

Wind Energy for Rural Economic Development

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to PUC of Nevada RPS Procurement Workshop
Carson City, Nevada
18 May 2006



Rural Economic Challenges

- Low commodity prices
- Fuel price uncertainty
- High fertilizer prices
- Migration to cities
- Eroding local tax bases
- Water shortages



Wind Energy Economic Security Benefits

Wind Energy:

- is an indigenous, homegrown, energy resource that contributes to national security.
- is inexhaustible and infinitely renewable.
- displaces electricity that would otherwise be produced by burning natural gas, thus helping to reduce gas demand and limit gas price hikes.
- boosts rural economic development.
- has many environmental benefits.
- can be used in a variety of applications.
- is the fuel of today and tomorrow.



Wind benefit: water savings

Wind energy requires no water for power generation

Consumer Benefits: Xcel Energy reports "Wind provided 'net benefit to the system' of \$9.75 million in 2005"

Energy Savings Associated With Wind

- After the fact analysis for the PSCo System
 - 2004 net benefit to the system \$4.21 Million
 - 2005 net benefit to the system \$9.75 Million
- Savings for the SPS System
 - 2005 net benefit to the system - \$5.00 Million

Xcel's figure is based on 307 MW of contracted wind, which equals 4.2% capacity penetration and 2.0% energy penetration

From 20 April 2006 presentation by Bill Grant, Manager, Transmission Control Center, Xcel Energy

Economic Development Impacts of Wind Energy

- Construction
- Operations and maintenance
- Property tax revenues
- Landowner revenues
- Manufacturing
- Multiplier effect
- Net economic development impacts of wind vs. fossil fuels



Economic Development Impacts: Jobs

- 40-140 jobs during construction per 100 MW
- 6-20 permanent O&M jobs per 100 MW (average 10 per 100 MW)
- Local construction and service industry – local contracts
- Local benefits if local labor base has robust technical and construction resources



Multiplier Effects



Increased local income induces spending on other local goods and services

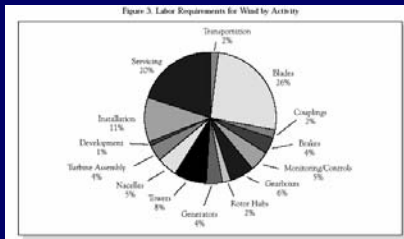
Calculating Economic Development Impacts

- **Direct:** Immediate effect of project expenditures (on-site contractors and local manufacturing)
- **Indirect:** Increase in local economic activity (bankers, local services)
- **Induced:** Change in wealth that occurs from the spending of people directly and indirectly employed by the project.



A \$30M investment in a wind plant in Nevada would result in an estimated 43 direct, indirect, and induced permanent jobs.

Jobs Created by Wind Power



A 37.5-MW wind farm creates 180 person-years of work over a 10-year period

2,000 MW of wind power creates 9,694 person-years of work

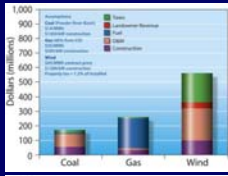
Source: REPP

Economic Development Impact: Property Taxes

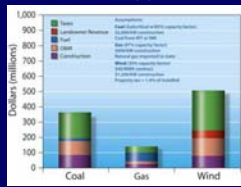
- Typically 1%-3% of **assessed** value
- A typical 100-MW wind farm creates \$500K - \$1M/year
- Assessed at the county level
- Varies greatly from county to county, depending on assessed value, abatements, tax rate, exemptions
- Some states receive payments in lieu of taxes
- Wind farms are often assessed more taxes than other forms of generation



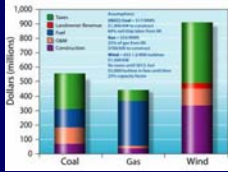
Economic Impacts of Alternative Generation



Colorado



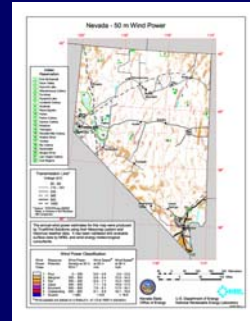
Arizona



Michigan

From DOE/NREL DE-AC36-99-GO10337

Windy Rural Areas Need Economic Development



Tourism Benefits: Minnesota



Tourism Benefits: Colorado



Case Study: New Mexico

- 204-MW wind project built in 2003 in DeBaca and Quay counties for PNM
- 150 construction jobs
- 12 permanent jobs and \$550,000/yr in salaries for operation and maintenance
- \$550,000/year in lease payments to landowners
- \$450,000/year in payments in lieu of taxes to county and school districts
- Over \$40M in economic benefits for area over 25 years



Source: PNM, New Mexico Wind Energy Detail Quick Facts, 2003

Case Study: Texas



- Utilities and wind companies invested \$1B in 2001 to build 912 MW of new wind power, resulting in:
 - 2,500 quality jobs with a payroll of \$75M
 - \$13.3M in tax revenues for schools and counties
 - \$2.5M in 2002 royalty income to landowners
 - Another 2,900 indirect jobs as a result of the multiplier effect
 - \$4.6M increase in Pecos County property tax revenue in 2002

Case Study: Colorado



- 162-MW Colorado Green Wind Farm (108 turbines)
- \$200M+ investment
- 400 construction workers
- 14 full-time jobs
- Land lease payments \$3000-\$6000 per turbine
- Prowers County 2002 assessed value \$94M; 2004 assessed value +33% (+\$32M)
- Local district will receive 12 mil tax reduction
- "Piggyback" model of community wind



"Converting the wind into a much-needed commodity while providing good jobs, the Colorado Green Wind Farm is a boost to our local economy and tax base."
—John Stulp, former county commissioner, Prowers County, Colorado

Local Ownership Models



- "Lamar model" of leveraging utility-scale projects for locally owned projects
- Locally owned and farmer-owned cooperatives (MinWind)
- Proposed set-asides in utility acquisition activities

Wind development issues

- Finding sites with suitable wind resource and transmission access
- Site assessment, including avian and wildlife
- Working with landowners
- Permitting process with various levels of government
- Financing
- Negotiating power purchase agreement with utilities
- Building and commissioning the project

Thank you!



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