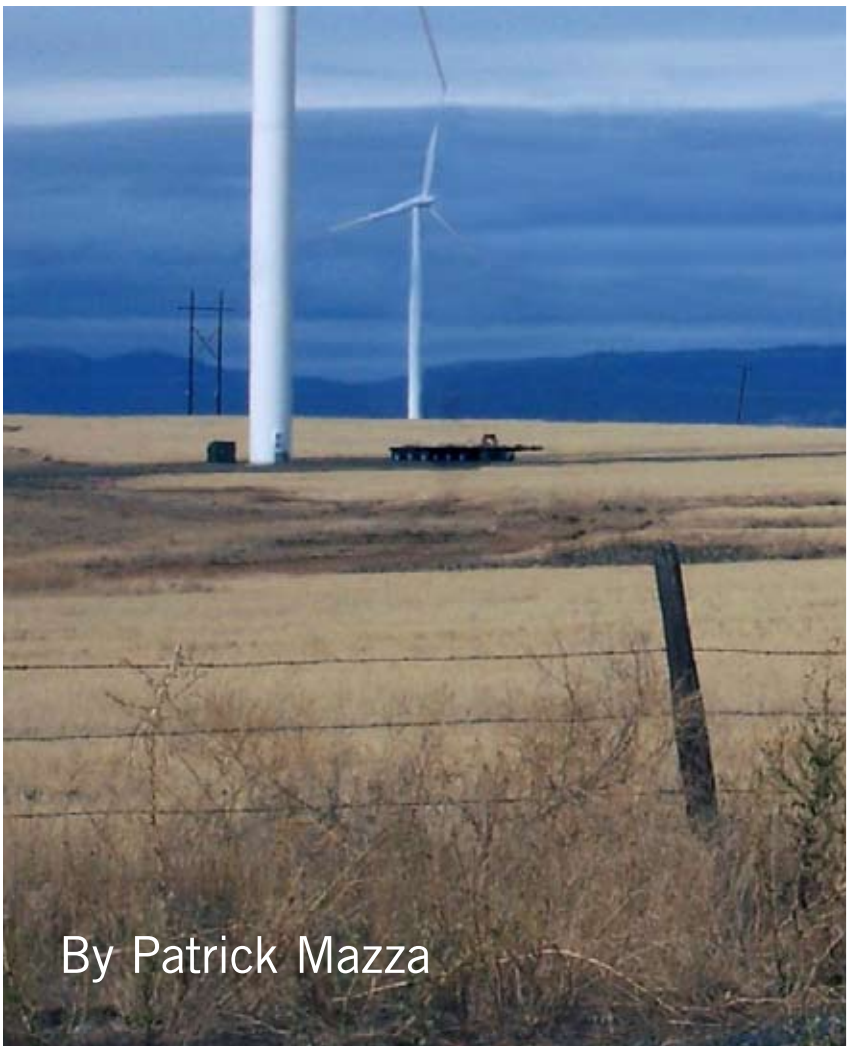
Community Wind 101: A Primer for Policymakers



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Harvesting Clean Energy

25x'25 America's Energy Future

The Energy Foundation
Toward a sustainable energy future

Cover Photo:
Background: White Creek, Washington wind farm; from Klickitat PUD
Top right: Spirit Valley, Iowa schools wind turbine, from Tom Wind
Bottom right: from Warren Gretz, National Renewable Energy Lab

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Harvesting Clean Energy: The Harvesting Clean Energy program reaches across the urban/rural divide in the Pacific Northwest. We cultivate common ground with a simple shared goal: to foster rural economic development through clean energy production

The 25x25 vision: By 2025, America's farms, forests and ranches will provide 25 percent of the total energy consumed in the United States, while continuing to produce safe, abundant, and affordable food, feed and fiber.

Energy Foundation: The Energy Foundations mission is to advance energy efficiency and renewable energy — new technologies that are essential components of a clean energy future.

Executive Summary

A new model for wind development is emerging – community wind – in which local ownership plays a major role. Rural landowners, consumer-owned utilities, school districts, colleges and native tribes are putting installations on the ground ranging from single turbines to wind plants with hundreds of megawatts of capacity.

Community Wind 101 is intended as a primer on community wind for policymakers and clean energy advocates, based on a survey and synopsis of the best literature in the field. This paper:

- Looks at community wind examples;
- Overviews wind power economic benefits overall and community wind's enhanced benefits;
- Demonstrates community wind's benefits for the power grid and wind power growth;
- Examines obstacles facing community wind developers and details effective state and federal policies to overcome them;
- Points to ways federal power management authorities and consumer-owned utilities can join to develop wind.

Community Wind 101's key findings:

Community wind, though small in the U.S., is beginning to grow through successful local ownership models.

Community wind was born in Denmark and Germany and retains a significant share there. In the U.S. community wind is only four percent of wind capacity but interest is surging. Many innovative examples are emerging. They include:

- The MinWind partnerships in Luverne, Minnesota pioneering ways for multiple rural landowners to join in wind development;
- Pacific Northwest public utilities building what could become one of the largest wind farms overall;
- Iowa Lakes Community College's turbine which powers the campus and wind technician training program;
- A Rosebud Sioux wind installation on their South Dakota Reservation.

Wind power is a tremendous economic boon to rural America, and economic benefits from local ownership are multiplied in the range of two to three times or more.

Wind developed along standard corporate lines is producing economic gains for rural areas across the nation:

- Annual landowner royalties of $2,000-$10,000 per turbine;
- Annual property tax payments of $500,000-$1 million per 100 megawatts (MW);
- 1-2 construction jobs per MW
- Two to five operations and maintenance jobs per 50-100 MW. [1]

Community wind tends to be developed at a smaller scale, but MW for MW the local economic benefits can be several times as great, multiple studies find. Typical is a National Renewable Energy Laboratory study which compares one 40 MW plant owned by outside investors to 20 two MW plants owned locally [2]:

	Outside	Local
Local Income	$1.3 million	$4 million
Job Creation	18	41

Community wind can play a pioneering role for all wind power by expanding local financial interest and public support.

Community wind brings a more diverse set of players, places and wind resources into the picture. Individual landowners and local institutions such as schools, towns, counties, consumer-owned utilities and tribes can bring their own assets to the table, both financial and political.

"Community wind projects tap into a latent and potentially lower-cost source of capital to fund utility-scale wind development," a group of leading community wind experts reported to the Energy Trust of Oregon. "With local investment dollars at stake, community wind projects may benefit from increased community support . . . which might translate into a smoother permitting process relative to commercially-owned projects." [3]

Community wind can act in a pioneering role for larger-scale community and corporate development.

"A small-scale community wind project can be a useful tool to gauge whether a site has potential for future expansion," the experts note. "A successful community wind project can be a launch pad for streamlined future expansion of wind development on a given site."

Diversifying the geographic spread of wind makes the wind resource more reliable and valuable overall.

A growing body of wind integration studies verifies that interconnecting wind projects with greater geographic diversity enhances wind energy production since it increases the probability that wind energy will be generated in different locations at a given point in time.

Wind integration experts recently wrote in *IEEE Power & Energy* that "several investigations of truly high penetrations of wind (up to 25 percent energy and 35 percent capacity) have concluded that the power system can handle these high penetrations without compromising system operation. . . the value of sharing balancing functions over large regions with a diversity of loads, generators and wind resources has been clearly demonstrated." [4]

Wind energy has a key element in modernizing the power grid to create a more reliable network.

Accessing wind energy resources at all levels will require modernizing and expanding transmission systems to carry power from remote windy areas to cities. In places where transmission is currently limited, community wind with its typically smaller scale can be developed to serve local needs.

Community wind projects face large financial hurdles that require a favorable policy environment to overcome.

High transaction costs and related diseconomies of smaller scale pose significant obstacles. Lawrence Berkeley National Laboratory analysis of 28 wind projects indicates levelized costs per MW for a 9 MW installation will be six percent higher than for a comparable 50 MW project and 36 percent above a 200 MW wind farm. [5]

Federal tax incentives including the Production Tax Credit and accelerated depreciation vital to all wind development are not fully usable by many potential community wind projects – This represents a major barrier to local ownership.

The key difficulty facing prospective community wind developers is lack of tax liability sufficient to take full advantage of federal tax incentives. These incentives represent a large portion of the financial return of a wind project and generally are needed to make projects of any size under any ownership model economically feasible. To fully utilize PTC incentives for a two MW project, an investor must owe $125,000 in federal taxes on income from the wind project itself or from "passive income." This is defined as income from a rental property, limited partnership or other business in which they are not actively involved.

Fixing the PTC to apply to a broader range of income types and levels could generate widespread community wind ownership – A complementary option is producer payments and other incentives targeted specifically at community wind.

Proposals before Congress would allow tax credits to be deducted against income from wages or a business in which the taxpayer is actively engaged. For example, Rep. Tim Walz (D-Minnesota) proposes in H.R. 2691 to allow investors to claim up to $40,000 in tax credits against ordinary income tax liability.

The Center on American Progress and the Institute for Local Self-Reliance propose to make the PTC more usable for community wind projects by:

- Establishing a two-tiered producer payment that provides greater tax credit benefits to community wind owners in the range of a 2.5 cents/kilowatt hour (kWh)
- Providing producer payments for on-site power generation.
- Allowing tax credits to be taken against ordinary wages and business income.

Congress might also consider providing a program offering financial assistance targeted specifically to community wind projects.

Another PTC fix most observers consider vital for steady wind growth in the U.S., both corporate and community, is simply a long-term extension of the existing credit. If the U.S. is serious about building its manufacturing presence in wind, it will put a long-term PTC in place to provide manufacturers with investment certainty.

Feed-in tariffs are successfully used in Europe to promote community wind. Advanced renewable energy tariffs that guarantee grid access and a high rate could be one of the most powerful tools to promote community wind in the U.S.

Feed-in tariffs are offered by leading wind countries including Germany, Denmark, Spain and 15 other European countries. Because they do not require tax liability such as the PTC, and because payments are guaranteed and stable, feed-in tariffs are generally regarded as a superior tool to drive community-owned wind.

The first contemporary feed-in arrangement in North America was instituted in Ontario province in November 2006. By April 2008 the Standard Offer Program spurred around 1,300 MW in planned new renewables development but practically no community wind. The Ontario Sustainable Energy Association has proposed an Advanced Renewable Tariffs system that more fully mirrors the successful European model. In late June Rep. Jay Inslee (D-Washington) led introduction of perhaps the first

feed-in proposal to reach Congress, the Renewable Energy Jobs and Security Act, H.R. 6401, to:

- Guarantee interconnection to the grid and long-term, fixed payments for renewable projects up to 20 MW;
- Minimize the impact on utilities and ratepayers through regional cost-sharing.

Standardized procedures for interconnection and net metering improve community wind economics, as would net metering that allows larger projects.

Complex procedures that make it difficult to connect to the grid drive up costs and strangle many community wind projects in the crib. The more the interconnection process can be standardized and made predictable, the higher the chances for putting community wind projects on the ground.

At least 37 states have interconnection standards. The Interstate Renewable Energy Council notes that while evolving national standards are overcoming technical interconnection barriers, "many of the difficulties associated with interconnection now lie in the legal and procedural areas. Interconnection standards adopted by different governments are largely disparate." [6]

Net metering, which lets distributed generators deliver surplus power to the grid and receive a retail or near retail rate in return, is in effect in at least 40 states and the District of Columbia. But as of late 2007 only 11 allow installations larger than one MW, smaller than most utility-scale wind turbines. [7]

Rules for both net metering and interconnection vary from state to state, though more are employing templates such as model standards adopted by New Jersey and Colorado which allow up to two MW in net metered installations. A bill setting forth national interconnection and net metering standards would make a great contribution to removing community wind barriers.

States have moved to fill policy gaps with production incentives and other supports. Minnesota has developed the most successful model in the U.S.

Minnesota has at least 320 MW of community wind, over 40 percent of the national total, with hundreds more in the works. "Minnesota provides the best example of a state that has implemented a variety of community wind incentives, making it a leader in community wind development in the United States," Farmers Legal Action Group observes. [8] Minnesota has offered production incentives, guaranteed markets, standardized legal agreements, capital support and other assistance. Through this package the state has developed a supportive business infrastructure that has reduced installation and operating costs.

Federal power authorities and consumer-owned utilities are natural partners to promote wind power in some of the nation's windiest regions.

In the 1920s and '30s federal power authorities including Western Area Power Administration and Bonneville Power Administration joined consumer-owned utilities to provide affordable power through hydroelectric generation and transmission. This same array of institutions should be at the forefront of developing the greatest emerging new power source, wind. Repurposing federal authorities to promote wind and the range of renewables through transmission upgrades and power purchases could unleash new community and corporate wind development.

The benefits of locally-owned projects justify an increased priority on community wind.

Obstacles to community wind, though formidable, are not insurmountable. With smart policies for community wind based on demonstrated success by leading states and nations, community wind can make significant contributions to energy security and reliability, energy price stability, pollution reduction and rural economic revitalization. Community wind makes for more prosperous rural economies, stronger power grids and the growth of wind power overall.