



Economics of Community Wind



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Overview

- Economic impact study overview
 - Compare ownership structures of wind projects and their local economic impacts
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Corporate Wind Ownership



- Developed, installed, operated by non-local or foreign owners, or by utilities
- Local participation often limited to construction role, plus land lease payments
- Often very large in scale (>50 MW)

Community-Owned Wind



- Local ownership (various forms; municipalities, cooperatives, LLCs, etc.)
- Generally small-scale (<20 MW)
- May purchase more inputs locally

Overview of Economic Impact Analysis

A stylized graphic of a wind turbine is positioned on the right side of the slide, set against a dark blue background with a subtle grid pattern.

- Several recent studies have estimated local economic impacts comparing community and corporately owned wind installations
- All used input-output modeling to capture how dollars spent on wind project construction and operation moves through the economy

Input/Output Economic Analysis

A stylized graphic of a wind turbine is positioned on the right side of the slide, set against a dark blue background with a subtle grid pattern.

- Measures the impact of local expenditures, in terms of added value, wages and jobs.
- Depends on existing economic infrastructure
- IMPLAN (Impact Planning and Analysis) software and data are used – best tool available for economic impact analysis, from the Minnesota IMPLAN Group.

Input/Output Economic Analysis, continued

- Value-added is measured in 3 ways:
 - **Direct effects:** First round effect of dollars spent to purchase goods/services of industry in question
 - **Indirect effects:** Second-round effects, impacts on input industries and services
 - **Induced effects:** Third-round effects, additional spending by those who are directly and indirectly employed by the industry

Grover, 2005

- Estimated potential local economic impacts for six small rural wind projects in Washington (.75 MW to 9 MW)
- Found no difference in local impact during construction phase between community and corporate ownership
- Discovered large differences in operational phases, reported on next slide

Grover, 2005 Impact per MWh, Operations Phase

	Corporate (A)	Community (B)	Difference (\$) (B-A)	Difference (%)
Economic Output	\$138,800	\$161,200	\$22,400	16%
Wages	\$34,900	\$49,500	\$14,600	42%
Jobs	1.2	1.5	.3	25%
Business Income	\$3,200	\$4,900	\$1,700	53%
State & Local Tax Rev.	\$15,700	\$17,000	\$1,300	8%

Another study....

- Kildegaard and Myers-Kuykindall, 2006
- Big Stone County, MN
- Studied the impact of a 10 MW project under local ownership as compared to corporate ownership

Economic Impact of Community vs. Corporate Ownership, Operations

Scenario	Annual Direct, Indirect, and Induced Effect, Value Added	Annual County-Wide Employment Impact
Community Wind (5% opportunity cost of capital)	\$1,259,188	14.5
Community Wind (8% opportunity cost of capital)	\$639,739	8.2
Corporate Wind	\$249,388	4.3

NREL Study (2004)

- Goldberg, Sinclair and Milligan
- Used JEDI model (input/output model using IMPLAN, revised for wind power)
- Analyzed projects in 11 counties in CA, CO, IA, MN, TX
- Compared two ownership scenarios in each county:
 - Corporate: 40 MW project in each county
 - Community: Twenty 2 MW projects in each county

Results of NREL study:

- In each county, the job creation for community projects was twice that of corporate projects for operations phase
- Local annual O&M spending on community wind was 5 – 8 times that of corporate wind projects

Michigan Example

- Gratiot County
 - 10 1.5 MW Turbines
 - Analyzed using IMPLAN and JEDI models
 - Compared under corporate ownership vs. local ownership assumptions
 - Then added in local production of some turbine components

Gratiot County Construction

A stylized graphic of a wind turbine is positioned on the right side of the slide, partially overlapping the text area. The turbine is white with three blades and a tower, set against a blue background with a subtle grid pattern.

- Local Impacts (both Corporate and Community-owned) – used JEDI assumptions on local components
 - 103 FTE jobs (2/3 are indirect or induced)
 - \$4.6 million in wage/salary earnings
 - \$10.59 in economic activity

Construction Impacts with Local Manufacturing

A stylized graphic of a wind turbine is positioned on the right side of the slide, partially overlapping the text area. The turbine is white with three blades and a tower, set against a blue background with a subtle grid pattern.

- Assume Towers built locally and 10% of turbine parts
- Results:
 - 143 FTE Jobs
 - \$6.64 million in wages/salaries
 - \$18.3 million in output

Gratiot County Results

Scenario (O & M)	Annual Direct, Indirect, and Induced Effect, Value Added	Annual County-Wide Employment Impact
Corporate Wind	\$860,000	5
Community Wind	\$1,220,000	9
Difference (%)	41%	80%

SUMMARY

- Community wind can be a good local investment opportunity
- The local economic impact is more favorable with community wind projects
- There is a need for favorable policies to encourage community wind
- Community wind projects require more effort and have a higher level of risk