

UNDERSTANDING OREGON'S ELECTRICITY ISSUES

The League of Women Voters of Oregon (LWVOR) first studied the issue of energy in 1972.

In its report, the League examined policies on long-range planning for conservation, development of energy sources, and public input on the development of varying sources of energy. The League also examined criteria for the siting of specific installations. The current update traces the history of energy policy in Oregon and the state's response to a national move toward deregulation of the electric energy industry. At the LWVOR 2000 Convention, the delegates voted to produce an update on the current issues pertaining to energy. This update focuses primarily on electricity.

HISTORICAL OVERVIEW

In Oregon, until the 1970s, almost all electric power produced came from hydroelectric dams, as well as from investor-owned coal and oil facilities. At the time, the investor-owned facilities were Portland General Electric (PGE) and Pacific Power and Light, now renamed PacifiCorp. This mix of power resources began to change with the oil embargo in the 1970s and nationwide energy shortages. Oregon's response was a major energy conservation program and an investigation of alternative and renewable energy sources, such as geothermal, wind, solar and biomass. Many national studies predicted that the supply of oil, gas and coal was finite, even going so far as to estimate the number of years they would last.

In the late 1970s, a federal law (Public Utilities Regulatory Policies Act of 1978) was passed which included a provision that required utilities to buy electric power from private companies when this would cost less than building their own plants. The intention was to encourage the development of small, onsite renewable projects, the most noted of which were small hydro projects. Few of these projects were ever built, but the law did lead to the utilization of a more efficient gas-powered combustion turbine. Another

federal law (The Federal Energy Policy Act of 1992) allowed independent power producers to operate the new natural gas-fueled facilities. Power production could be separated from the electrical power delivery system. These combustion turbine plants could be built faster and cheaper and without some of the regulatory constraints faced by utilities. This was the beginning of the move to full deregulation of the energy industry.

WHERE POWER COMES FROM

The Columbia River system is the dominant water resource in the Pacific Northwest. The Columbia River Basin includes much of Oregon, Washington, Idaho, western Montana and extends into Canada, where the river originates. The river system not only provides a regional transportation system, water for regional agriculture, recreation, and necessary habitat for fish and wildlife, but it also provides most of the hydroelectricity for the region. The conflicting needs for energy, irrigation, fish management, and recreation create a constant dynamic tension.

The river is managed by several federal agencies. The Bonneville Power Administration (BPA), established by the federal government in 1937, markets the power produced by the federal hydroelectric dams owned and operated by the Army Corps of Engineers and the Bureau of Reclamation. The law requires power to be sold on a cost basis with preference given to consumer-owned utilities, as well as residential and small farm customers of investor-owned utilities. No power may be marketed out of the region unless surplus to the needs of the region. Availability of such vast amounts of hydroelectricity drew the energy-intensive aluminum industry to the Northwest, and because of the preference clause, it also led to the formation of many consumer-owned utilities.

BPA owns the largest integrated transmission system delivering



electricity to the entire western United States. The system permits exchanges of power between California, the Southwest and the Northwest, sending surplus power south in the summer months and importing needed power to the Northwest in the winter. This transmission system is not only the highway for hydroelectric power. It is also the highway for coal-fueled power production and for gas-fired power plants that have become the generator of choice since the 1990s.

Natural gas-fueled combustion turbines currently account for 1,942 megawatts of capacity; plants totaling another 6,066 megawatts are either proposed or under construction. However, this development potential may not be as robust as it appears. With wholesale energy prices currently low, constraints on an increasingly stretched transmission system and rising prices of natural gas, not all of the plants are likely to be built in the near future.

Natural gas—unlike water, wind or coal—is not an abundant resource in the Northwest. More than 80% of the natural gas currently used in the region is imported. The major supply comes from Canada and the Rockies, entering Oregon at Portland and Vale. Interconnected pipelines then distribute the natural gas. Pacific Gas and Electric also operates a pipeline from Calgary to Malin (on the California border southeast of Klamath Falls) with a lateral line from Klamath Falls to Medford. This pipeline largely supplies the California markets. While some increase in natural gas usage for electric generation may be appropriate, there are questions about the adequacy of the existing natural gas pipeline systems; the potential for major price increases in natural gas, a non-renewable resource; as well as the basic fact that direct use of natural gas for both residential and industrial uses is oftentimes more efficient than for electric generation.

REGULATION OF ELECTRICITY AND PUBLIC PROCESS

To a great extent, the degree of regulatory control and the provision for public process depends on whether an area is served by an investor-

owned utility or by a consumer-owned utility. To further complicate matters, there are several types of consumer-owned utilities: municipal utilities, owned by a city and governed either by the city council or by a separately elected board; people's utility districts (PUDs), nonprofit political subdivisions with elected boards which provide electric or other utility services to jurisdictions larger than a municipality; and rural electric cooperatives (Coops), nonprofit utilities owned by members who elect their boards of directors.

Federal Regulation

Investor-owned utilities have much more outside regulation than consumer-owned utilities. Starting at the top, there is the Federal Energy Regulatory Commission (FERC), housed in the U.S. Department of Energy, with jurisdiction over interstate energy matters such as transmission and wholesale sale of electricity and natural gas. FERC also has jurisdiction over investor-owned utilities and independent power marketers, such as Enron, to assure fair accounting and rate-setting practices. FERC licenses all hydroelectric projects, whether publicly or privately owned. As with all federal agencies, FERC's proposed rules are published in the Federal Register, and anyone can submit written comments.

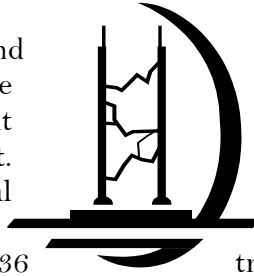
State Regulation

Oregon has a Public Utilities Commission (PUC), a three-member body appointed by the governor, which regulates customer rates and retail services of Oregon's investor-owned electric, natural gas, telephone and water utilities. Its only authority over consumer-owned utilities is in the allocation of service areas and in safety issues, such as tree trimming around transmission and distribution lines to assure that limbs do not become a fire hazard. PUC meetings are open to the public, and both written and oral testimony are welcome.

Local Regulation

The basic framework for PUDs and municipal utilities is established by state law. Both have

great latitude in financial operations and rate setting. Since consumers elect the governing boards, the assumption is that unresponsive boards can be voted out. They are subject to all environmental laws and safety regulations as well as Oregon's Open Meetings Law. The 1936 Federal Rural Electrification Act governs rural Coops, which, under state law also function as nonprofit corporations. Each has its own articles of incorporation and bylaws which delineate the number of board members, how they are elected, and their functions. Since Coop boards are elected by their members, the boards are responsible for keeping their consumers informed.



proactive in designing a roadmap for restructuring that would fit the Northwest's unique energy system, a 15-member steering committee—including representatives of public and private utilities, governmental entities, industrial customers, public interest and environmental groups—met for 11 months in a very public format to discuss a wide variety of energy issues. Its recommendations to the governors included: choice for all utility customers; minimum thresholds for conservation, renewables and low-income programs; and a single entity operating the region's transmission system. BPA's power would continue to be sold first to Northwest customers before selling outside the region. However, under the Comprehensive Review's recommendations, BPA would not acquire new resources to meet increasing demand. It was assumed that independent power producers and some utilities would fill that role.

Energy Policy Regulation after 1992

The Federal Energy Policy Act of 1992 initiated the process for deregulating the electric power industry in the U.S., similar to the process that had already occurred in the trucking, airline, telephone, natural gas, and telecommunications industries. The Act was in response to the control wielded by some transmission-owning East Coast and California utilities in prohibiting access to the system by outside utilities and independent power producers (IPPs), which often could offer electricity at a lower price. The 1992 Act ordered FERC to establish rules to open up wholesale transmission of energy. These rules require all public and private transmission controlling utilities, including BPA, to provide non-discriminatory access to IPPs and to utilities that don't own transmission lines. California's plan forced utilities to buy only on the short-term spot market. This plan proved susceptible to price manipulation during the low-water year of 2001, ultimately requiring the State of California to bail out several utilities, costing its taxpayers hundreds of millions of dollars.

OREGON'S 1999 RESTRUCTURING LEGISLATION

In the meantime, the four Pacific Northwest states' (Washington, Oregon, Idaho, Montana) governors initiated a Comprehensive Review of the Northwest energy system, which was completed in December 1996. Concerned about keeping BPA's regional hydroelectric system for the benefit of the Northwest and wanting to be

Recommendations were made to Northwest governors in 1996. Given the differing natures of the four states, as well as the politics involved in reaching consensus among the steering committee members, implementation varied. Idaho and Washington decided to do nothing. Montana, served primarily by Montana Power, an investor-owned utility, and a number of rural cooperatives, enacted a retail competition bill with interesting results. Montana Power decided to become a telecommunications company and sold off all of its hydropower projects to out-of-state buyers, much to the dismay of many Montanans.

In 1997, the Oregon Legislature began to look at energy deregulation plans. By 1999, a newly formed coalition, the Fair and Clean Energy Coalition (FCEC), proposed its own plan. FCEC, including nearly 120 member organizations, successfully lobbied and passed Oregon's Electric Restructuring Act. This act does not require full-scale deregulation of the regulated electric industry in Oregon. The Act primarily affects PGE and PacifiCorp, the state's two largest investor-owned utilities. Investor-owned utilities must provide access for outside energy suppliers to its commercial and industrial cus-

tomers and must offer their residential customers the following three choices: 1) continue with the rate-regulated rates as before, 2) tie their rates to the fluctuations of the power market, or 3) choose a portfolio with renewable energy sources. Investor-owned utilities are also assessed a 3% surcharge on all customers for a public-purpose fund to support energy efficiency measures, renewables, and low-income weatherization. Under the Act, \$10 million a year for low-income energy assistance is collected from the regulated utilities and caps are placed on the amount of public purpose and low-income assistance funds that can be collected from large industrial customers. Consumer-owned utilities are given the choice of providing access to outside energy suppliers or not. However, those that do must expend at least 3% of their revenues on energy efficiency measures, the development of renewables, and low-income bill-assistance programs.

Oregon Energy Trust

The Energy Trust grew out of Oregon's restructuring legislation. It is a nonprofit organization currently supported by 75% of the public purpose funds from PGE and PacifiCorp, approximately \$50 million a year. These dollars are to be invested in energy conservation, energy efficiency, and renewable resource programs on behalf of investor-owned utility customers. The Trust envisions 10% of Oregon's electrical energy coming from renewable resources by 2012. This would be equal to the amount of power needed by a city more than twice the size of Bend. The Energy Trust seeks a future that includes: reliable and affordable power for all customers, informed energy customers whose consumption patterns are efficient, energy supplies that have the lowest environmental impacts, and increasing reliance on renewable resources with a corresponding reduction in greenhouse gas emissions.

FUTURE ENERGY RESOURCES

According to the Oregon Office of Energy's recently published *Oregon Energy Plan: 2003-2005*,

electricity use in Oregon has been relatively constant since 1980. Per capita use from 1999 to 2001 fell about 5%. Oregon's electric mix, is 38% hydro, 39% coal, 15% natural gas, along with some biomass and wind. The Plan also assumes that conservation will meet about half the growth in electricity needs with new gas-fired plants meeting much of the rest.

Distributed Generation

For many years the electric industry followed the "economy of scale" principle when designing new generating plants--bigger is better--resulting in huge nuclear and coal plants. Today's new power plants are 1/4 to 1/2 the size of those built 20 years ago. Fuel cells, gas micro-turbines and solar electric power may usher in even smaller scale distributed generation. Natural gas-fired combustion turbines were initially small in size but proposed new plants now vary from 250 to 500 megawatt capacity. (The PGE Boardman coal plant is approximately 500 megawatts capacity).

Distributed generation is characterized by generating power at or very close to where it is used. In most cases such sources are small, but there are many different types of distributed generators. Some of them, such as diesel generators, are inefficient, noisy, and have air emission problems. Distributed generation based on renewable sources, such as solar and wind, produces little pollution and complements hydrogen fuel cells (see glossary).

Conservation and Renewables

The Pacific Northwest Electric Power Planning and Conservation Act (1980) established a mechanism for regional planning for electrical needs in the Northwest. The Act created the Northwest Power Planning Council (NWPPC) with two members from each of the four Northwest states, appointed by the respective governors and was charged with preparing a regional power plan and developing a program for protecting fish and wildlife in the Columbia basin. Conservation was to be considered a resource. If demand for electricity were reduced through conservation measures, then less new generation



was required. The Act required that cost-effective conservation should be included in utility resource portfolios, since using less energy can be cheaper than having to acquire new generation sources.

The Regional Power Act also included planning for renewable resources, such as hydropower, wind, solar, biomass and geothermal. New large hydroelectric sites are difficult to find and both small and large projects are faced with competing fish protection needs. Wind power is attractive in that it is not subject to volatile fuel prices and does not produce air pollutants or use water, resulting in costs that are competitive with those of fossil fuel generators, although still remain more expensive than the current hydro-based system. It is estimated that Oregon has the potential for nearly 1,500 megawatts of wind power, enough to serve a load one and a half times that of Seattle. Use of biomass from organic wood waste and land-fill produced methane is increasing. Geothermal power, considered another renewable resource with potential in Oregon, is still at the exploration stage.

Solar Electric Power

Solar panels convert sunlight directly into solar electric power. Recent technological advances and Oregon legislation allow homeowners or businesses to generate enough power to offset their own energy needs and to sell excess power to utilities.

At the present, solar electric power costs more than conventional power. However, utility and tax incentives can reduce the cost to near parity with conventional electricity sources. As production of solar panels increases, the price will continue to drop. Installing solar electric panels on the roofs of buildings is a very good source of energy and is being used more and more. Conservative estimates of solar energy resources on building roofs is estimated in excess of 4,000 megawatts in Oregon.

Natural Gas-fired Power

Construction of and proposals for natural gas-fired plants have burgeoned in the Northwest. The plants can compete with existing hydro system prices but need to be sited in proximity to natural gas pipelines and transmission facilities and require an adequate water supply. Since some new generation will be required, this is likely to be the major electricity choice for the near future. Currently, conservation and renewables receive support from regulatory goals or near-term subsidization to compete with natural gas-fired plants.



New Technologies

The need to decrease dependency on fossil fuels, reduce air pollution, prevent global warming, and provide secure power sources is spurring research and innovation in hydrogen fuel cells. Now over 100 companies nationwide are exploring ways to use hydrogen in electric production. The phenomenon of hydrogen and oxygen combining in a fuel cell to produce electricity and water has been known for more than a century and a half, but research on its many diverse applications has recently accelerated. Business and industry continue to search for energy efficiencies to further reduce costs.

PUBLIC AND PRIVATE OWNERSHIP--CONSUMER OR INVESTOR CONTROL

For more than a century in the United States, control of electric power generation has been by nonprofit consumer-owned utilities or by investor-owned utilities, which are regulated to protect the customers subjected to a monopoly supplier. The availability of reliable and affordable electricity has become essential to maintain a modern lifestyle for most people. Although alternative power sources are increasingly available, the majority of users are still dependent on electricity supplied by either public or private power utilities. For many years investments in investor-owned utilities were considered reliable and fairly profitable, but in the last few years the two Oregon investor-owned utilities (PGE and PacifiCorp) have shown the risks for both inves-

tors and customers. PGE's purchase by Enron, a Texas company with an eye to the then-profitable California power market, turned out to be far from ideal. Now PGE is one of the few assets remaining to the bankrupt Enron. Electricity rates have increased by over a third for the ratepayers, and PGE is now up for sale.



Northwest icon, salmon. The focus on fish remains fairly constant, but the deregulation issues have broadened.

Federal Deregulation

At the federal level, FERC has been moving ahead with deregulation of the nation's electricity industry. The entire Pacific Northwest could become part of a Regional Transmission Organization West (RTO West), consolidating regional operations of eight western states and parts of Canada into a single control area (power transmission grid) and providing access to all of the transmission facilities it encompasses.

FERC also proposes a plan called Standard Market Design that envisions creating genuine wholesale competition, improving efficiency, encouraging new transmission facilities and new generation, as well as giving wholesale power customers more choices—all brought about through the forces of competition. The goal of Standard Market Design is lower cost and greater reliability.

Some state PUCs believe that Standard Market Design pre-empts state jurisdiction. They argue that BPA, managing the largest transmission system in the West, already provides coordination for the entire transmission grid, is non-discriminatory in its access policy, and is already in the process of addressing the additional need for transmission capacity. Many are concerned that the FERC "one-size-fits-all" plan would open up BPA hydropower to the energy-needy Southwest, potentially impacting BPA's legal authority to keep "preference" power for public utilities and residential customers in the Northwest. Standard Market Design could undercut the Northwest Power Planning and Conservation Act's requirement to consider energy efficiency and renewables before other new generation and to give salmon recovery equal status with energy production. Another major concern is whether a standardized design, based on a rigid East Coast model for power markets, can accommodate the Northwest's unique characteristics. The Northwest is the only part of the country that derives most of its power from a weather-dominated source (hydro). In addition

Oregon's restructuring plan (commonly referred to as deregulation), which encourages corporations to compete with public power services, appears to be working. However, critics such as Congressman Peter De Fazio (D-Oregon) report that such a system has historically led to a loss of both reliability and affordability. The Boston-based Tellus Institute recently reported that "a deregulated market exhibits inherently higher costs" because stockholders demand an accelerated rate of depreciation and a higher rate of return on equity, while lenders demand a higher rate of interest to compensate for increased risk. Public power advocates decry a government-built system becoming a profit-maker for corporations rather than being run for the benefit of the public. For supporters of restructuring, competition is seen as the guarantee of greater benefit to consumers, since the consumers themselves may choose the most effective power delivery system available in their area.

HOT BUTTON ISSUES

Federal proposals could radically change the energy future of the Northwest. Oregonians have a reputation for developing incentives for energy conservation and efficiency, renewable energy resources, protection for low-income consumers, and protection of fish and wildlife resources. Policies and goals in the federal legislation governing BPA and in the Northwest Power Act, which governs energy planning in the Northwest, are both based on assumptions about a specific energy future. These policies and goals could be threatened by federal proposals currently under consideration.

From 1997 through 2001 the Northwest energy scene was largely focused on the deregulation/restructuring debate and on the fate of the

to weather variations, hydro has non-power constraints related to fish protection and treaties. It is not clear if and how Standard Market Design, as proposed, can accommodate the unique Northwest system.

Future of BPA

The recession economy, California's energy deregulation debacle, and the region's wide-spread drought have significantly impacted BPA's financial situation. Over the years, Northwest electricity rates have been well below those of the rest of the nation because hydropower is fairly cheap generation, is renewable, and the initial investment was borrowed from the federal government with the understanding that rates would be set at cost, not at market-based value. Those costs have soared, affecting all sectors of the Northwest's economy. Since many of BPA's contracts with private and public utilities expire in 2006, there is now intense debate about how to design future contracts to retain existing long-term benefits for the region.

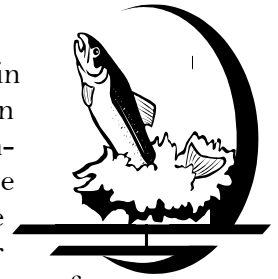
One proposal, submitted by a group of utilities, including Oregon's investor-owned utilities, is to "slice up" BPA's output among the public and private utilities and the Direct Service Industries (DSIs) through 20-year contracts, maintaining the traditional preference for public utilities and residential customers of the investor-owned utilities. Under the "slice proposal," utilities would own a percentage of the federal system and assume some of the risks as well as the benefits. If surplus power is available within the percentage they buy, they could sell it to raise revenues, but if water were low and market prices high, they would assume the costs. Many questions are being debated. Should utilities share load growth as well as cost? Should the aluminum industry get a "slice"? Should new public utilities have access to existing hydropower? And, as all customers are concerned about cost, what are the best deals?

At the core of the Standard Market Design debate is whether the federal authority given to BPA will continue or whether BPA will come under the jurisdiction of FERC. The answer

could determine whether "preference" and cost-based rates continue for public utilities and residential users.

Fish Management

Many salmon species present in the Columbia River Basin region were listed under the federal Endangered Species Act in the 1990s. However, even before the listing, the Northwest Power Planning and Conservation Act of 1980 required BPA to give fish and wildlife equal treatment with other operational goals. The current debate has focused on several issues: the removal of the four lower Snake River dams which block or inhibit fish passage, flow requirements that add water from storage reservoirs to the river in crucial spring and summer months, and spill requirements to get juvenile salmon past dams. Fish advocates favor all of these actions. Irrigators don't like loss of storage water. Utilities don't like loss of water needed for generation—particularly during the low-flow summer months.



BPA must be concerned about its financial health and ability to maintain payments to the federal government for the Federal Columbia River Power System. However, some people are concerned that water needed to meet requirements for fish recovery could be considered less important than water needed to turn turbines.

SUMMARY

Public awareness of energy issues is likely to increase as electricity costs continue to hover at high levels and as the reliability of the electric grid causes increased stress. The actions that policy-makers take at the national, state, and local levels will have lasting impacts on electric consumers in Oregon and the Pacific Northwest over the next several decades.

GLOSSARY

BPA - Bonneville Power Administration

Coop - rural electric cooperative (current practice now drops the hyphen in co-op)

Cost-based rates - charging for a commodity what it actually costs to produce.

In Oregon, where the PUC sets the rates for investor-owned utilities, a fair return for stockholders on their investment is included in the "cost."

DSI (direct service industry) - Industrial customers who use large amounts of power and buy it directly from BPA. Although they are not all aluminum companies, the aluminum industry is by far BPA's largest direct service consumer.

FCEC - Fair and Clean Energy Coalition

FERC - Federal Energy Regulating Commission

Fuel cell - A fuel cell generates power by converting the chemical energy of a fuel, such as hydrogen, and an oxidant, such as oxygen, directly into electricity. It has no moving parts and operates as long as the fuel and an oxidizer are supplied continuously from outside the cell.

IPP- Independent Power Producer

Market-based rates - Selling a commodity for whatever the market will pay

Megawatt - One million watts or 1,341 horsepower; one megawatt of energy is enough to power 1,000 average homes

Muni - Municipally owned utility

NWPPC - Northwest Power Planning Council

PGE - Portland General Electric

PPL - Pacific Power and Light, now PacifiCorp

PUC - Public Utility Commission

PUD - Public Utility District

RTO - Regional Transmission Organization

Standard Market Design – FERC plan that envisions creating genuine wholesale competition, improving efficiency, encouraging new transmission facilities and new generation, as well as giving wholesale power customers more choices—all through the forces of competition

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