Importing Energy, Exporting Jobs

Every year, Americans spend about $1900 per person on energy purchases, which is about 8% of the average person's total expenditures on goods and services in a given year. Of this amount, approximately 40% goes to pay for electricity. Energy purchases represent a significant cost to society — nationally and locally — and it is important to spend energy dollars in a way that strengthens the economy rather than depleting it.

In many cases, energy dollars leave the community, going to regional utilities or suppliers of oil or natural gas. Once those dollars have been spent on importing energy into the community or state, they are not available to foster additional economic activity. Because every dollar spent on imports is a dollar lost from the local economy, these energy imports represent a substantial loss to local companies in terms of income and jobs. The challenge is to meet our insatiable appetite for energy while supporting local economic development.

A growing number of state and local governments are investigating ways to keep their energy dollars at home — for many, the answer lies in renewable energy investments.

How Renewable Energy Investments Help the Economy

There are two main reasons why renewable energy technologies offer an economic advantage: (1) they are labor-intensive, so they generally create more jobs per dollar invested than conventional electricity generation technologies, and (2) they use primarily indigenous resources, so most of the energy dollars can be kept at home.

According to the Wisconsin Energy Bureau, "Investment in locally available renewable energy generates more jobs, greater earnings, and higher output ... than a continued reliance on imported fossil fuels. Economic impacts are maximized when an indigenous resource or technology can replace an imported fuel at a reasonable price and when a large percentage of inputs can be purchased in the state." The Bureau estimates that, overall, renewables create three times as many jobs as the same level of spending on fossil fuels.

For states and municipalities with insufficient conventional energy reserves, there is a simple trade-off: import fossil fuels from out-of-area suppliers, which means exporting energy dollars ... *or* develop indigenous renewable resources, which creates jobs for local workers in the construction, operation, and maintenance of nonfossil power plants and associated industries.

The advantages of renewable energy investments are becoming increasingly clear, even in areas that have traditionally favored fossil fuels. "Texas is now a net energy importer," said Texas Land Commissioner Garry Mauro, speaking at the dedication of the state's first commercial wind-power project in November 1995. "We can accept our status as a net energy importer ... or we can face the challenge head on and serve as a model to others by embracing new ideas such as wind power and solar energy — ideas that will make Texas the leader in renewable energy development, energy-efficient building techniques, job creation, and environmental health."

The renewable energy industry provides a wide range of employment opportunities, from high-tech manufacturing of photovoltaic components to maintenance jobs at wind power

The Multiplier Effect: A Little Goes a Long Way

The multiplier effect is sometimes called the ripple effect, because a single expenditure in an economy can have repercussions throughout the entire economy, much like ripples spreading across a pond. The multiplier is a measure of how much additional economic activity is gen-erated from an initial expenditure.

In the town of Osage, Iowa, for example, $1.00 spent on consumer goods in a local store generates $1.90 of economic activity in the local economy. This occurs as the dollar is respent; the store pays its employees, who purchase more goods, all with the same original dollar.

The multiplier effect causes different types of economic benefits as a result of investments in renewable energy technologies:

Direct effects — These are on-site jobs and income created as the result of the initial investment; the people who assemble wind turbines at a manufacturing plant, for example.

Indirect effects — These are additional jobs and economic activity involved in supplying goods and services related to the primary activity; people such as the banker who provides loans to the plant's owners, and the workers who supply parts and materials to the turbine assemblers.

Induced effects — This is employment and other economic activity generated by the respending of wages earned by those directly and indirectly employed in the industry; jobs created by the manufacturing plant workers spending their wages at the local grocery store, for example.

"A state that imports most of its fossil fuel can receive a substantial employment and earnings benefit from developing indigenous renewable resources."

— *Powering the Midwest: Renewable Electricity for the Economy and the Environment*, a 1993 report by the Union of Concerned Scientists

plants. Through the multiplier effect (see sidebar, left), the wages and salaries earned by industry employees generate additional income and jobs in the local economy.

The taxes paid by renewable energy companies also strengthen the area's economic base, ultimately reducing the burden on individual taxpayers in the community; in fact, generating power from renewable resources contributes more tax revenue than generating the same amount of power from conventional energy sources. As an example, the California Energy Commission has found that solar thermal power plants yield twice as much tax revenue as conventional, gas-fired plants.

In some cases, renewable energy investments can enable individuals, companies, or communities to reduce their utility bills. For example, schools can cut costs by using wind power (see page 10), and electric cooperatives can provide cheaper electricity to members with photovoltaics (see page 15).

Although the local economic benefits associated with renewable energy investments are evident, it is also important to note that, in the short term, increased reliance on in-state energy resources could reduce the income of energy-exporting states. In the long term, however, the advantages of developing renewable energy technologies go far beyond the local economy — they benefit the country as a whole. The United States leads the world in manufacturing renewable energy power systems, most of which are exported to industrializing nations. The lack of adequate fossil-fuel reserves in many of these countries, combined with their lack of extensive electricity grids, makes renewable energy technologies an increasingly popular choice for power generation. The growing demand for electricity in developing nations can continue to create jobs for U.S. workers — as long as the United States maintains a competitive position in foreign markets by continuing to invest in renewable energy technologies at home.

The Lost Potential of Energy Dollars

Several states have made efforts to quantify their electricity and total energy expenditures — a difficult task. Here are some examples of states that import energy.

- Massachusetts imports 97% of the energy it uses. In energy dollars this translated to $11 billion in 1992. The state imports 15% of the electricity it consumes.
- In 1990, Iowa imported nearly 97% of its energy at a cost of about $5 billion.
- Wisconsin imports 94% of its energy. In 1992, more than $6 billion of Wisconsin's $8.1 billion total energy bill left the state — approximately $1200 per resident. In its 1994 study, *The Economic Impacts of Renewable Energy Use in Wisconsin*, the Wisconsin Energy Bureau reported that "The energy dollar drain from the state due to fossil fuel imports has hindered additional economic growth and job development."
- New York depends on out-of-state sources for nearly 92% of its energy requirements. Each New Yorker sends an average of $1000 each year out of state to purchase energy.
- Rhode Island imports more than 90% of its electricity from other states.
- In 1990, Missouri spent $9.7 billion on energy, 70% of which left the state to pay for the energy. This equates to $6.8 billion, or more than $1300 for each Missouri resident.
- In 1992, Maine residents and businesses spent approximately $2.8 billion on energy, $2200 for every person in the state. Maine imports about 25% of its electricity.
- Hawaii: 85% of the state's electricity is generated from imported fuel oil, compared with only 3% for the United States as a whole.
- In 1990, the 100,000 residents of the U.S. Virgin Islands spent about $40 million on electricity, 65% of which left the Virgin Islands economy. More than $26 million drained out of the territory's economic bucket that year for energy purchases, equivalent to about $260 per resident.
- Minnesota imports 15% of the electricity it consumes.
- Oregon imports 11% of its electricity from other states.
- Despite extensive oil reserves, even Texas is now a net energy importer.

"Every year, people, companies and governments in the [Midwest] region spend over $100 billion on energy in all its forms — electricity, fuel oil, gasoline, coal and others. This amounts to about $1900 for every adult and child, or roughly 10% of average personal income."

— *Powering the Midwest: Renewable Electricity for the Economy and the Environment*, Union of Concerned Scientists, 1993