Wind Energy for Rural Economic Development

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Outline

• Economic Development Basics
  – Introduction
  – Jobs
  – Manufacturing
  – Taxes
  – Landowner revenue
• Case Studies
• Wind Powering America (WPA) Activities
• Appeal to Industry
The Opportunity

Economic security and prosperity for rural America through local production of energy
Rural Economic Challenges

- Low commodity prices
- Fuel price uncertainty
- High fertilizer prices
- Migration to cities
- Eroding local tax bases
- Water shortages
Wind energy is an **indigenous**, homegrown, energy resource that contributes to national security.

Wind energy is **inexhaustible** and infinitely renewable.

Wind displaces electricity that would otherwise be produced by burning natural gas, thus helping to **reduce gas demand** and limit gas price hikes.

Wind energy is the **least cost** new energy source.

Wind energy boosts rural **economic development**.

Unlike most other electricity generation sources, wind turbines **don’t consume water**.

Wind energy has many **environmental benefits**.

Wind energy can be used in a **variety of applications**.

Wind energy is the fuel of **today and tomorrow**.
Windy Rural Areas Need Economic Development

Figure 1

Geographic Distribution of Depopulation

Economic Development Impacts

- 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 (less for new projects)
• 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 effect: 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.

<table>
<thead>
<tr>
<th>$1M construction</th>
<th>Direct jobs created</th>
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<tr>
<td>Logan Co, CO</td>
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<td>12.5</td>
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<tr>
<td>McCone Co, MT</td>
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<table>
<thead>
<tr>
<th>$30M investment in a wind plant</th>
<th>Direct, indirect, and induced jobs</th>
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<tbody>
<tr>
<td>Nevada</td>
<td>43</td>
</tr>
<tr>
<td>California</td>
<td>64</td>
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</table>
Direct Construction Jobs

Source: UCS, Clemmer
O&M Jobs

Source: UCS, Clemmer
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: Manufacturing

- 3000 manufacturing jobs per 1000 MW (REPP)
- The U.S. wind industry employs more than 2,000 people, and contributes to the economies of 46 states (AWEA)
- In a mature wind market, these numbers are larger. The Danish Wind Manufacturers Association estimates:
  - that wind power creates 22 direct and indirect jobs for each MW of installed capacity
  - 5 jobs/MW (installation)
  - 17 jobs/MW (manufacturing related)

**ND towers and blades are valuable state exports:**
- LM Glasfiber blade manufacturing plant created 130 jobs, 20% of the ND lignite industry
- DMI has towers installed in 12 states

Spanish company Gamesa is building new plant in PA, creating 1,000 new jobs over next 5 years and $40M in new investment
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 Development Impacts:
Property Tax Revenues for Rural Areas

Examples:

- CO: 162 MW
  - 26% increase in revenues for Prowers County
  - including $821K/yr to the school district
  - $195K/yr to the Medical Center
  - $815K/yr to the general fund
- IA: 240 MW = $2M/yr
- IA: 320 MW = $2.5M/yr
- MN: 107 MW = $611K/yr
- OR/WA: 300 MW = $1.2M/yr
- SD: 40 MW = $250K/yr
- TX: 1,100 MW = $11.7M/yr to school districts in 10 counties
- WY: 85 MW in Carbon Co. = $480K/yr
- WI: 20 MW in Kewaunee Co. = $200K/yr in property taxes; 50% of county’s budget
Economic Development Impacts: Landowner Revenues

- Land lease payments: 2%-3% of gross revenue; $2500-$4000/MW/year
- May be negotiated as a flat rate up front or vary over the life of the project
- Local ownership of wind projects can greatly increase local impact
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: Minnesota

107-MW Minnesota wind project

- $500,000/yr in lease payments to farmers
- $611,000 in property taxes in 2000 = 13% of total county taxes
- 31 long-term local jobs and $909,000 in income from O&M (includes multiplier effect)
Case Study: Iowa

240-MW Iowa wind project
- $640,000/yr in lease payments to farmers ($2,000/turbine/yr)
- $2M/yr in property taxes
- $5.5M/yr in O&M income
- 40 long-term O&M jobs
- 200 short-term construction jobs
- Doesn’t include multiplier effect

- Doesn’t include multiplier effect
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

Case Study: Hyde County, South Dakota

- 40-MW wind project in South Dakota creates $400,000 - $450,000/yr for Hyde County, including:
  - More than $100,000/yr in annual lease payments to farmers ($3,000 - $4,000/turbine/yr)
  - $250,000/yr in property taxes (25% of Highmore’s education budget)
  - 75 -100 construction jobs for 6 months
  - 5 permanent O&M jobs
  - Sales taxes up more than 40%
  - Doesn’t include multiplier effect
Case Study: Prowers County, Colorado

- 162-MW Colorado Green Wind Farm (108 turbines)
- $200M+ investment
- 400 construction workers
- 14-20 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

“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, county commissioner, Prowers County, Colorado*
Local Ownership Models

- Minnesota farmer cooperative (Minwind)
- FLIP structure
- Farmer-owned small wind
- Farmer-owned commercial-scale
WPA Economic-Development-Related Activities

- Outreach to ag sector and rural communities
- Farm Bill
- Job and Economic Development Impact (JEDI) model
- Economic development information database
- Comparative analysis of generation sources
- Outreach to Native American community
- Economic impact of ownership options
Outreach to Rural Communities and Ag Sector

- Agricultural outreach team
- State wind working groups (WWGs) outreach at ag forums and town meetings
- State wind resource maps
- Economic development brochure, exhibit, articles, and fact sheets
- Regional and national speakers
- Wind for Schools pilot project
- Economic development Web page

Topical Articles:
- The New Cash Crop: What Landowners Should Know
- Wind Energy and the Natural Gas Crisis
- Economic Development for Rural Communities
- USDA Farm Bill Section 9006 Provides Funding for Farm and Ranch Wind Projects
- Electricity from the Wind: A New Lesson for Schools
WPA Farm Bill Activities

- Collaborate with USDA in developing process and outreach materials
- Fact sheets, Web site, Webcasts
- Sample application development
- Workshops for potential applicants (jointly with USDA and State WWGs)
- Review proposals for technical quality
- ‘03 Farm Bill wind awards: $4.8M, 13 projects
- ‘04 Farm Bill wind awards: $7.9M, 38 projects
Job and Economic Development Impact (JEDI) Model

- Assesses the economic development impacts of constructing and operating wind plants
- Based on IMPLAN

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- Users: project-specific data
- Model calculates project expenditures, economic activity, and number of jobs generated
- Working with state agricultural universities and state WWGs to analyze potential impacts in windy counties
Economic Development Information Database

Purpose: to catalog economic development impacts for a variety of wind projects (both actual and prospective)

- Developed case study template
- Implemented as spreadsheet database
- 37 projects inventoried in 13 states
- 21 have pre-project information, 15 post-project information (12 have both)

Plan to add to Web site at www.windpoweringamerica.gov
Economic Impacts of Alternative Generation

- **Colorado**
- **Arizona**
- **Michigan**
Outreach to Native American Community

- Native American Wind Interest group (NAWIG)
- Regional NAWIG workshops
- Anemometer loans
- Lakota wind assessment options
- Tribal Wind Maps
- Technical Assistance to DOE tribal RE grantees
- Tribal representatives to WEATS
- NA section on WPA Web site
- NAWIG Newsletter
Appeal for Partnership in Data Collection

- Data on the impacts of wind applications to local, state and regional economies are critical to many stakeholders:
  - county commissioners
  - public utility commissioners
  - state energy officials
  - rural economic development officials
  - state legislators
  - NGOs
  - project developers
  - advocates
  - ag organizations

- WPA is a credible source of ED information to these stakeholders
- WPA needs help from the wind industry on project data for impact analysis
Carpe Ventem - Harvest the Wind

www.windpoweringamerica.gov

Photo credit: Vestas