Community Wind Power Development

The Challenge of Applying the European Model in the United States, and How States are Addressing that Challenge

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Defining "Community Wind"

- **Locally Owned:** One or more members of local community have a direct financial stake in the project, other than through land lease or tax revenue
- **Utility-Scale Turbines:** 600 kW threshold for new projects, lower for older projects
- **On Either Side of Meter:** Power sales to the grid *or* offsetting end-use consumption (or both)

NOT referring to:

* home-sized (10 kW) projects
* municipal utility projects
* standard US commercial wind development

Experience in Northern Europe (2000)

	Total Wind Capacity (MW)	Community-Owned Wind Capacity (MW)	% Community-Owned	Number of Household Investors
Germany	6,161	~5,400	88%	~100,000
Denmark	2,268	~1,900	84%	~175,000
Sweden	240	~30	13%	~15,000
The UK	414	~3	1%	~2,000
Total	**9,083**	**7,333**	**81%**	**292,000**

Historical Community Wind Drivers

	Denmark	Sweden	Germany	UK	US
Feed-in laws	✓	✓	✓		
Standardized interconnection	✓	✓	✓		
Tax-free production income	✓	✓			
Energy/CO_2 tax refund	✓	✓		✓	
Flow-through depreciation			✓		
Wind turbine mfg. industry	✓		✓		
Ownership restrictions	✓				

Why Community Wind in the US?

- Supplement and Stabilize Farmer Income
  - Preserve farming communities
  - Preserve rural landscapes, values, way of life
- Local Economic Development Benefits
- Difficulty Siting Large Projects (some areas)
- Take Responsibility for Energy Consumption

Minnesota – Policy Support

Create Demand:

- **Xcel Wind Mandate:** 1,125 MW by 2010 (at least 160 MW of this from projects ≤ 2 MW)
- **Renewable Energy Objective:** 1% of retail sales by 2005, increasing to 10% by 2015
- **Xcel Small Wind Tariff and Standard PPA:** similar to "feed-in law" for projects ≤ 2 MW (3.3¢/kWh for 20 years)

Encourage Supply:

- **Cash Production Incentive:** 1.5¢ per kWh sold over initial 10 years (for projects ≤ 2 MW that meet ownership criteria)
- **Grants:** Xcel Renewable Development Fund, State Energy Office, USDA

Minnesota – Results

- At least ***132 MW*** of "small" projects already built, with another ***68 MW*** in the pipeline
- Financing/Ownership Structures:
  - Commercially financed (53 MW)
  - Local personal wealth (35 MW)
  - "Flip" structure (30 MW)
  - Municipal utility (9 MW)
  - LLCs of local investors with tax appetite (4 MW)
- Flips & local LLCs more common in next 68 MW
- 100 MW Trimont project – an emerging model?

Iowa

Drivers:

- Historically no size limit on net metering (now 500 kW)
- Single-part tariffs not uncommon for large end-users
- *Alternate Energy Revolving Loan Program* loans half of required funds (up to $250,000) at 0% interest

Results:

- Large, behind-the-meter projects dominate
- 8 school districts host 10 turbines (50-750 kW) totaling 3.6 MW – the most school-based turbines of any state

Future?

Wisconsin

"Wisconsin Community-Based Windpower Project Business Plan" (September 2003)

- Funded by *Wisconsin Focus on Energy*
- Prepared by Cooperative Development Services
- Detailed (though generic) business plan for a variant of the "flip" structures seen in Minnesota
- Financial modeling suggests that community wind may be possible in WI without state incentives

Independently, 2 small MN-style "flip" projects appear to be moving forward

Illinois

2003: Two projects funded with various grants

1) **Bureau Valley School District** (750 kW, behind the meter)
   - $20,000 grant for feasibility study (ILCECF)
   - $375,000 construction grant (ILCECF)
   - Has applied for a grant from RERP
2) **Illinois Rural Electric Cooperative** (1.65 MW, supply mix)
   - $175,000 up-front 10-year REC purchase (ILCECF)
   - $250,000 grant (RERP)
   - $438,544 grant (USDA)

2004: ILCECF considering a wind monitoring program targeted at sites with strong community interest. More construction grants also possible.

Massachusetts

MTC's "Community Wind Collaborative" (Sept. 2003)

- Born out of contrast between Cape Wind and Hull
- Targets projects <5 MW on public land, on either side of meter, and owned or facilitated by municipalities
- MTC (with help of consultants) acts as developer on behalf of community up until build/no-build decision
- If build, community can access MTC "preferred partners"
- Status:
  * 40 communities have expressed interest
  * Wind monitoring underway in 6 communities (10 by June)
  * MTC establishing consultant pool and preferred partners

Other

New York: Recent NYSERDA solicitation may support community wind, but primarily intended to prepare communities for *large-scale* wind development (from RPS)

Oregon & Washington: Funding analysis of various ownership structures and relative local economic benefits of community wind

California: 1 MW net metering size limit and 50% cost buy-down driving at least one project (Palmdale Water District)

Idaho: $500,000 USDA grant for rancher-owned 3 MW project, will sell output to Utah Power

Tribal turbines: Rosebud Sioux 750 kW turbine in SD, a few other projects either built or under development in ND, MT, ID

Conclusions

- There is growing interest in community wind
- States providing different forms of support, which leads to different project types
- Tax-based federal incentives require innovative ownership arrangements to maximize value
- Increasingly good information on replicable models may be pushing community wind past a “tipping point”