Conservation Funding Options and Impacts for Public Utilities

Cathy Higgins, Oregon Municipal Energy and Conservation Agency

The utility industry is rapidly moving into a competitive environment, and in many cases conservation is being left in the dust. The current abundance of power supply at low avoided cost is causing utilities to cut planned conservation budgets and targets. In the Northwest, regional funding has disappeared and utilities must now determine what conservation activities belong in the new marketplace, while maintaining competitive rates and services as suppliers.

This paper presents conservation funding options for public utilities. Public utilities are defined as those utilities that are owned and governed by their customers (e.g., municipals, cooperatives, and public or people's utility districts (PUDs). Revenue sources such as bonds, rate-based funds, energy service charges, loans, performance contracting, and allocation of wholesale avoided costs are described. Their benefits and risks to the utility are also considered. Options for funding are grouped into the following categories:

- internal to the business operations of the utility
- participant-funded financing
- external to utility assets.

The assumption that utilities are lowering traditional expenditures for conservation but that continued implementation of energy-efficient technologies is a priority is inherent in this discussion. The paper's intent is to give demand side managers creative ways to meet the needs of both their management and their customers by actively discussing budget options and their possible customer and utility impacts.

INTRODUCTION

Public utilities in the Northwest have traditionally relied on conservation budgets paid for through their wholesale power purchases from Bonneville Power Administration (Bonneville). Bonneville is a federal power marketing agency that sells approximately 50 percent of the electricity in the Northwest.

Background of Northwest Public Utility Conservation

In 1993, 124 publicly owned utility customers in the Northwest purchased about half of Bonneville's supply, providing over $1 billion in revenues to Bonneville (PPC 1995, 28). Bonneville returned approximately $151 million of those funds to the region that year to support conservation activities (BPA 1995, 18). This amounted to 1.8 mills/kWh in conservation costs on the wholesale power bill of each utility that purchased power from Bonneville (BPA 1994, 6). The utility infrastructure created by 15 years of conservation and demand side management (DSM) activity facilitated the acquisition of 62.4 aMWs of conservation for 1993.

In 1994 Bonneville announced its intent to eliminate centralized funding for conservation and competition for customers, effective October 1, 1995, due to rate pressures. With the disappearance of this regional funding, utilities must now creatively combine sources of funds to keep an active relationship with their customers and meet social and environmental commitments.

Utilities, operating independently or in collaboration, are now investigating a variety of different funding and financing options to continue conservation efforts. One example of public utility collaboration is the Oregon Municipal Energy and Conservation Agency (OMECA), an intergovernmental agency formed in January 1994 by six Oregon municipal utilities—City of Ashland, Forest Grove Light & Power, McMinnville Water & Light, Milton-Freewater Light & Power, City of Monmouth, and Springfield Utility Board—with combined annual total power sales of 232 aMWs and 60,000 customer accounts. The agency was formed to provide cooperation in the management, acquisition, and operation of conservation projects and to serve as a single, centralized entity for the public purpose of issuing non-recourse revenue bonds.

OMECA members worked with Bonneville to arrange a conservation project agreement to allow flexibility in program offerings and design and to move some of the last central funds directly to the OMECA utilities to provide funding over a longer period. The agreement was signed in September of 1994 and allows conservation expenditures through September 1997 totaling $11.4 million. Members plan to acquire 5 aMW with these current funds at a 1993 levelized cost of less than 16 mills/kWh conserved. Members are considering the options described in this paper to develop a strategy for funding energy-efficiency activities following the end of the project agreement.

INTERNAL FUNDING SOURCES

Internal funding is the historic source of funds for most conservation activity. While Northwest public utilities often thought of Bonneville funds as external, fully 6 percent of their 1993 Bonneville wholesale power price was allocated to conservation programs so, in reality, these costs have always been ''internal'' to their power costs. The need to keep costs down is pressing but, by aligning conservation and DSM to today's market needs and by blending financing and funding sources, the utility can demonstrate good business reasons for continued internal investment in these activities. Several potential internal sources of conservation funding are described below: wholesale power savings, bond sales, rate-based programs, and energy-service business.

Wholesale Power Savings

Competitive wholesale power market conditions have enabled utilities with market access to reduce expenditures for power purchases. This may also soon pertain to some percent of the power for most public utilities in the Northwest as a result of Bonneville's restructuring and new power sales contracts. Transmission and other ''unbundled'' charges must be taken into account when making comparisons among sources, but market figures make it clear that there is significant potential for reduction in wholesale power cost for utilities in the near future, portions of which can be deployed for conservation activities.

Indications of the magnitude of these savings may be taken from the following considerations. The 1993 Bonneville priority firm rate was 26.8 mills/kWh, which included 1.8 mills/kWh for centralized conservation funding. Current discussion on Bonneville's 1996 rate case projects Bonneville will reduce its priority firm rate for energy by 11 percent to attempt to be competitive in the market. Meanwhile, sources in the market are offering various products at rates starting from 5 mills per kWh for spot off-peak non-firm energy (O'Donnell 1996, 2) to 20 mills per kWh for 5-year, high-load-factor firm energy (Tansey 1995, 7), with variations appearing continuously depending on season, weather, term of agreement, load factor, and interruptibility. These prices indicate the current buyers' market available to utilities.

Allocating some power cost savings to efficiency funding can extend cost savings because utilities can use conservation to offset other higher cost power the utility may have on contract or to defer purchases to seasons or times of lower cost power, thus lowering the overall melded price.

Bonds

Traditionally, municipal utilities have used revenue bonds to finance generation, transmission, or distribution facilities in order to spread the costs out over time. As conservation has come to be viewed as a resource and an established part of utility operations with verifiable results, revenue bonding has become a viable funding tool.

The ability for a public utility to issue tax exempt bonds at a better rate than either investor-owned utilities, most customers, or private energy service companies gives the public utility a competitive edge in funding energy services. In 1994, tax-exempt municipal bonds had interest rates that were 3.75 percent below the weighted cost of capital for a typical investor-owned utility and 1 percent below Treasury bonds (NWPPC 1994, 7). Treating conservation as a capital cost also reduces the current-year rate impact compared to direct annual expensing of program costs, although this impact is only transferred to future years. In addition it removes the conflict caused by ''expensing,'' of charging today's consumers for benefits that will accrue to future consumers as well (NWPPC 1994, 7).

Municipal revenue bonds are tax exempt when used to acquire conservation as a resource through incentive payments (or to provide technical energy services), but there are tax consequences if loans to customers are involved. To maintain the tax exempt status of the bond issue, no more than 5 percent of the proceeds may be used to finance loans to private consumers for installing conservation measures. This 5 percent limit does not apply to finance loans to public entities such as schools or cities.

In Oregon, there is no statutory minimum size of a revenue bond issue; however, there is a point where program levels are small and the benefits do not outweigh the costs of issuance. One advantage of a consortium is that small utilities can combine their individual programs and share the costs of issuance and administration while offsetting risks. OMECA found $10 million to be the minimum cost-effective issuance for the market.

It is important for utilities to select a bond counsel and financial advisor or underwriter with a solid understanding of conservation programs and their benefits to the electric system and consumers. Their knowledge may mean a better rate and smoother issuance process and can be helpful in explaining the process to utility boards and commissions.

Rate-Based Conservation Programs

There are several ways a utility might determine the amount of funding allocated out of rates for energy efficiency: (1) allocate a percent or mill amount of the retail rate; (2) establish a new restructured department budget based on intended services; and (3) determine a conservation savings target and assign a levelized cost value that is below the avoided costs of resources. To evaluate rate-based funding for conservation, utilities must look with fresh eyes at the competitive climate and their internal accounting practices. The key is for the utility to see DSM not as in conflict with other budget needs and objectives but rather as a vital tool for ensuring the utility's competitive future.

In a competitive marketplace, conservation activities must focus on meeting customer needs, rather than hitting utility-prescribed objectives or regulated resource acquisition targets. This may require utilities to question the traditional titles and organizational roles held by conservation staff. Merging conservation with customer service functions and creating account executives or energy service representatives are ways a utility can redefine the costs associated with serving its customers and remove the stigma of conservation as a ''grant'' program.

The impacts of rate-based funding can be offset by lowering the cost of conservation, capitalizing a greater percent of costs, designing programs that save energy during the periods of highest power costs, reducing lost-revenue impacts through revised rate structures (NWPPC 1994, 12–13), and leveraging existing budgets to create a more comprehensive role for energy conservation as part of customer services. By providing rate-based funding, a utility maintains direct control over conservation activities and represents to customers that it values the efficient use of energy.

Energy Services Business

Many utilities are repositioning their conservation staff to provide a range of for-fee energy services to commercial and industrial customers, and possibly to other utilities. For example, Puget Power offers a menu of services, including technical analysis, power quality, and environmental mitigation. Portland General Electric has a separate, for-profit division of energy services. Pacific Power has begun to market energy services to its customers and conservation programs to other utilities. Southern California Edison created ''ENVEST'' as a business unit intended to make a profit by serving as a facilitator of energy-efficiency retrofits within its territory (Flanigan et al. 1995).

The amount of revenue available through the sale of energy services is unknown. Transitioning customers from ''free'' to fees for services will take some time. Competition exists with private energy service companies (ESCOs), vendors, contractors, and other utilities, many of whom were utility allies under past programs. The utility must decide whether to leverage these allies to accomplish conservation objectives at lower internal costs or compete in this new market for potential revenues and customer allegiance.

Internal Sources—Risks and Benefits

Table 1 presents a summary of the risks and benefits associated with these internal funding sources being used for conservation activities.

PARTICIPANT-FUNDED FINANCING

As utilities seek to reduce program costs and maintain mechanisms for customer implementation of energy-efficient technologies, financing becomes a greater player in program design and revenue recovery. Rather than providing traditional savings-based incentives at a cents-per-kWh-saved rate or direct rebates for measures installed, utilities can offer their customers a variety of financing approaches based on the utility's cost and savings targets and the needs of the sector and customer. Although the utility must find a source of initial funds for financing, this approach transfers funding responsibility to the program participant or recipient of the measure or service.

Financing energy efficiency solves a number of problems in today's utility climate. It (1) serves as a marketing tool for utilities to interact with their customers, (2) stimulates the continued implementation of energy-efficient technologies by providing competitive capital, (3) reduces the utility's risk of rate impacts from high-cost grant programs or large capital outlays, (4) meets most state regulatory requirements, and (5) minimizes the equity issues of ratepayer subsidies to select customers under a grant approach.

Types of Financing

There are two primary types of financing a utility can offer: an energy service charge or a standard loan. An energy service charge (ESC) is part of the customer's total utility bill and is usually structured so that the customer will save more money through the energy savings associated with the conservation measure(s) than will be made in payments on

Table 1. *Risks and Benefits of Internal Funding Sources*

Risks	Benefits
Wholesale Power Purchases	
• Competition is likely within the utility for budget savings.	• Savings can be absorbed within the utility to maintain activities.
• Management obligation to pass all savings onto customers, even while cutting services.	• Dollars previously included in wholesale cost of power now kept at home.
• Unstable source of funds dependent on power contracts and price variability.	• Conservation can increase wholesale savings by offsetting most expensive increment of power.
• As power costs decrease, rate impacts from conservation marginally increase (see Rate Impact section).	• Reduces risk of future power prices by putting power savings into meeting load growth.
Bonds	
• Market rate depends on strength of pledge.	• Conservation now a viable revenue bond asset.
• If tax exempt issue only 5% available for consumer loans.	• Tax-exempt muni bonds are a very low cost source of money.
• May require additional preparation to describe ECMs and present a credible ''package'' to the market.	• Consortiums like OMECA can share risk and transfer funds between members.
• Utilities hesitant to incur debt in the current marketplace.	• Can capitalize—reduces current-year rate impact; current rate payers aren't subsidizing benefits for future customers.
• Capitalizing costs transfers rate impacts to future years.	
Rate Based	
• All costs must be borne by all rate payers.	• Establishes energy efficiency as integral part of utility operations.
• It can be difficult to dismantle the internal utility infrastructure.	• Shows stakeholders utility's community and environmental values.
• Existing departments will need to be evaluated and redesigned, from customer service to accounting.	• Utility keeps control over for more flexibility to merge functions and create new services.
	• Stimulates staff creativity for products, services and programs to meet customer needs and increase revenue.
	• Proactive steps may preempt regulatory action.
Energy Services	
• Pushes utility into new competitive marketplace versus focusing on existing strengths.	• Brings in revenues to cover costs.
• Could alienate past trade allies or ESCOs.	• Reflects a business-like approach by charging for services.
• Unstable due to fluctuation in sales.	• Could compete outside utility's territory.
• Publics question for-profit activities and competition with private-sector companies.	• Merges multiple customer needs.
	• Establishes an entity to look at new markets and products in a changing environment.

the borrowed funds. A standard loan can be for any amount, term, and/or rate that fits the demands of the customer and the lender and may be on a separate bill from either the utility or an outside lender. A third type of financing, leasing, is also available to customers for funding conservation measures. These financing options are described below.

Energy Service Charge. Energy service charges in the Northwest have been synonymous with PacifiCorp's FinAnswer Program. Since 1990 PacifiCorp has been attaching ESCs to customer bills for repayment of energy-efficiency measures in new commercial construction and major remodels. Capital is provided at the prime rate for ''resource'' measures determined to be cost effective and at prime plus three percent for ''supplemental measures'' that the customer elects to install (Flanigan et al. 1995). Now other utilities are interested in using this financing approach to provide customer services and acquire low-cost resources, while significantly lowering their internal costs.

Attached to the Meter. Inclusion of the payment on the customer bill is what technically defines an ESC. ''Attaching to the meter'' implies four important aspects of an ESC: (1) The ESC debt can transfer with the meter should there be a change of ownership of a building. (2) Developers can pass through the costs of efficiency to tenants who later pay the bill (Flanigan et al. 1995). (3) The bill reflects the total service offering from the utility. (4) The account serves as security allowing the utility the recourse of shutting off power for default. PacifiCorp has nearly 1,000 ESC projects and has had no defaults to date (Backen 1996). PacifiCorp places no liens on customers' property and only requires a memorandum of understanding regarding the program's ESC (Flanigan et al. 1995).

Positive cash flow is typically a key feature and marketing tool of an ESC. Commercial and industrial conservation projects can most easily create savings in excess of an amortized loan amount. For example, in one commercial lighting project, a customer was replacing 250 4-lamp magnetic-ballast T12 fixtures with 2-lamp electronic-ballast T8 fixtures. The total measure cost was $15,000 and the customer's ESC was 8 percent at 60 months. The monthly payment was $304 and the monthly energy savings was $433 netting the customer $129 per month.

Not all customers have positive cash flow as their primary objective. If the utility offers financing for additional features, services, or other technologies, then the total cost of the package would likely exceed the savings associated with only the cost-effective measures. The customer may also choose a shorter term to meet company financial objectives. Some customers may be able to consider an ESC as an operations and maintenance expense, especially in the case of a remodel. This keeps the ESC from impacting the customer's total debt ratio since it is not a capital cost.

The utility may also benefit from using an ESC rather than a standard loan. An ESC may denote the purchase of an energy resource because it is linked to the energy savings (whereas a loan may not be) and thus the ESC may allow more flexibility than a loan in the source of funds within a utility. Utilities need to check with a financial advisor or legal counsel for the interpretation relevant to their funds.

Utility Costs. Costs associated with an ESC are accounting and administration costs, set up of the billing and payment receipt, creation of financing forms and program paperwork, and staff training. The utility must verify actual energy savings through inspection of conservation measure installation and operations and maintenance. Utilities may also incur additional costs if adjustments must be made to the financing terms based on the verified savings.

Standard Loan. A standard loan is billed separately from the utility bill and may originate from the utility or from a discrete outside source, in which case it may be facilitated by the utility. Its terms and rates are dictated by the lender, market, and customer negotiation based on strength of credit. A standard loan can be used in any sector as long as the rates are competitive with other customer options.

Costs of establishing a standard loan financing program are the same (i.e., administrative, tracking, and billing) as costs for setting up an ESC. Depending on the source of the funds these overhead costs can vary widely. Many utilities have found that the interest rate charged to offset administrative costs (an assumed utility benefit) barely covers the costs associated with the separation of interest and principal on the incoming payments. The difference between a $3,000 loan for 60 months at 0 percent versus 8 percent is only $11 per month. The utility's ability to offer 0 percent financing greatly simplifies internal accounting and promotes higher participation by customers. However, the use of an outside source for funding and/or administration may be cost effective compared to the learning and infrastructure curve to turn a utility into a financing institute. Since standard loans have no link to energy savings, the program design can be based on estimated savings, eliminating the verification costs and adjustments needed under an ESC.

Lease. Many private financing entities use leases to encourage investment in a desired product. A lease agreement is like a rental agreement in which an ESCO, utility, or financing institute provides the up-front capital to purchase energy efficiency equipment with no down payment needed. The customer then ''rents'' the equipment from the lessor, usually at rates slightly higher than for loans. At the end of the lease the customer can have a purchase option to buy the

equipment at a nominal cost. Besides requiring no down payment, a lease can be structured so that it costs less than the energy savings produced from the equipment, and it is usually considered an operating expense, thus avoiding additional debt load for the customer (Goldberger and Jessup 1995).

Sources of Financing Funds

Financing energy efficiency can solve customer needs for capital and utility needs for lower costs. After the types of financing are compared, a utility would next weigh the impacts of various sources of financing dollars. Options for funds are described below.

Internal Utility Revolving Fund. This is the self-funded option using existing rate-based funds, or centrally borrowed funds through a bond issuance or other mechanism, to create a revolving financing pool. A revolving fund can provide a utility with stable in-house funding for future conservation activities and can be used by the utility for any type of financing. In a very simplified example, a $100,000-per-year loan program for five years with a five-year term and 0 percent interest would have fully recovered the initial funds before the end of three years. The repayments decrease the amount of loan capital needed each year by 20 percent, as repayments become available for new loans. At the end of five years, with no early repayments, the account would be fully revolved with $100,000 of annual repayments.

Typically there are early repayments, which would accelerate the recovery period in the example. Some utilities offer lower rates for shorter terms to encourage early repayments. Defaults are also not considered in this example and must be applied when calculating the cost of money and payment expectation. Finance advisors can provide standard anticipated defaults but note that defaults do not appear to be below average for utility financing programs (Flanigan et al. 1995, 29).

A utility can ''lend its net worth,'' in banking terms, as a means to establish internal funds available for financing. Sacramento PUD in California has an extensive self-funded loan program that may approach $100 million in total loans to date! They believe they can better serve their customers than an outside source, assure higher approval levels, offer better rates due to their low municipal cost of capital, and create a strong marketing and business relationship with the customer (McCann 1996). Several Northwest utilities such as Tacoma PUD in Washington, Tillamook PUD in Oregon, and the City of Richland in Washington have in-house financing programs offering 0, 5 to 7 and 3 to 6 percent respectively to entice customer participation.

While internal funds include the utility's ability to use capitalized funds such as bonds, as noted previously tax-exempt bonds place a 5 percent limit on the amount of dollars the utility can make available for ''private use'' such as loans. The option to consider taxable bonds, which would have no restraints on their use for loans, may still result in good savings over past programs costs, depending on the market rate.

Local Bank. In this approach, utilities work with a local bank to offer a competitive rate to customers installing conservation measures, and the bank underwrites and services the loans. The utility may negotiate a buy-down of the bank rate for the conservation projects. Local banks may have existing credit history with customers which could benefit their approval rates. They also have federal requirements for community investment which can facilitate a utility's negotiation in establishing competitive terms. Most banks group energy efficiency under ''home improvement'' and will present those terms as the default for residential customers if the utility does not work out a custom offer.

Truckee-Donner PUD in California worked with a local bank to create a simple and more affordable loan option for its geothermal heat pump program. The bank loaned a greater margin, cut loan fees, and lowered its standard rate due to a collaborative effort with the utility to make these units attractive to the community. Columbia River PUD in Oregon has a contract with the local credit union and a local bank for the utility to pay the difference in rates from an agreed baseline to the utility customer offer of 6.5 percent. These are unsecured loans for heat pumps and the utility provides marketing and technical advice to its customers.

Utilities must keep customer interests in mind and act to facilitate as much of the process of the bank financing as is possible. Having a ''program'' that requires the customer to do all of the ''leg work'' to get whatever loan is available from the local bank or credit union is a facade of a program that is unlikely to have much impact.

Third-Party Financing. This could be a finance company that originates and services all loans with the utility acting as an agent with the customer, an ESCO or vendor that provides financing or leasing to the customer, a regional entity such as a state energy office, or a consortium of utilities that establish a central agency to borrow and/or manage the financing.

In finance terms, to ''originate'' is to handle the credit approval process, underwriting, and all steps up until the loan is ''booked,'' which means that payments are ready to begin. At this point ''servicing'' the loan begins. This involves collecting the payments, reporting loan status, dealing with delinquent accounts, and handling defaults. Third-

party financing can involve a single entity handling both parts of the loan process or a party that originates the loan and then sells or packages it to be serviced on the secondary market. A fee, usually defined in basis points, is charged for these functions. Fees can run from 50 to 250 basis points (0.5 to 2.5 percent) depending on the scope of service by the third party.

Presently Fannie Mae, America's largest supplier of home mortgage funds, is beginning a major residential efficiency financing initiative offering significant amounts of capital for residential retrofits at highly favorable rates and terms (Flanigan 1996, 1). The funds are tied to the Treasury bill rate and are currently around 6 percent.

Pacific Gas & Electric (PG&E) of California has combined Fannie Mae with an ESCO to accomplish ease and affordable management while keeping the primary role of customer. PG&E uses Volt VIEWtech as the ''behind the scenes'' primary lender to PG&E's existing residential loan program. They make same-day loan approvals, process loan documents, and establish an independent bill with the customer, all via fax, phone and mail. This fast and hassle-free design keeps the customer moving through the process and PG&E maintains the up-front customer contact. VIEWtech then packages the loans to Fannie Mae. The customer rates of between 8.5 and 13 percent cover the cost of funds, utility costs for administration, and the contract costs with VIEWtech (Altscher 1996).

Many ESCOs and vendors provide their own financing for the installation of projects or measures in which they are involved. The International Council for Local Environmental Initiatives (ICLEI) publishes the Energy Efficiency Financing Directory, available on the World Wide Web at http://www:iclei.org. Simply becoming a resource of financing information for the customer may be the role best suited to some utilities.

Utility Versus Outside Financing

Table 2 compares the pros and cons of the sources of financing—utility and outside financing—across several issues. ''Outside financing'' could be financing from a local bank or a third-party primary lender.

EXTERNAL FUNDING SOURCES

Now, more than ever, is the time to be looking under every rock for dollars and ideas that can keep the benefits of energy efficiency flowing. There are many sources outside the utility and its customers that can be tapped to help stretch or add to a utility's conservation budget and targets.

Performance Contracting

Performance contracting involves the use of energy service companies or other consultants or firms to provide comprehensive turn-key services and financing to end users for implementation of energy-efficiency measures. While this is a source of third-party financing funds, as previously mentioned, it is also a stand-alone external source of funds the utility can present to its customer. Having a single point of contact through a professional firm experienced in sales and implementation of efficient technologies can be valuable to the utility and its customers and may generate higher participation than a small local utility can generate on its own.

These firms or companies usually use an energy service charge or lease as the financing mechanism. Projects are selected based on performance risk (the confidence in the savings estimates, the operations and life of the measures proposed) and the customer security and credit strength (Nelson 1995). The payment to the ESCO or financier may be set up based on a percentage of savings, rather than on the cost of financing the measures. This allows a profit margin for the ESCO, and for the customer, over the financing rate and administration costs. A lease design, as with an ESC, may benefit the customer because it can be treated on the balance sheet as an operating expense rather than as a debt (Goldberger and Jessup 1995).

The energy savings margin needed in performance contracting can turn this approach into a cream-skimming of the highly profitable projects, while the local utilities end up with the less desirable projects to implement and finance. The performance contractor would also likely target the largest customers who may be the most crucial for the utility during this time of pending power supply competition. Still, a mutual arrangement could be negotiated with an ESCO for a select list of energy services that could provide a smaller utility with technical and financing expertise for major projects on an as-needed basis while working within the utility's conservation budget.

Grants

Government, industry, and environmental funds for specific projects or energy efficiency approaches can be obtained with diligent research and proposals. There are several Internet sites that have on-line bulletin boards for conservation-related subject searches and discussions. Searching the World Wide Web brings up lists of federal sites with information on available grants and help in preparing proposals. The U.S. Department of Energy, American Public Power Association, Alliance to Save Energy, U.S. Environmental Protection Agency, public housing authorities, and the Bullit Foundation are just a very few examples of agencies that

Table 2. *Pros and Cons of Financing Sources*

Issue	Utility Financing	Outside Financing
Participation	Higher due to one point of contact. Greater trust in the utility. May also increase due to the ability to offer better rates. Internal decisions on credit-worthiness may allow more customers to participate. Business relationship created with customer that can benefit the utility in the future.	Possibly lower follow-through if customer must sign papers separately from utility contact. Lack of confidence that customer is getting the best deal. May have a higher percent of turn downs. Possible higher security requirements may limit participants.
Simplicity for the customer	Can keep paperwork short—although many utilities require forms equivalent to those of banks. Simplified by single utility contact and consolidated billing.	Paperwork can be simple depending on amount of loan and lender. May have more legal requirements than a utility. Separate payment bill. Additional visit for paperwork.
Simplicity for the Utility	More complex. Accounting & administration costs, set up, hassle of billing and receipt, additional program paperwork, staff training.	Existing expertise, entity is already set up to bill and administer loans. May provide a report of loans to the utility. Easy to stop and start program. Can set flat charge for administration.
Terms	Can have 0 percent up to a standard rate. Great flexibility in establishing terms and security. Attractive terms can be used as the marketing tool.	Standard rates and terms based on loan amount, credit history, and security. Usually pre-set offerings at market rates. May be able to negotiate rate buy-down or terms if utility carries cost.
Funds	Need to establish initial funds and ongoing funds until repayment equals costs. May be constrained by large commercial or industrial project size.	Initial funds exist. No capital constraint for large projects or volume in excess of utility target. Can help watch the market to get the best rates.

continue to promote and fund the continued efficient use of electricity through grants.

The City of Portland's Energy Office is a good example of the power of strong grant writing skills. Although not a utility, the office actively applies for contracts and grants; those sources contributed between 30 and 50 percent of its $700,000 1996 budget for city energy and resource efficiency programs.

Leveraged Sources

Working together may seem the antithesis of a new competitive environment but it will be crucial for small public utilities. Combining efforts will reduce the labor and funds needed by each party, multiply the impact, and provide staff with ideas and experience from other providers. Some of the opportunities to leverage other resources and/or work in partnership are briefly described below. All of these options can be considered funding sources for the utility since they offset budget expenditures the utility may have made independently.

Market Transformation. Market transformation is a strategic effort by utilities, state agencies, vendors, and others to induce lasting structural or behavioral changes in the market that result in increases in the adoption and penetration of energy efficiency (Keating 1995). One Northwest example, the Light Saver Program, sponsored by Bonneville, PacifiCorp, Portland General Electric, Puget Power, and Washington Water Power, will have compact fluorescent lamps on the shelves at hundreds of major stores by mid-1996 for between $6 and $12 each, approximately 50 percent off the normal cost. Utilities can participate in the program by contributing to the market transformation project and/or by promoting the availability of the product, at a much lower cost to the utility than traditional rebate programs.

Education. Getting schools or community groups involved in energy-efficiency education encourages conservation and can have a lasting impact. One example, the Americorp Project, has put hundreds of students to work across the country performing free energy analyses of school buildings, including several dozen in the Northwest. The Alliance to Save Energy has confirmed significant energy savings potential exists when education results in behavioral changes in energy use.

Consortiums. OMECA is one example of a consortium or intergovernmental agency (IGA) formed to provide its utility members with lower overhead costs through centralized hiring of consultants, reporting, budget management, and planning, and a means to leverage its financial strength through opportunities for joint bond offerings and power purchases.

Trade Allies. Energy-efficiency equipment manufacturers, vendors, and contractors may have financing ideas, analysis tools, marketing plans, customer knowledge, and sales-motivated approaches to getting customer participation that they would readily share with a utility that is working to maintain programs which increase their sales.

Resource Conservation Manager (RCM). An RCM goes beyond just electrical energy efficiency and looks for way to save the customer costs in all areas of resource use (solid waste, water, and fuels). The utility works with the customer to identify the benefits of having an in-house staff person who saves the customer overhead costs. The RCM's salary is guaranteed to be offset by the savings made through changes in operations and reductions in resource use. Energy accounting software is provided to represent the baseline and change under the RCM.

The City of Ashland is a leader in this design having RCM positions with the school district, chamber of commerce, the college, and within the city. The utility benefits by very low cost energy savings, aiding in environmental mitigation through offsetting other resource use, improving the customer's bottom line, and having the inside track with its large customers.

Systems Benefits Charge

A systems benefits charge (or distribution or wires charge) is a non-bypassable fee that is levied on end-use consumers of electricity as a way to finance socially beneficial investments in energy efficiency (Lenssen 1996). The idea of a distribution or system benefits charge is gaining momentum in several areas of the country led by California's recommendation under its deregulated utility design. In the Northwest a group of utilities, regulators, state agencies, and environmental groups is working on the issues regarding conservation in a competitive environment and has identified a systems benefits charge as a possible mechanism to ensure that some funds continue to flow to energy efficiency. Utilities need to be aware of political and regulatory efforts that may be part of future conservation funding and align themselves to access any reallocated funds.

RATE IMPACTS

Many of the sources of funding discussed in this report have a very minimal impact on rates. Financing and external sources will have some administration and staffing requirements. Since energy savings continue to accrue through these mechanisms, the utility will offset purchases at such a low levelized cost that it should be competitive as a resource even with today's low cost of power. The internal funding presented will have some rate effect depending on program design. The price impacts of a conservation program are affected by the program cost itself, the utility's cost and pricing structures, and external economic and regulatory factors.

Nationally DSM programs have had a modest median rate impact of 1.7 percent (Pye & Nadel 1994). OMECA ran a Rate Impact Model (RIM) designed by Bonneville and the Northwest Power Planning Council which includes lost revenues and utility costing. The model varied between a 1 and 4 percent rate impact, depending on data input. The 4 percent impact assumed traditional incentive-based programs for all sectors at 100 percent of costs expensed, an average cost per aMW of conservation of $2.6 million, and utility power costs at 60 percent of operating revenues. A less-than-2 percent impact occurs through combinations of such factors as using capitalized funds like bonds, lowering the cost of conservation down to below $2 million per aMW, and increasing the percent of utility revenue spent on power purchases. This is further reduced when environmental externalities are credited under a total resource cost test. If a financing model is run, the impact goes below one percent.

Effect on Rates. As wholesale power costs decrease, there is a corresponding increase in the rate impact of conservation expenditures. This is due to the lower savings associated with the avoided cost of power. While this is important to recognize, the effect is small compared to other variables that influence rates. Based on the RIM model referenced, for every 3 mill decrease in power costs, the increase in rate impact is less than 0.5 percent (based on 100 percent of program costs expensed, $2.6 million per aMW of conservation and 60 percent of utility revenues for power purchases).

Many factors can lessen this impact while giving utilities the opportunity to lower costs and leverage some savings to maintain services to their customers. If a utility maintains

energy-efficiency budgets at a level less than the wholesale power savings, then there is no visible rate increase to the customer for these services.

Defining rate impacts in the new model of energy and customer service activities will become increasingly difficult. While saving energy to offset expensive new generation may no longer be the motivation in today's market, customer involvement and promoting the efficient use of electricity continue to have value. Many future program designs may focus on maintaining and enhancing the efficient use of electricity while offsetting other competitive fuels. Managers will need to present the positive fiscal and environmental impacts based on these designs to show a more complete picture to the Board or Council.

CONCLUSIONS

Conservation budgets need not be the target of a competitive utility's ax. While minimizing rate impacts is of valid concern, conservation costs are not a burden in the current competitive environment. On the contrary, energy-efficiency programs provide great customer contact and services, as well as economic and environmental benefits to the utility and to the customer. These less tangible benefits are likely to help the utility maintain existing customers and solicit new customers in the future market. An article in *Public Utilities Fortnightly* says:

> Ultimately, competitors in independent power production, co-generation, and rival fuels may begin to assail DSM as giving electric utilities an unfair advantage. . . . Utilities that practice DSM aggressively will seek new ways to exploit their familiarity with end-use technologies, equipment markets, and decisionmaking processes to deepen their relationships with customers. The competition will find these closer customer ties difficult to break. (Stone 1993, 26)

Presenting both the benefits and the costs of energy-efficiency services to utility management and boards will help the utility determine its best course of action. Designing programs to meet the customer and competition needs while having the least rate impact will further facilitate management decisions on appropriate budget allocation to conservation activities.

OMECA's traditional conservation budgets were rated based and distributed about half to residential incentives and 20 percent to commercial incentives, while the balance was divided between industrial incentives and utility administration. In the future, conservation's funding and costs will need to be more creatively assembled and allocated. Examples of new approaches to costs and funding sources are presented in Figures 1 and 2 below.

The future of conservation is not yet headed over a cliff. Creative, customer-focused, and market-driven people will recognize the magnitude of benefits available through energy efficiency and meld cost-effective approaches and funding. Public utilities will need to heed the road signs to stay on course for the long term and not be diverted by short cuts that sacrifice mileage gained with their customers and their technical strengths. As the leaders in customer service they already have the driver's seat in this race.

Figure 1. *New Energy Services Budget—Costs Example*

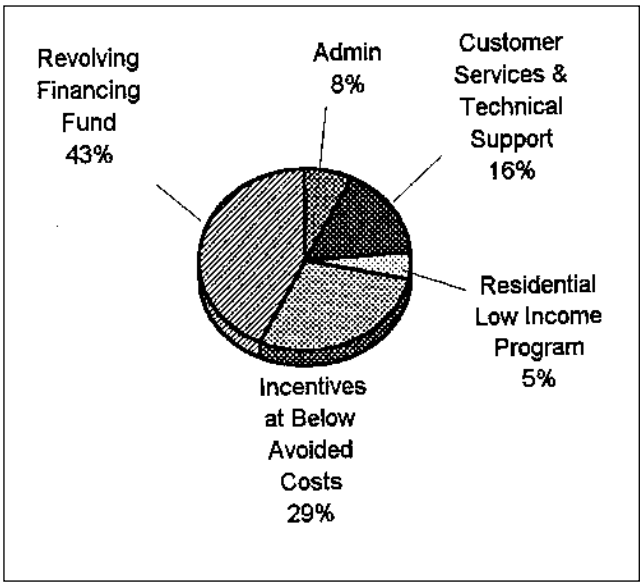
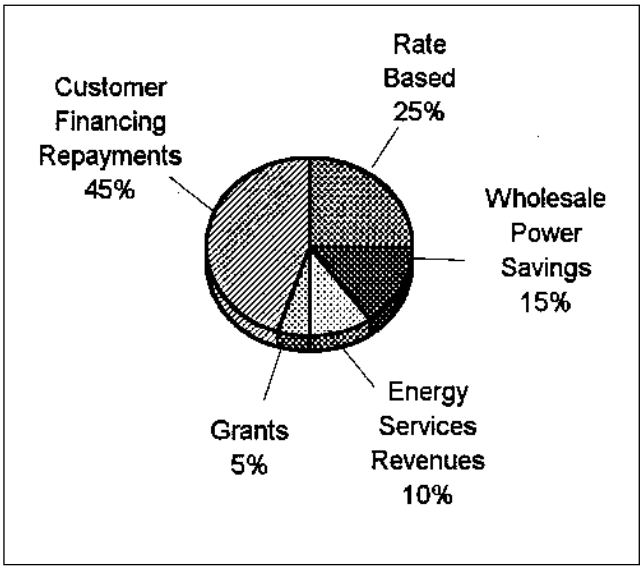


Figure 2. *New Energy Services Budget—Source of Funds Example*



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