

The Economic Costs of the Proposed Government Acquisition of Portland General Electric

A Preliminary Evaluation of the Willamette Valley Power Proposal

I. Introduction and Summary

A group of investors, national energy consultants, and attorneys are promoting the formation of a new government-owned public utility that would purchase the assets of Portland General Electric (PGE) and provide electricity to the areas it serves. The proposed entity, Willamette Valley Power (WVP), would be created under an Oregon law, ORS Chapter 190, that allows local governments to form an intergovernmental entity governed by a board or commission appointed by the local governments.

Under the plans described by WVP's promoters, the counties and/or cities served by PGE would form WVP, issue revenue bonds in WVP's name, and use the proceeds to purchase PGE's assets from Enron through a bankruptcy court auction. WVP would then hire one or more private companies ("Operating Companies") to manage the day-to-day operations of the power company. WVP would set policy, provide oversight, and address key issues.

To date, little information has been made public regarding the potential identity of the operating companies. Northwest Natural Gas and PacifiCorp are considered by some to be natural candidates to assume many of the operating tasks. Duke Power has also shown interest in the WVP proposal. It is not inconceivable, however that Enron or its surviving entity, while relieved of their ownership of PGE, would be contracted to operate WVP's assets.

ECONorthwest was asked to conduct an economic evaluation of the costs associated with the WVP proposal, including the economic impact on the region's economy. At this time, there are no detailed plans of how the new utility would be governed and operated. The purported benefits of government ownership are primarily that the new utility will be able to provide lower cost power to the customers now served by PGE. As discussed in this report, it is our opinion that the chances of lower rates transpiring are low for the following reasons:

1. **The WVP plan relies primarily on lower costs of capital and exemption from Federal taxes to lower electricity rates. The evidence from other public utility districts in the region shows that these advantages are not enough to reduce rates.** If it were possible to lower rates based on these advantages alone, then we would have observed lower rates in existing public utilities in the region. In fact, 4 of the 5 highest rates in the Pacific Northwest are with *public* utilities rather than with investor-owned utilities. Furthermore, in the case of PGE, the benefits to the region from these factors will be small. Federal taxes for PGE were just 1.3 percent of operating costs in 2001 and averaged just over 4 percent of costs for the last 3 years. The elimination of this cost would have only a small effect on overall operating costs for WVP. Similarly, although WVP will have lower cost of capital, this would come at the expense of state and federal taxpayers through reduced tax revenues.
2. **Without obtaining power from BPA at below-market prices, it is very unlikely that WVP will be able to lower electricity rates.** WVP will be able to offer lower electricity

bills only if the Bonneville Power Administration offers such low-cost power. While the BPA is required to provide government-owned utilities access to its power resources, it does not guarantee supply at a lower-than-market rate. Indeed, as the western power grid has become increasingly integrated, the increasing demands on its system have caused the BPA to institute substantial rate increases. As market deregulation and wholesale integration proceeds further, it is likely that BPA's rates will be brought even more in line with market prices. For example, in October 2001, BPA increased its rates to all its wholesale customers by 46 percent. Consequently, the largest municipal utility districts in the region have all had to increase their retail electricity rates, with increases ranging from 30 to 60 percent in 2001.

3. **There is no reason to believe that a public entity will be able to run a private enterprise more efficiently than the private sector.** Evidence suggests, in fact, that public agencies are less efficient and have higher operating costs. An audit of the municipally-run Los Angeles Department of Water and Power, for example, concluded that the costs of operation were higher than the other privately-run, investor-owned utilities in California. An examination of operating costs for public utilities comparable to PGE reveals *higher* operating costs with public utilities when costs are measured as a percentage of revenue.
4. **While the proposed WVP is being called a “public-private partnership”, the label is misleading.** Economic theory indicates clearly that any private entity that is contracted to operate the utility will need to have a direct profit incentive to be induced to operate efficiently. If WVP offers such an incentive in its operating agreement, one then has to wonder what the advantages of the WVP structure are. WVP will be a government-owned entity that contracts some management and operations tasks to private companies. Being publicly-owned and/or nonprofit, the WVP will have reduced incentives to minimize costs. While the privately-owned management companies will be driven by the profit motive to minimize costs, their status as “contractors” provides them with few incentives to make substantial long-term investments. As a consequence, the benefits of private enterprise, including product innovation and market development, would be virtually eliminated by the proposed arrangement.
5. **Contracting with private Operating Companies offers the prospect of creating a quasi-competitive operating environment.** Realistically, however, the costs of “turnover” of the Operating Companies will be high in an organization of the scale of the PGE plant, and the risks associated with engaging new, unknown Operating Companies is high. Consequently, it is not likely that the discipline afforded by conventional, private corporate control will be easily replicated by the WVP+Operating Companies model.
6. **The claim of potentially lower costs due to the issuance of tax-exempt bonds is also misleading.** The “benefits” from tax-exempt bonds result from shifting costs away from the utility and bondholders to the taxpayers in general by reducing tax revenues. It is well known among public finance experts that these “tax costs” generally are higher than the savings in financing costs enjoyed by the issuing entity.
7. **Unlike PGE, WVP will not be subject to Oregon Public Utilities Commission (OPUC) oversight.** Government-owned utilities do not need OPUC approval for rate increases. Instead, the ratemaking process will be subject to a political process that will be guided by aggressive special interest lobbying. It is not clear that WVP will be a superior regulator to the OPUC.

In addition to questionable claims regarding lower rates, ECONorthwest was able to identify multiple areas where the WVP plan has the potential to inflict significant negative economic impacts to the region:

8. **If PGE becomes a public entity, it will no longer be required to pay state and local taxes.** While WVP promoters have claimed that they will make up these lost revenues dollar for dollar with transfers in lieu of taxes, the new utility will have an incentive to minimize these payments in order to reduce costs. Indeed, in Washington and elsewhere, there have been lengthy legal disputes over the fair value of the basis for in-lieu taxation of municipal utility assets. Any significant decrease in state and local tax revenues will have an impact on Oregon's economy. For example, a \$10 million reduction in state and local government spending could cost Oregon's economy over \$15 million in lost output and result in the loss of 259 jobs. Most of these impacts would be in the Portland area.
9. **The WVP structure may increase the risk to the constituent communities and counties (and, hence, their taxpayers) from liabilities arising out of the purchase and operation of the PGE assets.** Whereas claims against widely-held private equity is a recourse in the private-utility context, any consequences of mismanagement by WVP will have to be borne, in some manner, by the constituents of WVP. In essence, there is no private equity "buffer" to insulate ratepayers and taxpayers from economic shocks to the operation of the WVP.
10. **Any private company (such as Northwest Natural Gas or PacifiCorp) that WVP contracts with will likely cut existing PGE jobs to avoid duplicating tasks between the two companies.** For every 100 jobs eliminated from the utility that are not replaced elsewhere in the economy, the cost to Oregon in terms of lost output is over \$6 million and the additional loss of 77 jobs in related sectors.
11. **In addition to possibly being liable for future debt, taxpayers will assume other risks associated with owning PGE assets.** For example, WVP will likely become the owner of the decommissioned Trojan Nuclear Plant. In particular, the taxpayers, through WVP, will own the 781 spent nuclear fuel rods stored at Trojan and be responsible for any liabilities associated with owning this asset. Taxpayers will also be liable for any losses associated with trading power on the spot market.
12. **Public agencies generally do not make charitable contributions.** In general, state and local government agencies do not contribute directly to charities in order to avoid obvious conflict of interest problems. Consequently, government ownership would eliminate PGE's contributions to local charities that currently total \$1 million annually.
13. **The proposed government acquisition will result in reduced funding for conservation and renewable energy programs.** PGE is the largest contributor to the newly formed Energy Trust of Oregon (the Trust), which has the responsibility for providing energy efficiency and conservation programs to the state under deregulation. Without contributions from PGE, the Trust will lose \$30 million annually due to lost public purpose funds—well over half the annual funding for the Trust's conservation and renewable programs.

Because the proposal is in its planning stages, many important aspects of the organization and operation of WVP have not been determined or described in detail by the promoters. The issues

discussed in this report, however, have the potential to affect the entire state for years to come and therefore demand close scrutiny throughout the planning process.

II. Power Costs

The primary benefit claimed for the government acquisition of PGE is the expectation of lower electricity rates for PGE customers. This expectation rests primarily on two factors: avoidance of federal taxation and lower costs of capital. Supporters have also indicated that they would be interested in gaining access to subsidized power from the Bonneville Power Administration. While BPA has been able to provide lower cost power in the past, it is far from certain that it will be able to do so in the future. Recent contracts by BPA to its customers have increasingly involved pricing approaching market rates—a trend that will continue as demand for BPA power increases.

If the benefits of tax-exempt status and lower costs of capital were enough to reduce rates, then the public utility districts in the region should all have lower rates than the investor-owned utilities. In fact, just the opposite has occurred in our region. Table 1 lists the five utilities with the highest rates in the Pacific Northwest.¹

Table 1: Utilities with the Highest Electricity Rates in the PNW

Utility	Rank	2002 Residential Rates (Cents/kWh)
Portland General Electric	1	8.22
Snohomish PUD	2	7.66
Clark PUD	3	7.62
Seattle City Light	4	7.18
Eugene Water & Electric Board	5	6.75

As shown in Table 1, 4 of the 5 utilities with the highest rates are *public* utilities and not investor-owned.² Again, as public utilities they all benefit from exemption from Federal taxes, have access to low cost capital through issuance of tax-exempt bonds, and receive subsidized power from BPA. Given the high rates observed from the other utilities with these same advantages, it is very unlikely that WVP will be able to parlay these benefits into lower rates.

If the factors discussed by WVP promoters are truly significant advantages, then public utilities that currently enjoy these benefits should have lower operating costs relative to private utilities. A simple way to compare across utilities of different sizes and locations is to examine operating costs as a percentage of operating revenues. Table 2 compares operating costs in 2000 with operating revenues for selected public utilities and PGE. Included are the largest public utilities in the region, the Long Island Power Authority (which WVP backers have held up as a successful example of their model), and the Sacramento Municipal Utility District, which is a public utility that is comparable in size to PGE.

¹ Rate data from *The Oregonian* “PGE rates are highest in region”, May 5, 2002.

² For other investor-owned utilities in the region, Pacific Power ranked 7th, Puget Sound Energy 8th, and Avista Utilities 9th.

Table 2: Comparison of Operating Costs as a Percentage of Revenues

Utility	2000 Operating Costs / Revenues (%)
Portland General Electric	90.9 %
Snohomish PUD	90.4
Tacoma Power	92.7
Seattle City Light	110.9
Clark County PUD	99.1
Eugene Water & Electric Board	98.3
Long Island Power Authority	92.2
Sacramento MUD	92.0

Source: Calculated by ECONorthwest. Public utility data from *Financial Statistics of Major U.S. Publicly Owned Electric Utilities*, U.S. DOE-EIA, Table 25, November 2001. PGE data from Form 10-K filed with the SEC.

In 2000, all of the public utilities (except Snohomish) had a higher ratio of operating costs to revenues than PGE. In the case of Clark County and Seattle City Light, the cost ratio is 9 to 20 percent higher than with PGE. Although this only reflects a single year, it does indicate that public utilities are not realizing significantly lower operating costs even with all of the other advantages public utilities enjoy.

In addition to the benefits of tax-exempt status, the public utilities shown in Table 1 all have access to power from BPA. As the high rates indicate, access to BPA was not enough to keep electricity rates low. The high electricity rates and other recent events associated with the West Coast energy crisis have shown how vulnerable public utilities and BPA are to changes in regional power markets. In order to fulfill its power obligations, BPA had to orchestrate the shut down of aluminum smelters throughout the region as well as purchase power from the volatile spot market. Even with these drastic measures, in October 2001 BPA increased its wholesale rates to all customers by 46 percent.

Because of the rate increase from Bonneville and the high spot market prices for electricity and natural gas, public utility districts throughout the region were forced to increase retail rates to their customers. Other large public utilities in the region include Tacoma Power, Seattle City Light, and Snohomish Public Utility District. All purchase power from BPA and all have increased rates dramatically in the last year.

- Tacoma Power has increased rates by over 30 percent in 2001.
- Seattle City Light rates increased by 60 percent for residential customers through a series of increases in 2001.
- Snohomish PUD rates increased by a total of 51 percent in 2001. The PUD had estimated that they would lose \$226 million by 2005 if they did not increase rates to cover power costs from BPA.

The addition of PGE's customers would represent a very large increase in demand to the BPA system—a system that is already over-subscribed. Current rates for public utility customers have been set through 2006 based on current load forecasts. Conversations with BPA staff indicate that it is very unlikely that PGE will have greater access to BPA power until many of the current contracts are renegotiated in 2006. At that time, new rates will be set based on the forecasted demands on the BPA system, and rates will undoubtedly need to increase with the addition of a new large utility the size of PGE. The proposed WVP would transform PGE into the largest municipal utility district in the region—significantly larger than Seattle City Light, Tacoma

Power, and Snohomish PUD. As this suggests, while BPA is required to provide public utilities access to its power, this does not guarantee that power will be supplied at lower-than-market rates.

To address increased power demands and to spread the risk of exposure to the spot market, BPA has developed “slice of the river” agreements to public utilities such as the Snohomish PUD. In the Snohomish contract, the utility is guaranteed half its power at a fixed rate and half at a rate determined in part by the amount of water available for power generation in BPA’s hydro system on the Columbia River. When the river is high, Snohomish would be allowed to sell any excess power on the spot market. When the river is low, fewer resources are available to generate electricity and Snohomish will need to purchase more power on the spot market. At the end of 2000, the low river periods coincided with increases in power costs from \$20-30 a mega-watt hour to over \$500 a mega-watt hour, more than tenfold. Had the “slice of the river” agreement been in place during 2000, power purchased from Bonneville would have resulted in a *500 percent increase* in costs to the Snohomish PUD.

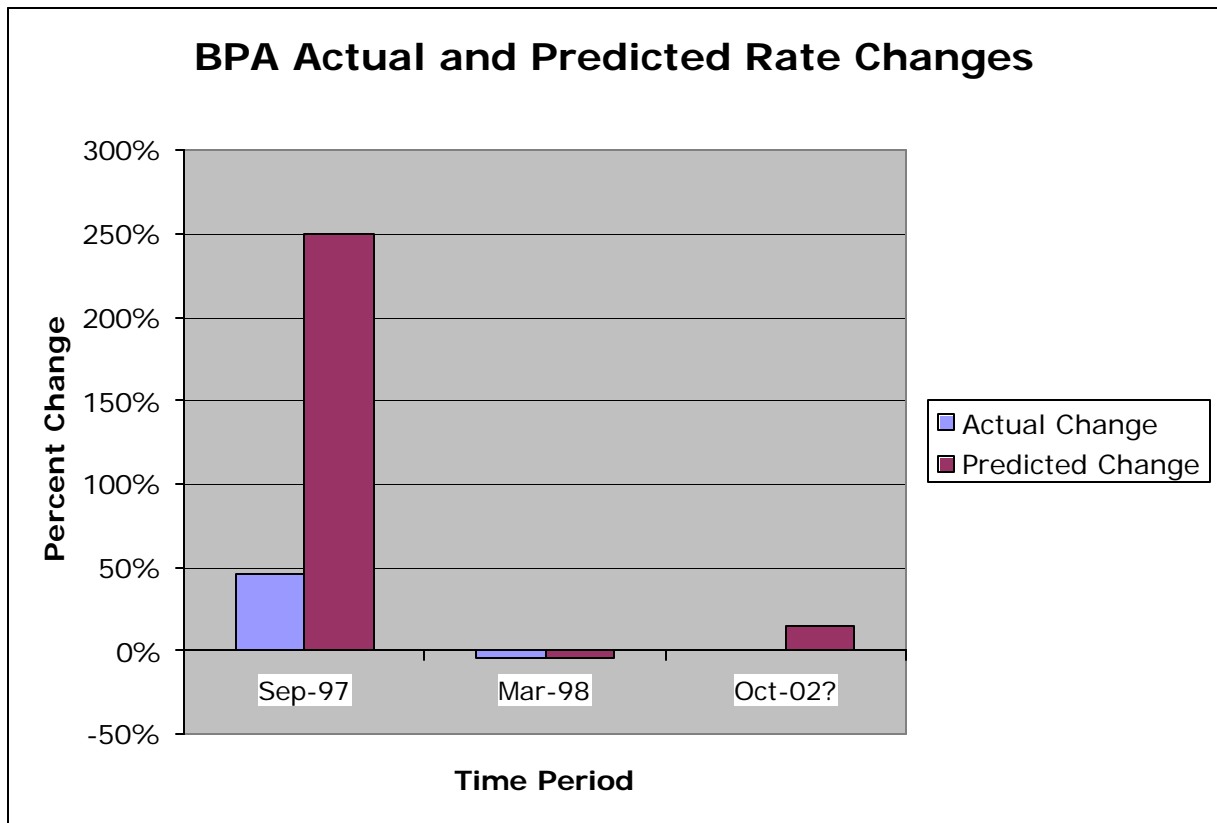
The recent actions by BPA are just one example of the difficulties of operating in the increasingly more sophisticated power markets. Clearly, management strategies that have worked well for utilities and power providers in the past are proving to be less successful today. A directly analogous example to the proposed WVP plan is California’s recent experiment with restructuring their electricity markets. In California, utilities participated with government agencies and other stakeholders to put together a comprehensive strategy for restructuring electricity markets with the promise that the plan would deliver lower rates. The final plan was agreed to by all parties and passed by a unanimous vote in the California legislature. The restructured market, as we have seen, had serious institutional flaws that encouraged market manipulation and high electricity prices. The end result was the bankruptcy of the state’s largest utility Pacific Gas and Electric, and the near bankruptcy of Southern California Edison. Currently, California taxpayers have been saddled with long-term electricity contracts at above-market prices and billions of dollars in debt as the state has stepped in to purchase power.

The proponents of WVP have stated publicly that they can “accurately predict for 10 years the power market”³ with enough certainty to allow them to freeze rates for the next 5 years. As seen during the recent energy crisis, accurately forecasting prices even in the short term has proven next to impossible.

BPA provides the most pressing example of the difficulties inherent in predicting rates in today’s electricity market. The figure below shows the recent rate increases by BPA that were not anticipated in their previous power market forecasts.

³ Quote from Ron Nichols of Navigant Consulting, AOI Briefing, June 13, 2002.

Figure 1: BPA Predicted and Actual Rate Changes



If BPA had been able to forecast the power market correctly, there would have been no rate increases during the period shown in Figure 1. As it stands today, BPA is unable to forecast future rate increases even over the next few *months* due to uncertainty in the power markets. In October 2001, BPA’s original forecasted rate increase was 250 percent in order to meet the high costs of purchasing power to meet the demands of their customers. Only after drastic measures of buying back power from aluminum companies was BPA able to limit the rate increase to “only” 46 percent. In April 2002, rates were reduced by 4 percent – a change that was also not included in earlier BPA power forecasts. This rate decrease is temporary, and Bonneville has warned of a new increase slated for the fall of 2002, although BPA has not yet determined what this increase will be. (An increase of 15 percent is shown here for October 2002 for illustrative purposes only.) As this review of just the last two years illustrates, even in the short run, BPA is not able to predict the power market well enough to determine either the rates or rate increases that will allow them to cover their costs.

The largest PUD’s in the region have all had to increase their rates in response to the BPA rate increases. Therefore, the PUD’s ability to predict retail rates lies primarily on the ability of Bonneville to predict wholesale rates in the future. As the recent increases have shown, the BPA has not been able to do this even for the short term despite decades of experience analyzing power markets.

Moving forward and to its credit, BPA has recognized that it can no longer afford to offer fixed rates and has built in a series of rate adjustment clauses into current and future power contracts.

As stated in an open letter to BPA customers and citizens, Bonneville Administrator Stephen Wright writes:⁴

Prior to last year, our policy had been to provide fixed power rates for a five-year period so that our customers would know what to expect. But, with the incredible price volatility we saw in West Coast power markets last year, it became clear we would need to collect substantial amounts of money for financial reserves if we were to stick with fixed rates. Consequently, BPA and its customers worked together to develop rate adjustment clauses that would trigger only when necessary, rather than collecting money ahead of the need.

The rate increase clauses are triggered by, among other things, spot market power prices and water levels in the Columbia River – factors that are impossible to predict over multi-year time horizons with the level of accuracy necessary to support a rate freeze. In short, despite its tremendous experience in forecasting power markets, Bonneville recognizes that energy markets have become too volatile to continue with offering fixed price contracts to its customers.

In light of the fact that Bonneville will no longer offer fixed rates, it is alarming that the WVP backers promise that they can freeze rates for five years. The promise of rate freezes is exactly what proponents of deregulation in California promised the public in order to get them to agree to that state's restructuring plan. California residential customers were given 10 percent rate reduction for the first two years of deregulation. After this period ended and San Diego Gas and Electric attempted to increase rates to cover increasing power costs after this period (as they were legally allowed to do), there was a full-scale revolt by ratepayers and a new rate freeze imposed by the state. When wholesale power costs skyrocketed, California refused to let the utilities increase their retail rates accordingly. As discussed, the result was billions of dollars in utility debt, the bankruptcy of PG&E, and California taxpayers saddled with enormous costs of purchasing power in the future through long term contracts negotiated at above current market prices during the height of the energy crisis.

In addition to acquiring power from BPA and being able to predict power costs accurately enough to guarantee a rate freeze, WVP backers also claim that they will be able to achieve lower rates through a more efficient operation of the PGE and by issuing tax-exempt bonds both to purchase PGE assets and to fund future capital expenditures for generation resources. We address both of these issues in the next two sections.

III. Governance

WVP would be formed under ORS Chapter 190, which allows and enables local governments to form an intergovernmental entity governed by a board or commission appointed by the local governments. The WVP group envision that the six counties currently served by PGE would own WVP, although they believe they can move ahead with as few as two counties. The WVP group mentions that some cities may also participate in the ownership.

The WVP group describes the proposal as a public-private partnership. The local governments, acting through WVP, would own PGE's assets. WVP would be responsible for setting rates, determining utility policies, and providing general oversight to the utility. WVP would enter into

⁴ *Letter to BPA Customers and Citizens of the Pacific Northwest*, Stephen Wright, Bonneville Power Administration, Portland, OR, April 2002.

long-term management contracts with private companies to manage the day-to-day operation of the utility.

Because the WVP proposal is still being formulated and many details have not been made public, we are limited in our ability to assess specific benefits and costs of the proposed WVP governance structure. Even in the absence of a fully articulated plan, however, the broad description of the structure and the operations of WVP raises some serious issues related to accountability and incentives. Given what is known, it is unlikely WVP will be able to cost-saving efficiencies that can be passed on to ratepayers.

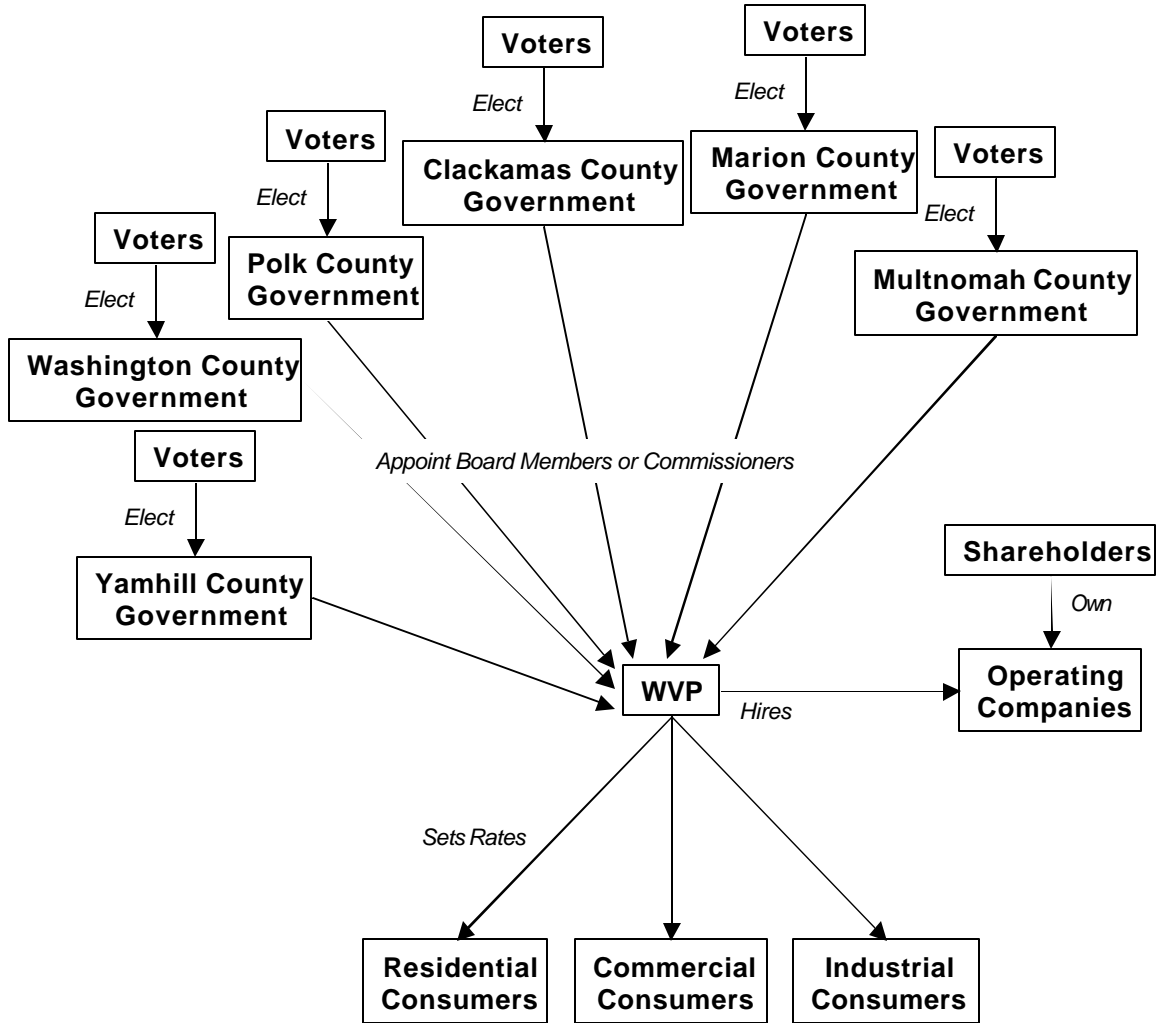
A. Structure

The WVP group has provided only limited information on the structure of the proposed WVP. The statute under which WVP would be formed simply states that the new entity can be governed by a board or commission appointed by the local governments. PGE's service area covers six counties and 51 incorporated cities, including Portland and Salem, and serves about 43 percent of the state's population. WVP's structure will have important distributional and representational consequences, yet the WVP group has not described the composition of the board or commission or how the various counties and cities comprising WVP would be represented. Some options include one county-one board member/commissioner or proportional representation based on population, electricity usage, or electricity generation. Each of these options certainly will benefit some localities at the expense of others.

The WVP group has also left open the issue of the role of voters in WVP. Once WVP has determined the structure of the board or commission, WVP must determine how board members or commissioners are to be appointed. The options range from the least democratic—appointment by the mayor or city council—to the more democratic—direct election.

Figure 2 shows a hypothetical structure of WVP, assuming only the six counties served by PGE would own WVP and that the board members/commissioners are appointed by the county governments. In this example, voters elect county government who, in turn, appoint WVP board members/commissioners. The board then enters into contracts with private companies to manage the day-to-day operations under the direction of the WVP board or commission. The WVP board then sets electricity rates for its customers. Because it would be government-owned utility, rate increases no longer would be approved by the Oregon Public Utilities Commission (OPUC).

Figure 2: WVP Hypothetical Ownership, Control, and Rate-Setting



The WVP group asserts that many public entities successfully own and manage electric utilities. Their list of successful government-owned utilities is confined to those that are municipally owned. What WVP proposing is a multi-jurisdictional government-owned utility that will span as many as six Oregon counties, two of Oregon’s largest cities, and 43 percent of the state’s residential electricity customers.

The WVP group expresses confidence that the political arena is an adequate, if not superior, forum for making decisions about the management of a public utility. Evidence suggests, however, that publicly-run electric utilities are often not as efficient as proponents claim. A 1996 audit for the Los Angeles Department of Water and Power, for example concluded that the department had higher electricity costs than the investor-owned utilities within the state. These higher costs were hidden by subsidized retail rates.⁵ Similarly, the Edison Electric Institute commissioned a study on cooperative-owned utilities and found that of the \$33 billion in federal

⁵ *The Problem with Power: Public Threats to Private Utilities*, by Elaine Davis, Washington Institute for Policy Studies, Seattle, WA, 1997, p. 6.

loans to these cooperatives, \$11 billion were “in trouble” and may result in default unless the debt is forgiven. These loans are almost exclusively for building new generating capacity and transmission facilities.⁶

The process proposed for WVP is analogous to what was done in California. A broad-based coalition involving numerous stakeholders and government agencies worked to develop a market restructuring plan that was agreeable to all involved. In the proposed WVP structure, important issues such as rate setting, financing for new power generation, and determining levels of exposure to the electricity spot market will all need to be agreed upon by a large collection of county and city officials representing a very wide range of diverse and sometimes conflicting interests. As we have seen, decisions made this way in California had many unintended, and nearly disastrous, consequences.

In PGE’s service area, there are numerous examples of how difficult it is for local government to make decisions that satisfy broad groups of stakeholders.

Oregon, and the Portland area in particular, has had an especially difficult time reconciling a number of complex and/or multi-jurisdictional issues, such as:

- Development of the Bull Run River water supply
- Clean-up of the Willamette River
- Expanding the Urban Growth Boundary
- Extending light rail
- Building an aerial tram in Portland

WVP will face the same difficulties in aligning the disparate and conflicting interests of those currently served by PGE while simultaneously making critical decisions in an increasing complicated and volatile power market. As shown by the California experience, in attempting to reach consensus, the political process tends to serve interested parties’ short-run objectives at the expense of long-run success.

B. Accountability

An advantage to privately-owned utilities is the oversight provided by the investors in the capital markets. In general, privately-owned utilities are owned by shareholders who have made an investment in the utility. They invest with the expectation that the utility will earn profits and that the profits will ultimately be turned over to the investor. These investors select the members of the board of directors who, in turn, sets policy, provides oversight, and addresses key issues. Because the board is accountable to investors, if investors become dissatisfied with the management of the firm, they can vote to replace the board or board members. If an individual investor is displeased with the management, he or she can simply sell his or her shares on the open market. If other investors believe that the firm is poorly managed or that they can manage the firm better, then they can acquire the firm through a merger or acquisition and replace management with their own team.

⁶ Ibid., p. 5.

WVP's Accountability to Citizens. Under the WVP proposal every citizen in a county comprising WVP would become, indirectly, an owner in WVP. Whereas a shareholder in a private utility can express his displeasure by selling his shares, thereby cutting his ownership ties, the only way in which the citizen can express his displeasure with the WVP would be by casting a single vote in a county- or city-wide election. The "weight" attached to that vote varies greatly with the structure of WVP. It is likely that with government ownership of WVP, every major decision, such as where and what kind of power plant to build, would be subject to lobbying by those with self-serving interests.

Operating Companies Accountability to WVP. Under the proposal, WVP would enter into long-term contracts with private sector companies to manage the day-to-day operations of the utility. WVP would provide oversight to make sure that the operating companies are implementing WVP's policies. An advantage to such "contracting out" is that the WVP can replace the operating companies if they are displeased with their performance. Conceptually, this should be relatively simple: the contract can be written to allow for replacement in the event of poor performance or WVP can hire a different management company when the contract expires. In practice, replacing the operating company would be nearly impossible. First, the main reason for entering into long-term contracts is to provide the operating company with incentives to make long-term investments. If the WVP sets a low threshold for replacing operating companies, firms would be less willing to enter into the contract in the first place. Second, any attempt to displace an operating company before the long-term contract expired would likely be met with litigation delays and expenses as the operating company would likely contest a WVP decision to terminate a contract early.

C. Unsound Incentives

The management of shareholder-owned utilities has a duty to maximize shareholder wealth, which usually means maximizing profits. This is achieved by simultaneously maximizing revenues while minimizing costs. While some may associate maximizing revenues with increasing prices, increased revenues are also achieved by increasing demand by such things as improving service and finding new markets. On the cost side, to the profit-maximizing firm, a penny saved is a penny earned. That is, profit-maximizing firms seek out ways to reduce costs as way to increase profits. As a publicly-regulated utility, PGE rates must be approved by the OPUC. The approval process seeks to ensure that any price increases are the result of increased costs, rather than an attempt to increase profits at the expense of ratepayers.

Both publicly-owned firms and nonprofit firms are very different from profit-maximizing firms. Many government-owned utilities are operated as nonprofits. For example, the Portland Bureau of Water Works is a government-owned water utility. The rates it charges to customers are set so that the utility earns no profit and faces no losses. Any increased costs are passed on directly to consumers, and any revenues from sales outside of Portland are supposed to be used to reduce Portland consumers' rates. Because all costs are passed on to consumers and do not harm the bottom line, nonprofit utilities such as Portland's Water Bureau have reduced incentives to seek ways to reduce costs.⁷

⁷ For example, *The Oregonian* (May 29, 2002) reported that a citizens panel reviewing future treatment of Portland's Bull Run water supply is leaning toward the most expensive treatment option. This option is favored by the Water Bureau Commissioner who would like to build another dam on the Bull Run River (to provide more water for fish and to help supply the suburbs) because

IV. Financing

In November 1999, Enron entered into an agreement to sell PGE to Sierra Pacific Resources for \$2.1 billion in cash and \$1.0 billion in assumed debt; the agreement was terminated in April 2001. On October 5, 2001, Enron and NW Natural entered into an agreement whereby NW Natural would acquire all of PGE common stock in exchange for \$1.8 billion in cash and stock and the assumption of \$1.2 billion in assumed debt. That agreement was terminated in May 2002.

The WVP proposal differs from prior attempts to acquire PGE in that WVP intends to purchase only PGE's assets rather than the company as a whole. Table 3 provides the value of PGE's assets as of March 2002. The utility plant, less depreciation, accounts for 56 percent of PGE's total assets. Other assets that may have little to do with the actual generation and distribution of power account for the remainder. The WVP group has not made clear which assets it intends to purchase.

Table 3: PGE's Assets as of March 31, 2002 (in millions of dollars)

Electric Utility Plant—Original Cost	
Utility plant (includes construction work in progress)	\$ 3,591
Accumulated depreciation	<u>-1,683</u>
	1,908
Other Property and Investments	
Contract termination receivable	21
Nuclear decommissioning trust, at market value	29
Trust owned life insurance	82
Note receivable—Pelton Round Butte project sale	23
Miscellaneous	<u>34</u>
	189
Current Assets	
Cash and cash equivalents	48
Accounts and notes receivable	260
Unbilled and accrued revenues	65
Power cost mechanism	27
Assets from price risk management activities	131
Inventories, at average cost	45
Deposits	40
Prepayments and other	92
Deferred income taxes	<u>9</u>
	717
Deferred Charges	
Unamortized regulatory assets	577
Miscellaneous	<u>15</u>
	592
Total Assets	\$ 3,406

the most expensive treatment option would filter out construction mud and debris.

One advantage to buying the assets alone is that the buyer is free of any liabilities currently associated with the assets. Some assets however, may be subject to as-yet-unknown future liabilities. For example, it is very difficult to foresee what future liabilities will arise from the 781 spent nuclear fuel rods currently stored at the Trojan Nuclear Plant. Also, there are no assurances that WVP will not leave taxpayers liable for any spot-market trading losses.

In acquiring the assets of PGE, WVP will not be acquiring any of the apparatus that operates PGE such as the workforce. The value of intangible assets such as a cohesive management team and a well-trained workforce should not be underestimated. This is like buying a computer without any software—WVP must have the operating contracts lined-up by the time the assets transfer to its control. In effect, WVP will remove the current management team of energy professionals and replace them with politicians—many of whom will have had no prior energy experience. This would be like hiring a gardener to set up the software on the computer you just bought.

WVP plans to issue \$2.7-2.9 billion in tax-exempt revenue bonds to finance the all-cash purchase of PGE's assets. Currently AAA-rated, tax-exempt insured revenue bonds yield 4.27 percent. At this early stage is impossible to predict what bond rating WVP will have on its revenue bonds, however, if they receive a AAA rating, then WVP will face \$115-123 million per year in interest payments, which, given PGE's electricity sales last year, translates in to 3.5-3.7 cents per kilowatt-hour of electricity sold.

The WVP group asserts that the utility's nearly \$3 billion in debt will not affect Oregon or the member localities' abilities to issue other debt. WVP itself, however, will be heavily burdened with debt. This high debt burden will likely affect its bond rating, which will be reflected in higher interest payments. The higher costs of borrowing will make future bond-financed investments, such as building new power plants or purchasing long-term natural gas contracts, much more expensive.

In addition to the claims of providing lower cost power to the region, the proposed WVP will also have serious implications for Oregon's economy due to the loss of jobs, tax revenues, charitable donations, and funding for conservation and renewable energy programs. Each of these issues is discussed below.

V. Economic Impact on Oregon and the Willamette Valley

The transformation of PGE into a publicly-owned utility will likely impose significant costs on Oregon's economy. In particular, the loss of tax revenues to state and local governments, the potential loss of high paying jobs in the utility sector, and the loss of funding for conservation and renewable energy programs will all have significant and far-reaching impacts in the region.

A. Reduced State and Local Revenues

The proposed government-owned WVP will be exempt from a number of federal, state, and local taxes. If these tax revenues are returned directly to taxpayers, the effect on the region will be approximately neutral from an economic standpoint. This would only occur, however, only if WVP were successful in reducing electricity rates. As discussed in this report, it is very unlikely that the WVP plan will result in lower costs to ratepayers.

A much more likely scenario is that WVP will reduce its payments in lieu of state and local taxes in order to reduce operating costs. If it is successful in doing so, it is possible that these revenues

would be lost entirely to the state's economy. This could occur, for example, if WVP contracts with an out-of-state management company such as PacifiCorp or Duke Energy and these funds are transferred out of the region to the corporate headquarters. Another possibility is that the lost tax payments are used by WVP to cover higher operating costs. In this case, the transfer of funds would be a loss to government sector and a gain to the utility sector within the state. Since these are the two most likely possibilities, we have analyzed the potential impacts on Oregon's economy using an input-output model. The results of both these scenarios are presented below.

1. Impact of Lost State and Local Tax Revenues

The effect of losing state and local tax revenues can be modeled for related sectors within Oregon's economy. We have used an input-output model to estimate detailed economic impacts for a range of different industries. Details about our model and the modeling process are included as an appendix to this report.

In 2001, PGE paid \$103 million in taxes—\$38 million in federal and state income taxes and \$65 million in local and other taxes.⁸ After the proposed acquisition, WVP would be exempt from these taxes. WVP promoters have claimed that the government-owned utility would match lost property tax revenues dollar-for-dollar in fees in lieu of taxes to areas currently receiving property tax revenues from PGE. In addition to property taxes, the proposed WVP would be exempt from federal, state, and local income taxes. Proponents have not yet detailed how the WVP proposal will make up this shortfall.

An additional source of lost tax revenues will come from WVP's ability to issue tax-exempt bonds. WVP's backers plan to finance the purchase of PGE and natural gas supplies by issuing tax-exempt bonds. The interest income earned on these bonds are exempt from state and local income taxes and are issued at an interest rate that is less than that of taxable bonds. Bondholders benefit from the tax-exemption and the bond issuer benefits from lower interest payments. These benefits come at a cost to taxpayers, who are subsidizing the lower interest payments and the tax-exemption. In general, with tax-exempt bonds, the savings in interest payments are outweighed by the losses in tax revenues. In other words, the government would lose more in tax revenues than WVP would gain from reduced interest payments.

Consider the following example of an Oregon taxpayer who is in the 30.5 percent federal tax bracket and the 9.0 percent state tax bracket.⁹ Currently AAA-rated, tax-exempt insured revenue bonds yield 4.27 percent and AAA-rated corporate bonds yield 5.37 percent. If this person bought \$1,000 in tax-exempt municipal bonds instead of corporate bonds, then the utility issuing the munis would save \$11.00 ($5.37\% - 4.27\% = 1.10\% \times \$1,000 = \$11.00$) in annual interest payments, however, the bondholder would pay \$16.38 ($30.5\% \times 5.37\% \times \$1,000 = \$16.38$) less in federal taxes and \$4.83 ($9.0\% \times 5.37\% \times \$1,000 = \$4.83$) less in state taxes. The utility's \$11.00 in interest savings come at a cost of \$21.21 in lost tax revenues.

The combined effect of a reduction in tax revenues (and consequently state and local spending) from all sources will impact Oregon's economy in three ways:

⁸ All tax and revenue information for PGE is taken from their 2001 10-K form filed with the SEC.

⁹ Because interest income from munis is exempt from federal, state, and local taxes, investments in munis are more attractive to investors in higher marginal tax brackets.

- **Direct economic impacts.** State and local governments directly purchase goods and services in their local economies. A reduction in state and local spending affects the economy directly through reduced purchases.
- **Indirect economic impacts.** State and local governments also indirectly affect local economies as those firms that provide direct services to the governments must also purchase materials and supplies themselves. For instance, a construction contractor working on a building renovation may lease equipment or purchase supplies locally. Reduced purchases of “intermediate” goods and services will also hinder additional economic activity.
- **Induced economic impacts.** The direct and indirect effects of employment and income affect overall economy purchasing power, thereby affecting further consumption spending. For instance, government employees or contractors who use their income to buy groceries or take their family to the theater generate economic impacts for workers and businesses in those sectors. These individuals will, in turn, spend their income much like the government employees do. This cycle continues until the spending eventually leaks out of the local economy as a result of taxes, savings, or purchases of non-locally produced goods and services or “imports.”

For our analysis, we have conducted an economic impact analysis using a hypothetical \$10 million reduction in state and local taxes, resulting in a \$10 million decrease in state and local spending. The \$10 million amounts to about 12 to 15 percent of what PGE has paid in state and local taxes during 1999 to 2001.

Table 4: Impact of a \$10 Million Decrease in State and Local Tax Revenues
(in 2002 dollars)

Impact Type	Decrease in Output	Decrease in Personal Income^a	Loss in Jobs^b
Direct	\$9,109,400	7,150,600	179
Indirect	438,300	176,700	5
Induced	5,875,500	2,217,500	75
Total losses	\$15,423,200	\$9,544,800	259

^aPersonal income consists of: (1) wages, salaries, and benefits, received by households, and (2) payments received by small-business owners or self-employed individuals (proprietors income).

^bJobs impacts consist of full and part time employment.

In Table 4, the impacts of lost tax revenue are presented in terms of lost economic output for the state, which reflects the value of all goods and services produced. In this table and the ones to follow, positive numbers reflect *losses*. The effect on personal income is also reported and is one of the components of economic output. Finally, the effect of reduced tax revenues is also shown in terms of changes in employment.

As shown in Table 4, a \$10 million reduction in state and local government spending will impose substantial costs on Oregon’s economy:

- The combined impact of direct and indirect effects will reduce output in the state by over \$15.4 million.
- Personal income will drop by \$9.5 million due to the loss of spending.
- The reduction in tax revenues will result in the loss of 259 jobs in the state.

Table 5: Sector Impact of a \$10 Million Decrease in State and Local Tax Revenues (in 2002 dollars)

Aggregate Industry Sector	Decrease in Output	Decrease in Personal Income^a	Loss in Jobs^b
Government	\$7,855,500	\$6,574,600	163
Services	2,398,900	1,295,200	43
Finance, Insurance, & Real Estate	1,646,400	296,800	8
Wholesale and Retail Trade	1,557,300	707,200	30
Transportation, Communication, & Utilities	708,100	186,400	4
Manufacturing	610,100	123,600	3
Construction	533,200	322,000	7
Agriculture, Forestry and Fisheries	108,100	37,400	2
Mining	5,600	1,600	--
Total losses	\$15,423,200	\$9,544,800	259

Numbers may not add up because of rounding.

^aPersonal income consists of: (1) wages, salaries, and benefits, received by households, and (2) payments received by small-business owners or self-employed individuals (proprietors income).

^bJobs impacts consist of full and part time employment.

Table 5 shows the same results from Table 4 broken out by industry sector. Most of the impacts from lost tax revenues will be in the government sector, which accounts for over half the output and income losses and the loss of 163 jobs. Other areas that will absorb significant costs are the service sector, the finance, insurance, and real estate sector, wholesale and trade business, and the utility sector.

Table 4 and Table 5 show the effect on Oregon's economy if \$10 million of spending in the government sector is lost and not replaced in some other sector in the economy. As such, this represents an upper bound of the economic impact of these lost revenues.

2. Impacts of a Transfer of Spending from the State and Local Government Sector to the Utility Sector

The second possible scenario is that the lost tax payments would continue to be spent in the utility sector. In this case, the tax payments are not lost to Oregon's economy, but are spent in the utility sector rather than in the state and local government sectors. The impacts of this transfer of spending are shown in Table 6.

Table 6: Impact of a \$10 Million Transfer in State and Local Government Spending to the Utility Sector (in 2002 dollars)

Impact Type	Decrease in Output	Decrease in Personal Income ^a	Loss in Jobs ^b
Direct	-\$890,600	\$5,250,800	159
Indirect	-799,000	-408,800	-8
Induced	3,890,800	1,468,400	50
Total losses	\$2,201,200	\$6,310,400	201

^aPersonal income consists of: (1) wages, salaries, and benefits, received by households, and (2) payments received by small-business owners or self-employed individuals (proprietors income).

^bJobs impacts consist of full and part time employment.

As expected, the transfer of spending from the government sector to the utility sector has less of an effect on the economy than the case where \$10 million in spending is lost entirely to the state. As before, positive numbers reflect *costs* to the economy. The combined effect of this shift in spending is a reduction of Oregon's economic output of about \$2.2 million. The loss of jobs from the transfer of spending is 201, less than the 259 jobs lost if the \$10 million disappears completely from the economy.

Table 7: Sector Impact of a \$10 Million Transfer in State and Local Government Spending to the Utility Sector (in 2002 dollars)

Aggregate Industry Sector	Decrease in Output	Decrease in Personal Income ^a	Loss in Jobs ^b
Transportation, Communication, & Utilities	-\$9,677,300	-\$1,816,600	-18
Government	7,773,000	6,542,500	163
Services	1,477,900	789,700	27
Finance, Insurance, & Real Estate	1,025,600	171,400	5
Wholesale and Retail Trade	1,014,600	461,500	20
Manufacturing	413,000	81,400	2
Construction	92,200	51,500	1
Agriculture, Forestry and Fisheries	83,000	29,100	1
Mining	800	200	0
Total losses	\$2,201,200	\$6,310,400	201

Numbers may not add up because of rounding.

^aPersonal income consists of: (1) wages, salaries, and benefits, received by households, and (2) payments received by small-business owners or self-employed individuals (proprietors income).

^bJobs impacts consist of full and part time employment.

Table 7 shows additional detail in the case of transferring \$10 million from the government sector to the utility sector. The loss of spending in the government sector results in loss of output in a range of different sectors in the economy as overall public spending falls. This includes reductions in all traditional areas of state and local government spending such as education, transportation, parks, fire and police protection, and other social, health, and welfare services.

While there is a cost due to the loss of output from the government sector, there is some benefit to the economy due to increased spending in the utility sector. Consequently, some the losses from the government sector are offset by increases in employment, output, and income in the utility sector. As shown in Table 6 and Table 7, however, the net effect of this shift in spending is still a net *loss* to Oregon's economy.

An important caveat to all of the input-output model results discussed and shown in Tables 4-7 is that the analysis assumes that a reduction in government sector spending will result in a loss of government sector jobs. Past experience has shown, however, that government agencies are less likely to eliminate jobs than are private companies when faced with spending cuts. To the extent that government agencies do not reduce jobs in response to lost tax revenues, the impacts estimated in this analysis will be reduced.

B. Job Losses

WVP is being proposed as a public-private entity in which the government-owned WVP enters into long-term management contracts with private, for-profit companies. Because WVP will not manage the day-to-day operations the utility itself will have no more than 80 permanent employees. WVP's promoters anticipate that the management companies with whom WVP has contracted will absorb virtually all of the remaining jobs. At this time, we do not know who the management companies would be, therefore we can only speculate how these companies would run the day-to-day operations of WVP.

The smallest number of jobs likely to be lost under the WVP proposal would result from WVP contracting out the day-to-day management to OpCo/PGE. PGE's payroll would remain relatively unchanged, with most job losses occurring in the management areas assumed by WVP—setting policy, providing oversight, and devising strategy.

Many more jobs would be lost if day-to-day operations were transferred from PGE to one or more private companies. These contractors likely would be able to accomplish many tasks without having to absorb all of PGE's work force. The depth and breadth of contracting-related redundancies and layoffs significantly depends on with whom WVP contracts.

As this suggests, the proposed WVP will almost certainly result in some loss of jobs at PGE. Until a more detailed plan is presented, it is impossible to determine how many jobs would be lost with the proposed WVP plan or what affect this might have on Oregon's economy. If management is given to an out-of-state company (such as Duke Energy), then it is possible that jobs would be transferred out of state. It is also possible that utility workers who are displaced by WVP will find similar jobs at other utilities outside of Oregon. Conversely, it may be that those losing jobs at PGE may all find employment with companies within Oregon – thereby reducing the impact of lost jobs.

To provide an estimate of the potential impact of this job loss, we have used an input-output model to predict the effect of eliminating 100 jobs, which is 3.6 percent of PGE's current workforce. This hypothetical scenario assumes that these jobs are lost permanently to Oregon's economy and therefore is an upper bound estimate of the costs of losing jobs at PGE. If these 100 jobs are replaced elsewhere in the economy, then the effects shown here will be reduced.

Table 8: Impact of a Loss of 100 Utility Jobs (in 2002 dollars)

Impact Type	Decrease in Output	Decrease in Personal Income ^a	Loss in Jobs ^b
Direct	\$ --	\$7,000,000	100
Indirect	--	--	--
Induced	6,025,900	2,258,900	77
Total	\$6,025,900	\$9,258,900	177

^aPersonal income consists of: (1) wages, salaries, and benefits, received by households, and (2) payments received by small-business owners or self-employed individuals (proprietors income).

^bJobs impacts consist of full and part time employment.

The impact of losing 100 jobs in the utility sector has been limited in our analysis to the impact of reduced spending by these employees. WVP is not expected to change the amount of electricity it produces and sells, therefore, in the short run, the loss of utility jobs would affect the Oregon economy through induced economic impacts. For example, out of work employees will have less income with which to buy groceries or see movies, thereby reducing output, income, and employment in other sectors of the economy.

As shown in Table 8, the impact of losing these jobs is a reduction of \$6 million annually in decreased output, an annual reduction of \$9.3 million in personal income and the loss of 77 jobs in addition to the original 100 jobs eliminated at PGE.

Table 9: Sector Impact of a Loss of 100 Utility Jobs (in 2002 dollars)

Aggregate Industry Sector	Decrease in Output	Decrease in Personal Income ^a	Loss in Jobs ^b
Transportation, Communication, & Utilities	\$ 431,600	\$7,117,200	102
Services	1,879,600	989,600	33
Wholesale and Retail Trade	1,492,400	690,200	30
Finance, Insurance, & Real Estate	1,435,100	232,500	6
Manufacturing	435,500	85,100	2
Construction	125,900	69,400	1
Government	157,600	52,900	1
Agriculture, Forestry and Fisheries	65,100	21,100	1
Mining	3,100	900	0
Total	\$6,025,900	\$9,258,900	177

Numbers may not add up because of rounding.

^aPersonal income consists of: (1) wages, salaries, and benefits, received by households, and (2) payments received by small-business owners or self-employed individuals (proprietors income).

^bJobs impacts consist of full and part time employment.

Table 9 provides additional sector detail on the effects of losing 100 jobs in the utility sector. As this table shows, additional costs and jobs losses will occur primarily in the services, wholesale and retail trade, and finance, insurance, and real estate sectors—sectors that all play a supporting role for the utility industry.

Again, the employment impacts shown in Table 8 and Table 9 are the effects associated with permanent job losses. While some of those who will lose their PGE jobs will likely find similar work elsewhere in the state, some may find work outside of Oregon while others may remain permanently unemployed. Thus, the economic impact of job losses can be reduced if those who have lost their PGE jobs can find similar work with other firms within the state.

VI. Conservation and Renewable Energy Programs

Under deregulation, Oregon established the Energy Trust of Oregon (the Trust) to ensure continued investment in energy conservation and renewable energy programs. The Trust is funded through a public purchase charge of 3 percent of the retail revenues received by the state's two largest investor-owned utilities PGE and PacifiCorp. Of these, PGE is expected to provide the majority of the funding for the Trust. In 2001, PGE had \$1.09 billion in revenues from the retail sales of electricity. Conservatively assuming that revenues in the near future would be approximately \$1 billion (as they have been for the last several years) this would amount to \$30 million in public purpose funds provided to the Trust to fund conservation and renewable energy programs.

If PGE is municipalized, it is not clear whether it would still be required to pay into the Trust. Currently, none of the other publicly owned utilities in Oregon have this requirement. If WVP is not required to continue payments into the Trust, energy and conservation program funding will be reduced by \$30 million annually. With the expected future growth in the region, these losses to the Trust will increase as retail electricity sales increase over time.

Even if WVP is required to continue paying the 3 percent rate, any reduction in rates due to government ownership will have the effect of reducing payments to the Trust. The WVP proponents have claimed that rates will decrease by at least 10 percent under their plan. This reduction would also reduce funding to the Trust by 10 percent—a loss of \$3 million annually for conservation and renewable programs at current retail revenue levels.

VII. Appendix: Modeling Process

Expenditure in the utility sector affect the Oregon economy *directly*, through the purchases of goods and services in this state, and *indirectly*, as those purchases, in turn, generate purchases of intermediate goods and services from other, related sectors of the economy. In addition, the direct and indirect increases in employment and income enhance overall economy purchasing power, thereby *inducing* further consumption- and investment- driven stimulus.

The economic modeling framework that best captures these direct, indirect, and induced effects is called input-output modeling. Input-output models provide an empirical representation of the economy and its inter-sectoral relationships, enabling the user to trace out the effects (economic impacts) of a change in the demand for commodities (goods and services).

Because input-output models generally are not available for state and regional economies, special data techniques have been developed to estimate the necessary empirical relationships from a combination of national technological relationships and county-level measures of economic activity. This modeling framework, called IMPLAN (for Impact Analysis for PLANning), is the technique that ECONorthwest has applied to the estimation of impacts.¹⁰

The IMPLAN model reports the following economic impacts:

- Total Industrial Output (output) is the value of production by industries for a specified period of time. Output can be also thought of as the value of sales including reductions or increases in business inventories.
- Personal income consists of the wages and salaries received by households (employee compensation) and the payments received by small-business owners or self-employed individuals (proprietary income). Employee compensation includes workers' wages and salaries, as well as other benefits such as health and life insurance, and retirement payments. Proprietary income, for example, would include income received by private business owners, doctors, accountants, lawyers, etc.
- Other property type income (other income) in the IMPLAN model includes payments to individuals in the form of rents received on properties, royalties from contracts, dividends paid by corporations, and corporate profits earned by corporations.
- Job impacts include both full and part time employment.

¹⁰ IMPLAN was developed by the Forest Service of the US Department of Agriculture in cooperation with the Federal Emergency Management Agency and the Bureau of Land Management of the US Department of the Interior to assist federal agencies in their land and resource management planning. Applications of IMPLAN by the US Government, public agencies and private firms span a wide range of projects, from broad, resource management strategies to individual projects, such as proposals for developing ski areas, coal mines, and transportation facilities, and harvesting timber or other resources. ECONorthwest has applied the model to a variety of public and private sector projects including, most recently, a major US/Canada gas pipeline project.

- Tax revenues for various federal, state and local taxing jurisdictions.

Ideally, expenditures for the proposed WVP would be available and specific enough to allocate to each of the 528 industry sectors contained in the IMPLAN model. In addition, the expenditures should be delineated between local and non-local providers, as purchases of goods and services from out-of-state vendors will have no economic impact on Oregon employees and businesses.

In absence of this detailed information, ECONorthwest opted to use the production function data for the utility and government sectors contained in the IMPLAN modeling software. From an input-output modeling perspective, this is a standard modeling approach in the absence of detailed primary source data. Indeed, IMPLAN's production function data contains information, called regional purchase coefficients that describe the proportion of a given commodity that will be provided by Oregon producers. Our previous modeling experience has shown—especially for statewide models—that the data contained in the IMPLAN modeling system for the various sectors is sufficient to permit an accurate rendering of impacts.