FACT 1 SHEET

Impacts of Wind Power

Source: National Wind Coordinating Committee

Guidelines for Assessing the Economic Development Impacts of Wind Power

Introduction

These Guidelines for Assessing the Economic Development Impact of Wind Power *were discussed and deliberated at the October 2001 NWCC Business Meeting. Through the subsequent completion of a period of comment provided for NWCC members unable to attend the October meeting, the Guidelines are acceptable to the entire NWCC.*

The following guidelines are a consensus-based NWCC Economic Development Working Group product designed to guide the assessment of the economic impacts of wind power development. The purpose of the guidelines is to identify the most important factors that should be considered in economic impact analyses of wind power development as well as to provide a consistent basis for comparing the impacts across studies. The intended audiences for these guidelines are economists, analysts, consultants, planners, and users of the results of economic development studies.

Guidelines

1. **The audience for the study and the objectives to be pursued should receive primary consideration.**
   - The audience for the study and the recipients of the results should be clearly identified.
   - Key decision makers should be engaged in defining and conducting the study to the extent possible.
   - The study objectives should be clearly stated, along with the decisions the study is attempting to affect.
   - Plans for making maximum use of the study should be developed and described.

2. **The assumptions and scenarios used to analyze economic development impacts should be clearly stated.**
   - All information used should be referenced and documented to allow for verification and replication.
   - If forecasting future impacts, assumptions should consider projected changes in costs of wind power and competing alternatives.
   - Where appropriate, a "predevelopment" or baseline assessment should be conducted.

3. **The model used to calculate impacts should use regional economic input data.**
   - The data should be representative of the stud y region (country, state, county, reservation, or multiple states and counties).
   - If possible, regional data should be broken down to the appropriate level, depending on scope of the study. Typically this will increase the accuracy of the results.
   - The economic impact multipliers used in the study should be thoroughly articulated and justified.

4. **Both the potential positive and negative (i.e., displacement) economic impacts of wind power development should be considered by addressing the following questions:**
   - How would equivalent new electric service be provided if not by wind power?
   - Does wind power displace alternatives inside or outside the region (including specific plants in areas of concern such as communities of color)?
   - What are the net economic impacts of developing wind relative to the alternatives?
   - Does wind power raise or lower the price of electricity in the region relative to business as usual? What are the resulting impacts on expenditures for other goods and services?
   - What impact does wind power development have on existing infrastructure (e.g. damage to roads, bridges, and land from truck traffic and construction, etc.)? What new infrastructure might be needed (e.g. new transmission lines, roads, etc.)?
   - Does wind development attract new tour ism revenues? If so, what is the net economic impact?
   - Does wind development reduce emissions and the cost of complying with environmental regulations and health care costs in or outside the region? If so, what is the net economic

impact?
- Does wind generated electricity become an export product sold outside the region, acting much like a manufactured product importing dollars into the region?

5. **The evaluation should consider the ownership, equity and sources of capital, and markets for the project for their relative impacts on the local community, reservation, state, region or country.**
- Will the project be financed by local banks?
- Will the project be locally owned or owned by wind developers located outside the region?
- Is the project owned by a community-based utility such as a municipal or coop? Does the project have access to low cost capital?
- Is there public or private funding/incentives for minority ownership or equity in the project? What are the resulting impacts for project feasibility and economic development.
- What are the property and/or production tax implications of the wind project?
- What are the impacts from non-electricity products to the economy? Are they retained by the project, sold, traded, or retired?

6. **The evaluation should consider the timing and scale of the project in relation to other wind development in the state, region or country. Pioneering projects in new areas face economic considerations different from those of incremental projects in mature wind-resource areas, including, for example, the following:**
- Infrastructure, permitting, and O&M training costs may be higher for initial installations, but may have more value in laying groundwork for future development.
- The cost of firming and integrating power from a single large-scale wind farm may be significant, but many wind turbines dispersed over a large area may reduce overall intermittence of the resource base and take advantage of "economies of scale" for interconnection or other ancillary services.

7. **The evaluation should distinguish between short-term and long-term impacts.**
- Short-term: primarily construction, unless development is sustained and gradual over an extended period in a given area.
- Long-term: O&M (including labor and parts), property taxes, landowner payments, manufacturing jobs.

8. **The evaluation should consider relative impacts on the economy at a level appropriate to the scope of the study by addressing the following questions:**
- How significant is the impact?
- What is the quality of the jobs that are created (e.g. full-time vs. part-time and average wage relative to other industries in the region)?
- Does the regional economy have the capacity to create new jobs and economic activity? Alternatively, will the jobs and activity be taken from other industries in the region or outside the region?
- What are the quantitative impacts of the wind development and spin-off industries related to the retention of students and the educational value of the development?
- What are the qualitative impacts related to fostering entrepreneurial activity in the region and improved community spirit?

9. **For both wind development and the displaced alternative, the evaluation should consider how new labor, materials and services would be supplied. Questions such as those below should be addressed:**
- Recognizing that wind turbines are highly specialized equipment with only a handful of manufacturers located in a few states, what are the prospects for attracting manufacturing jobs to the region?
- Is wind power displacing imported fuels (gas, coal, nuclear, etc.)?
- Can components for wind turbines be supplied by local industries (i.e. towers, blades, generators, foundations, etc.)?
- Will local residents be trained to operate and maintain wind projects, or will labor be imported?
- How will public procurement regulations (e.g. promoting participation of communities of color) affect development, installation, maintenance, operation, and ownership of wind power

FACT 2 SHEET

Net Billing & Net Metering FAQ's

Source: American Wind Energy Association
www,awea.org

What Are "Net Billing" & "Net Metering"?

- **What Is Net Metering?**

Net-metering is a simplified method of metering the energy consumed and produced at a home or business that has its own renewable energy generator, such as a wind turbine. Under net metering, excess electricity produced by the wind turbine will spin the existing home or business electricity meter backwards, effectively banking the electricity until it is needed by the customer. This provides the customer with full retail value for all the electricity produced.

Under existing federal law (PURPA, Section 210) utility customers can use the electricity they generate with a wind turbine to supply their own lights and appliances, offsetting electricity they would otherwise have to purchase from the utility at the retail price. But if the customer produces any excess electricity (beyond what is needed to meet the customer's own needs) and net metering is not allowed, the utility purchases that excess electricity at the wholesale or 'avoided cost' price, which is much lower than the retail price. The excess energy is metered using an additional meter that must be installed at the customer's expense. Net metering simplifies this arrangement by allowing the customer to use any excess electricity to offset electricity used at other times during the billing period. In other words, the customer is billed only for the net energy consumed during the billing period.

- **Why Is Net Metering Important?**

There are three reasons net metering is important. First, because wind energy is an intermittent resource, customers may not be using power as it is being generated, and net metering allows them to receive full value for the electricity they produce without installing expensive battery storage systems. This is important because it directly affects the economics and pay-back period for the investment. Second, net-metering reduces the installation costs for the customer by eliminating the need for a second energy meter. Third, net metering provides a simple, inexpensive, and easily-administered mechanism for encouraging the use of small-scale wind energy systems, which provide important local, national, and global benefits to the environment and the economy.

- **What Are the Benefits & Costs of Net Metering?**

Net metering provides a variety of benefits for both utilities and consumers. Utilities benefit by avoiding the administrative and accounting costs of metering and purchasing the small amounts of excess electricity produced by small-scale wind energy facilities. Consumers benefit by getting greater value for some of the electricity they generate and by being able to interconnect with the utility using their existing meter.

The only cost associated with net metering is indirect: the customer is buying less electricity from the utility, which means the utility is collecting less revenue from the customer. That's because any excess electricity that would have been sold to the utility at the wholesale or 'avoided cost' price is instead being used to offset electricity the customer would have purchased at the retail price. In most cases, the revenue loss is comparable to having the customer reducing electricity use by investing in energy efficiency measures, such as compact fluorescent lighting, efficient heating and cooling equipment, or other highly-efficient appliances.

The bill savings for the customer (and corresponding revenue loss to the utility) will depend on a variety of factors, particularly the amount of excess electricity produced. In most circumstances, however, the difference will be between $10-40 a month for a 10 kilowatt residential wind energy system.

Moreover, any utility revenue losses associated with net metering are at least partially offset by administrative and accounting savings, which are not included in the above figures. These savings can exceed $25 a month because, absent net metering, utilities have to separately process the accounts of customers with wind turbines and issue the monthly checks. In practice, these checks can be for as little as 5 cents.

- Can I Really Use My Existing Meter to Take Advantage of Net Metering?

The standard kilowatt-hour meter used for most residential and small commercial customers accurately registers the flow of electricity in either direction. This means the 'netting' process associated with net metering happens automatically

— the meter spins forward (in the normal direction) when the customer needs more electricity than is being produced, and spins backward when the customer is producing more electricity than is needed in the home or building. The meter registers the net amount of energy produced or consumed during the billing period.

- What Is The Current Status of Net Metering?

Currently, 30 states require at least some utilities to offer net metering for small wind systems, although the requirements vary from state to state. Most state net metering rules were enacted by state utility regulators, and these rules apply only to utilities whose rates and services are regulated at the state level. In recent years many states have enacted net metering laws legislatively, including California, Connecticut, Delaware, Massachusetts, Montana, Nevada, New Hampshire, New Jersey, New York, Ohio, Oregon, Vermont, Virginia, and Washington. In most of the states with net metering statutes, all utilities are required to offer net metering for some wind systems, although many states limit eligibility to small systems.