RENEWABLE ENERGY

Policy Issues and Recommendations

by
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Renewable energy resources in the West can generate significant levels of affordable, low-risk, clean power to help meet the region's growing electric demand. The immediate cost savings are amplified by the environmental and health benefits created when renewable energy is substituted for fossil fuels. To fully exploit these advantages, regional energy development should prioritize the tapping of renewable energy.

Beyond the immediate economic savings, increasing the use of the region's abundant wind, solar, biomass, and geothermal resources would provide numerous material benefits:

- Better power system reliability
- Wider and deeper economic opportunity
- Increased insulation from natural gas price spikes
- Better air quality
- Lower health care costs
- Increased energy independence
- Lower long-term costs
- Less water use
- Reduced risk of climate change

However, transmission systems and other energy market structures are not renewable-friendly. Public policy can be developed to encourage market and regulatory designs that support fair competition by renewable energy.

Benefits and Opportunities

Renewable energy costs have decreased significantly over the past decade. The best wind sites are now competitive with new fossil fuel-fired generation. Other renewable energy sources are still typically priced higher than conventional sources, but have other economic advantages. Solar technologies can provide electricity during summer afternoon hours when power is needed most. Geothermal technologies provide clean baseload power. Biomass plants convert waste products such as agriculture residues and animal waste into valuable electricity.

Renewable energy can make a significant contribution to local economies. A recent University of Nevada study estimates that increasing renewable energy production to 15 percent of the state's electricity consumption would result in 4,000 to 5,500 new jobs and an increase in annual gross state product of $375 to $409 million (1992 dollars) associated with manufacture, operation and maintenance and service of new renewable energy facilities (Riddel and Schwer 2003). Wind power offers significant benefits to rural economies, including lease payments to landowners and property tax revenues that help schools. The 162 MW Colorado Green Wind Farm located in southeastern Colorado annually contributes $917,000 to Colorado schools,

$203,000 to the local school district's bond fund, $189,000 to the local medical center and $764,000 in tax revenues to the county (Cox 2004). Similarly, the 200 MW New Mexico Wind Energy Center located near Fort Sumner, New Mexico has brought millions of dollars in economic development and jobs to the region's drought-stricken ranching community.

Currently non-hydroelectric renewable resources make up about 4 percent of the West's electric mix (EIA 2000). The region's renewable energy potential, however, is much greater. Estimates from the *Renewable Energy Atlas of the West* reflect that wind, solar, biomass, and geothermal sources could produce electricity at levels more than six times the region's current use (Land and Water Fund 2002).

Recommendations

Although the use of renewable energy has been increasing in the West, the region would benefit by doing more. To take advantage of the untapped benefits of renewable energy, the region should add a minimum of 30,000 megawatts of electricity from renewable sources by 2020. States can take three important steps to achieve this level of renewable energy use: build an infrastructure that supports renewable energy, establish renewable energy goals and standards, and develop renewable energy markets

Build a Renewable Energy Infrastructure

Over the course of the 20th century, the West built a sophisticated and complex infrastructure to support conventional generation sources. As the region moves into the 21st century, its energy infrastructure should evolve in a way that facilitates renewable energy development.

At the physical level, a transmission system that welcomes, rather than bars, renewable energy is critical. Transmission access and pricing polices should be designed to allow intermittent renewable resources, such as wind, better access to existing lines. Planning for new transmission lines should encourage the development of the enormous wind and geothermal resources available at remote locations in the West. Transmission planning should also recognize the benefits that solar and other distributed generation resources offer for reducing transmission congestion. Fair interconnection procedures and net metering policies can help spur the integration of these distributed resources into the grid.

At the institutional level, to facilitate policy implementation and the development of renewable energy markets, a regional system to track the creation, trading and disposition of renewable energy certificates (RECs) is needed. The Western Governors' Association and the California Energy Commission are currently working to develop such a system. Known as the Western Renewable Energy Generation Information System (WREGIS), the system will define the institutional structure, operating guidelines and information needed to track renewable energy generation and create and register RECs throughout the western grid. States should actively support the development of WREGIS and participate in the system once it is complete.

Attracting renewable energy manufacturing can amplify the economic benefits of renewables and lower costs to consumers. Almost all of the components of renewable energy systems, from utility-scale wind rotors down to photovoltaic modules, can be manufactured locally or

regionally, and many western states have research and development capabilities which can be used to enhance the competitiveness of western renewable energy products. New Mexico, Colorado, Arizona, and Nevada all possess significant renewable energy research centers, which are ideal catalysts for further manufacturing development. For example, the development of university training programs in conjunction with such centers would further increase the available work force, and hence increase the attractiveness of the region for renewables manufacturing.

Establish Renewable Energy Goals and Standards

States should establish goals and standards that make clear their intentions to increase renewable energy use. These goals can be in the form of renewable energy generation or capacity targets or designated funding levels for renewable energy.

A renewable portfolio standard (RPS) requiring a state to reach a specified level of renewable energy generation or capacity by a certain date is a particularly powerful policy tool. Thirteen states across the country have adopted an RPS. In the West, California, Arizona, Nevada, and New Mexico have RPS policies in place to increase their use of wind, solar, biomass, and geothermal power.

California:	20% renewable generation by 2017
Nevada:	15% renewable generation by 2013
New Mexico:	10% renewable generation by 2011
Arizona:	1.1% renewable generation by 2007 (with 60% of that from solar)

An RPS could also be implemented at the federal level. As the region with some of the country's highest quality, lowest cost renewable resources, the West stands to be a primary beneficiary of a national RPS. For example, recent analysis by the Union of Concerned Scientists suggests that a national RPS of 20% by 2025 could lead to $37.4 billion in new capital investments in the region and save western energy users $10.6 billion in lower energy bills. [UCS 2004]

Another useful policy is a system benefits fund that reserves a small portion of customers' retail electric rates to support investment in the development of renewable energy. This type of fund exists in over 20 states and provides stable funding for buy-down programs, renewable resource assessments, financing and grant programs, renewable energy production incentives, and consumer education and outreach programs. States can also consider other financial investment mechanisms, including tax incentives, which are particularly effective when combined with broader policies.

Develop Renewable Energy Markets

States can take action to develop renewable energy markets by encouraging utilities or retail power marketers to offer renewable energy or "green power" programs. These programs give consumers the option to purchase renewable energy. As of 2003, there were 500 such programs supporting over 1,500 MW of renewable energy capacity across the country. In the West a number of utilities, including Xcel Energy, PacifiCorp and Public Service Company of New Mexico, offer green power products.

Federal, state and local governments can demonstrate leadership by making renewable energy purchasing commitments. These entities are often significant power users and can spur renewable energy markets through their purchasing power.

Another way to facilitate the development of renewable energy markets is through the creation and use of renewable energy certificates. RECs represent the environmental attributes and corresponding economic benefits of renewable power (such as no pollution, no resource depletion, reduced water impact). They expand the market for renewable energy by providing a mechanism that recognizes and values these benefits. One result is that power can be sold locally while distant customers can purchase the environmental benefits. RECs can also function as a market-based mechanism to facilitate compliance with an RPS.

Customer education programs and disclosure of fuel mix and emissions are also useful in developing markets for renewable power. In many cases the public is unaware of the source of their electricity and the associated environmental impacts. Limited consumer awareness of available renewable energy products can be addressed through outreach efforts by utilities, marketers, government agencies, and non-profit organizations.

Summary

To fully exploit the advantages of renewable energy, regional and state energy policy should prioritize the development of renewable resources. Policies should focus on building renewable-friendly infrastructure and establishing renewable energy goals and standards. At the same time, regional economic development should prioritize projects that tap economic opportunities linked to renewable energy manufacturing and operation in the West.

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