Alliance Activities Report

For 1997,1998 and 1999
report #01-074

NORTHWEST ENERGY EFFICIENCY ALLIANCE

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Executive Summary

Over three years ago, the Pacific Northwest embraced the idea of consolidating resources and working together to bring affordable, energy-efficient products and services to Northwest markets. The result was the inception of the Northwest Energy Efficiency Alliance, a non-profit group of electric utilities, state governments, public interest groups and energy efficiency industry representatives. The goal of the Alliance is to lower the price of energy-efficient products and services and make them available in the places where consumers normally shop.

The region's six investor-owned utilities and the Bonneville Power Administration, on behalf of its public utility customers, initially funded the Alliance for $65 million for three years--1997, 1998 and 1999. The Alliance has invested these funds in 32 projects across the residential, commercial, agricultural and industrial sectors. Early in 2000, the Alliance funders renewed their commitment to the organization with another $100 million available for five years, from 2000 to 2004.

This *Alliance Activities Report* is the first of its kind and represents three years of Alliance work from its inception in 1997 through 1999.

Delivering Electricity Savings

In all, the Alliance expects its projects to save over 400 aMW in the region by 2010--enough to offset the need to build two power plants--at an average cost of less than a penny per kWh. This is less costly than generating electricity from a combustion turbine or purchasing electricity on today's open market. While all Alliance projects contribute in some way to improving the efficiency of electricity use in the region, some of the gains are difficult to measure. As a result, we have limited the number of projects we track for actual energy savings to those that are most accurately quantified in terms of kilowatt-hour savings. For the 14 Alliance projects where savings are quantified, this report includes charts that show the projected and actual energy savings for the reporting period.

The Alliance's ENERGY STAR Clothes Washer project, which promotes resource-efficient washing machines, is an example of a project where we can track direct electricity savings. We know that each resource-efficient washing machine sold will save 440-kilowatt hours per year or use approximately 60 percent of the electricity used by a conventional model. Because we track how many machines are sold, we can accurately estimate the energy savings accrued.

The Alliance supports other projects that spur the use of energy-efficient products and services but their savings are difficult to accurately quantify. For example, the Energy Ideas Clearinghouse offers information on energy-efficient technologies and applications that we know is used for various purposes. However, because the amount of savings varies significantly from case to case, it is difficult to accurately estimate the total savings resulting from the information provided and consequently no kilowatt-hour savings have been attributed to this project.

Figure 1 shows projected and actual electricity savings for the 14 projects tracked by the Alliance. These projects saved 19.9 aMW from 1997 through 1999 compared to Alliance projections of 19.4 aMW. While over the three-year period the Alliance slightly exceeded its projections, actual savings in 1999 were slightly lower than anticipated. This drop was primarily because some commercial/industrial projects had difficulty finding pilot sites.

Figure 1

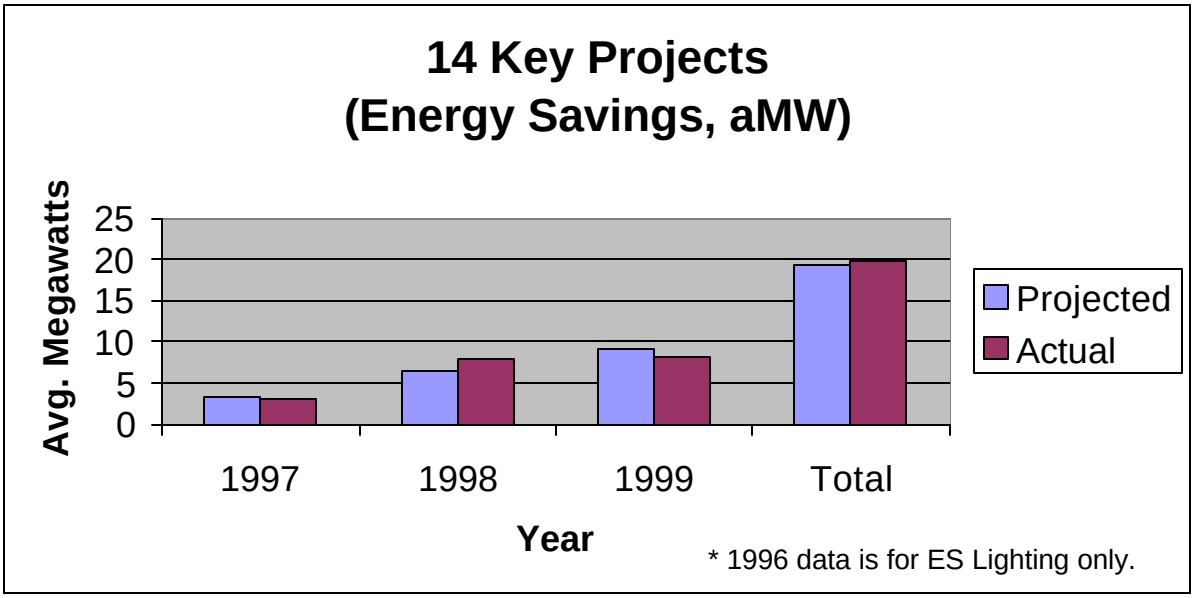


Figure 2

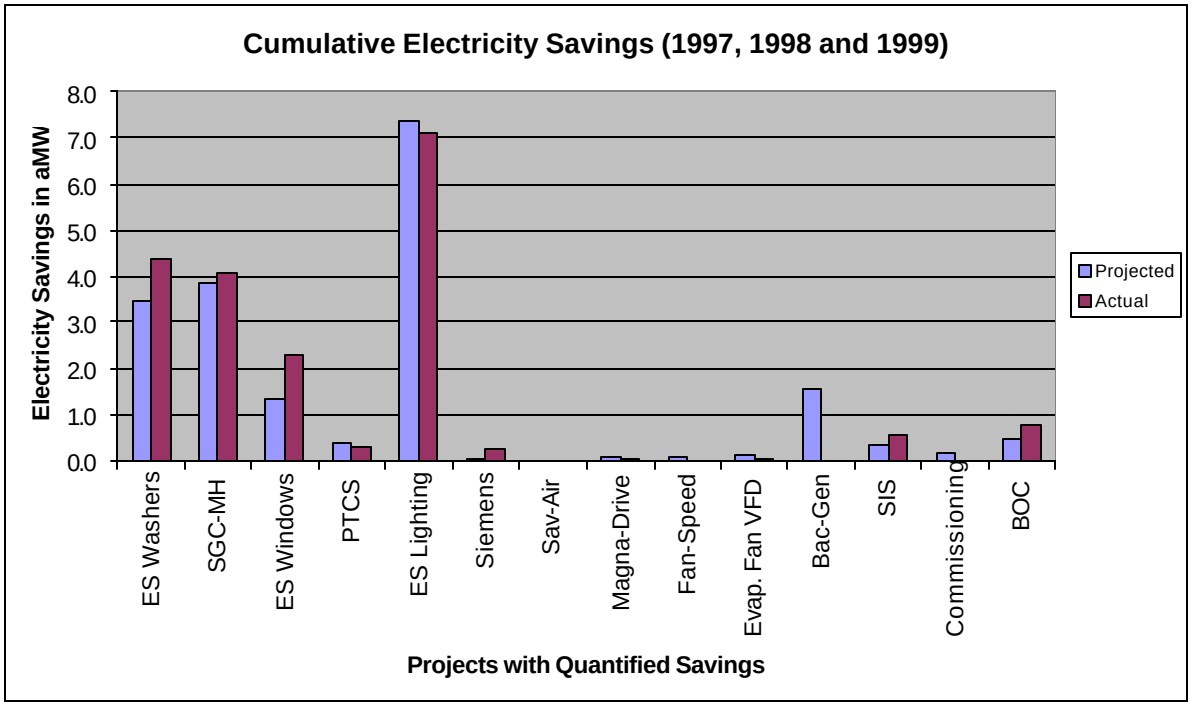


Figure 2 shows the three-year cumulative projected and actual savings for each of the 14 tracked projects. Four projects -- the ENERGY STAR Residential Lighting Program, ENERGY STAR Resource-Efficient Clothes Washers, Super Good Cents Manufactured Housing, and ENERGY STAR High-Efficiency Residential Windows -- produced most of the savings achieved over this period. These projects, which all started early in the Alliance's history, performed well compared to our projections. Projected and actual energy savings for each project are compared by year and appear in this report under individual project summaries.

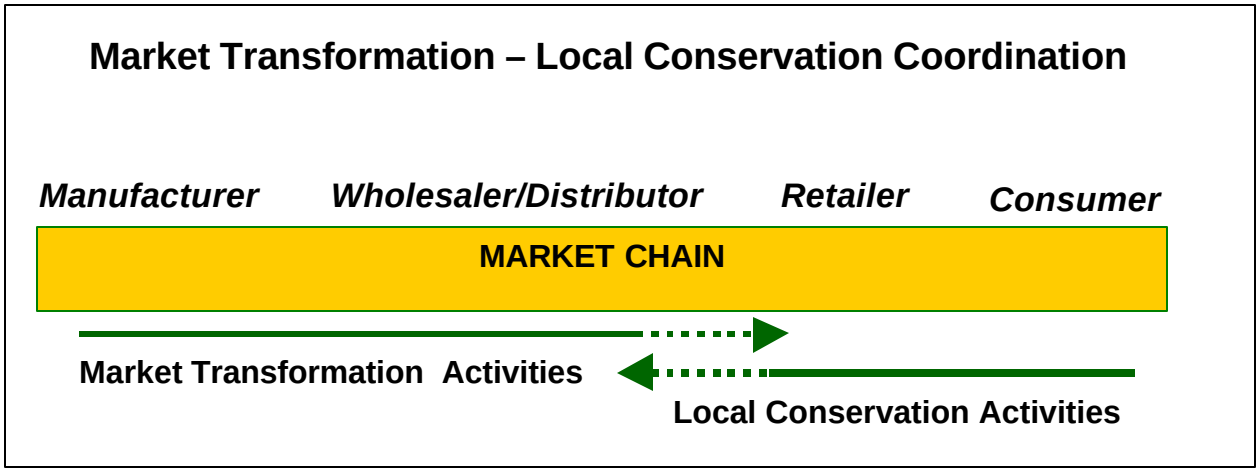
Achieving Energy Savings and Measuring Market Transformation

The Pacific Northwest has accomplished a significant amount of electricity savings over the last two decades. However, with the establishment of a regional alliance, a relatively new approach for securing electricity savings was created. By working together across utility and state boundaries, the region can speak with one voice sending a stronger message to the manufacturers and distributors of efficient products than if each utility worked on its own. The regionwide message is that Northwest consumers want the efficient versions of products available in stores where they normally shop at a price they can afford.

This approach, embodied in activities undertaken by the Alliance, works within the normal market dynamic so the supply and demand for energy-efficienct products will continue after Alliance activities end. The Alliance's approach to achieving electricity savings is called "market transformation".

Market transformation is complementary to more traditional approaches of conservation acquisition – such as local utility programs. Local approaches typically focus on individual customers. Market transformation efforts work up the market chain with manufacturers or wholesalers and distributors, as illustrated in Figure 3. When local efforts and market transformation work together, more players in the market chain understand the importance of efficiency and the region is likely to achieve greater energy savings.

Figure 3



In addition, local approaches typically focus on near-term savings with annual goals. The goal of market transformation is to influence the normal market dynamic so efficient products are available in the marketplace and consumers choose these products on their own. While market transformation achieves near-term annual savings as it works toward it's goal, it takes longer than a two- or three-year time frame to sustain products in the marketplace. Working together, local and market transformation efforts result in both the highest near-term and the largest long-term savings for the region.

For instance, the Alliance's ENERGY STAR Residential Lighting program, in an effort to promote compact fluorescent torchiere lamps, planned an event that local utilities could use to encourage their customers to turn in their halogen torchieres in exchange for a more energy-efficient fluorescent model.

For the Alliance's part, we worked to ensure that qualifying products were available in stores and that consumers could buy them at a price comparable to the less efficient halogen lamps. The Alliance also developed a turnkey kit including information that utilities could use to initiate a turn-in event locally and raise consumer awareness about the benefits of the lamps.

By the end of 1999 over 9,500 halogen lamps had been traded in at a dozen turn-in events across the region for a total energy savings of 0.27 aMW. Local utilities or the Alliance alone would not have been able to achieve this kind of energy savings. The utilities might have found it difficult to secure sufficient qualifying products at an affordable price. The Alliance did not have sufficient resources or the consumer connections necessary to successfully hold turn-in events across the region. By cooperating, the utilities were able to secure short-term energy savings and the Alliance strengthened the long-term commitment of market players, such as the torchiere manufacturers and retailers, to continue to make and offer these products.

Over the long term, electricity savings from market transformation projects are expected to be larger and longer lasting than traditional local acquisition efforts because, if successful, the market will continue to offer targeted products and services even after the Alliance's project implementation has ended. This should also result in reduced utility-sponsored costs for the electricity savings over the long run.

For example, the Alliance's cornerstone project promoting resource-efficient clothes washers was successful in selling almost 90,000 washers in the region through 1999. There are five domestic manufacturers of washing machines and since the program began, the number of manufacturers with qualifying washers has increased from one to four. The price of efficient washers is coming down. Appliance dealers now use the energy- and water-saving features of the machines as a selling point and the machines are widely available in popular retail stores. Utility and Alliance rebates to consumers who purchase these machines have spurred consumer interest that has continued even after Alliance rebates ended. These factors contributed to the market share for resource-efficient washers increasing from two percent to 13 percent over three years. They will also help ensure higher efficiency levels are maintained by the market after the Alliance's program and our partners' efforts have ended.

In addition, by the end of 1999, the federal government was on the verge of adopting an improved appliance efficiency standard for washers that requires they be as efficient as those in the Alliance project by 2007. Information collected in the Alliance's program was used in the federal standards setting process to develop this standard. The federal standards will ensure higher efficiency levels for all washers sold in the market.

The Importance of Partnerships

In addition to the amount of energy saved, market transformation activities rely on other indicators to determine success. Reaching milestones such as increasing the number of models that meet targeted efficiency levels or getting buy-in from an opinion leader in a particular industry are valuable indicators that energy-efficient products are starting to gain market acceptance and achieve sustainability.

Often these milestones are reached as the result of multi-tiered efforts by many organizations and companies in pursuit of a common goal. Contributions from manufacturers, retailers, electric utilities, the Alliance, market transformation organizations from other regions, government agencies and others are usually necessary to move a product into a permanent position in the marketplace. With the involvement of all these entities, it is often difficult to assign credit for the increased market share of energy-efficient products to one organization. Instead, every effort fits together like a puzzle to successfully complete the picture. The Alliance reports here the regional savings from its projects, but many other players also helped to achieve these results.

Alliance Activities Report

The balance of this report contains information on each of the projects funded by the Alliance including the result of our cost-effectiveness analysis (for the 14 tracked projects), and identification and progress toward interim milestones.

Projects with Quantified Savings

Residential

ENERGY STAR High-Efficiency Residential Windows

ENERGY STAR Residential Lighting Program (Compact Fluorescent Fixtures and Bulbs)

ENERGY STAR Resource-Efficient Clothes Washers

Performance-Tested Comfort Systems (PTCS)

Super Good Cents Manufactured Housing

ENERGY STAR High-Efficiency Residential Windows

PROJECT STRATEGY: The market transformation strategy is to build product image and brand awareness to increase the share of high efficiency windows so they will become the market norm in all four Northwest states. The market share target is to achieve at least 54 percent of all window sales by 2002.

The program works to boost consumer demand and market share for residential windows and other fenestration products that exceed state energy code requirements, specifically with U-values of 0.35 or lower. Activities include promotional initiatives, marketing incentives for manufacturers, sales training and materials for retailers, and technical assistance for volume builders.

PROJECT START: February 1998.

FUNDING SUMMARY*
Through December 31, 1999, the board allocated $1,850,000 for the project and $148,000 for evaluation.

Allocated Alliance Dollars through 12/31/99	Actual aMW through 12/31/99	Projected aMW through 2010	Estimated Cost Effectiveness Index: Total Resource Perspective	Estimated Levelized Cost: Total Resource Perspective (cents/kWh)
$1,998,000	2.30	12.3	1.7	1.40

** The explanation of terms used in this table can be found at the end of the report.*

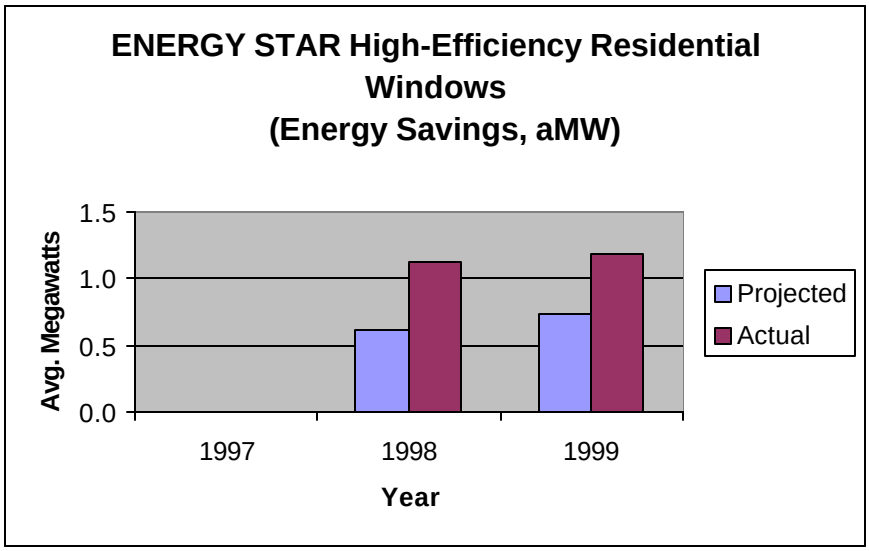
KEY HIGHLIGHTS FOR 1999

- Nine major manufacturers signed Memoranda of Understanding (MOUs) for cooperative marketing and begin receiving manufacturing incentives in 1999.
- Manufacturers contributed $850,000 in marketing support.
- Market share increased from 44 percent in January 1999 to 50 percent by the end of that year.
- Home Depot decided to carry and promote ENERGY STAR windows in Northwest stores.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Increase the market share for high efficiency windows (U=0.35 or less) in electrically heated homes to at least 54% by 2002 and sustain it over the long term.	As of December 1999, market share exceeded 50%.
♦ Gain the cooperation of a majority of the region's window manufacturers in marketing and cost sharing.	Nine of 12 major manufacturers have signed MOUs and cost-shared $850,000.
♦ Increase awareness of ENERGY STAR fenestration products and benefits.	Home Depot has decided to carry ENERGY STAR windows in all locations regionwide.

PROJECTED AND ACTUAL ENERGY SAVINGS (aMW)

This project had more support from manufacturers and the product was less expense to produce than orginally anticipated.



COMMENTARY

Manufacturers representing a significant share of the region's window production have found the project helpful to them and with marketing incentives have actively promoted the qualifying product through normal market channels.

The success of this project can be attributed to several factors:

1. Development and adoption of new, less expensive ways to manufacture windows that meet the efficiency levels.
2. The incremental increase in efficiency from standard practice or code was relatively small in most states.
3. The industry is highly competitive and no manufacturer wanted to miss out on something others were using to gain a marketing advantage.
4. Participation of major national retailers in the national ENERGY STAR Program.

ENERGY STAR Residential Lighting Program (Compact Fluorescent Fixtures and Bulbs)

PROJECT STRATEGY: The market transformation strategy is to create a viable market for energy efficient fluorescent lighting in residences by accelerating product availability and customer acceptance and use throughout the Northwest. The project includes support for retail-based consumer awareness/education, initiatives to promote new product innovation, local utility marketing, and product quality verification.

The goal is to promote residential lighting based on ENERGY STAR technical lighting specifications, including compact fluorescent lamps (CFLs), indoor and outdoor fixtures and portable floor lamps (torchieres) to encourage product variety and availability, and communicate the benefits of the products to retail residential consumers.

PROJECT START: Bulbs – January 1997, Fixtures – October 1997.

FUNDING SUMMARY*

Through December 31, 1999, the Board allocated $6,373,000 for the project and $310,000 for evaluation. In 2000, the Board allocated an additional $1,010,000 for the project and $20,000 for evaluation.

Allocated Alliance Dollars through 12/31/99	Actual aMW through 12/31/99[1]	Projected aMW through 2010	Estimated Cost Effectiveness Index: Total Resource Perspective	Estimated Levelized Cost: Total Resource Perspective (cents/kWh)
$6,683,000	7.08	34.2	1.2	1.77

** The explanation of terms used in this table can be found at the end of the report.*

KEY HIGHLIGHTS FOR 1999

- Manufacturers shipped a record number of 255,000 CFLs and 70,000 fixtures to Northwest retailers.
- More than 45,000 CF torchieres sold, 64 percent of the total program sales of fixture, through the Torchiere Turn-in program.
- As the result of program changes to bring the product to the eastside of the Cascade Mountains, 5,700 CFLs were shipped to Idaho and 22,000 CFLs were shipped to Montana where there had not previously been a supply of reasonably priced CF products.

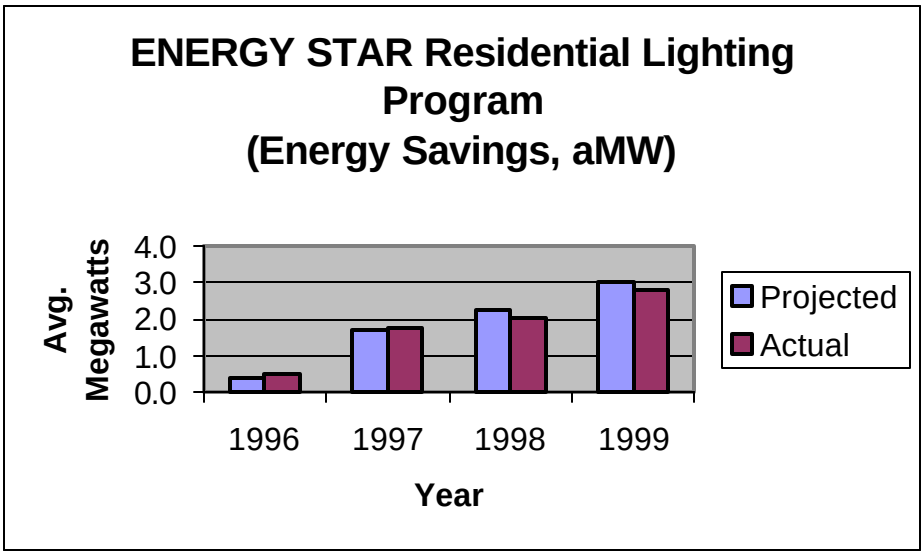
Project Progress Indicator through 1999	Project Activity through 1999
♦ Increase the number of manufacturers producing ENERGY STAR products.	Fixture manufacturers increased from six to nine. CFL manufacturers increased from three to six. ENERGY STAR products: qualified fixture products increased from 80 to 161, qualified CFL products increased from 13 to 60.

[1] This project started in late 1996 and the savings include 1996.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Increase consumer awareness of ENERGY STAR products.	No changes in consumer awareness, satisfaction or likelihood to buy between April 1998 and April 1999 surveys (500 consumers).
♦ The price of ENERGY STAR products drops below pre-program levels.	Average price for CFLs has dropped from $21 to $10 since the start of the program.
♦ Increase the market penetration of ENERGY STAR units.	Market share increased 2.5% or nearly 4 million CFLs in the Northwest.
♦ Increase the number of retail stores that regularly stock ENERGY STAR products and retailers show a preference for ENERGY STAR products.	An additional 40 small market retailers east of the Cascade Mountains now carry ENERGY STAR products. 150 other retailers continued their participation.

PROJECTED AND ACTUAL ENERGY SAVINGS (aMW)

The residential lighting project is the Alliance's largest contributor to near-term energy savings. Overall, actual savings tracked projected savings well in the near term. Fixtures account for the small shortfalls in 1998 and 1999. During 1998, the first year of the fixture offering, product was not widely available in stores. Torchiere fixtures raised the availability of product and were popular in 1999. On the other hand, savings from compact fluorescent bulbs have continued to increase steadily over the three years of the program.



COMMENTARY

While the program continued with incentives to manufacturers through 1999, it made some significant adjustments during that year that contributed to the overall increase in availability of qualified products. The program saw a two-fold increase in the number of manufacturers participating in offering CFLs due in part to ENERGY STAR adding CFLs to their product lists. More manufacturers qualified because the ENERGY STAR specifciation did not require high-power factor.

Another new component of the program, the Torchiere Turn-in, generated an enthusiastic response from both retailers and consumers and increased the acceptance of CF torchieres. With the participation of utilities and retailers, more than a dozen media events contributed to the highest sales of CF torchieres around the country.

The program moved deeper into the retail sector by deploying a small retail market strategy focused on the eastside of the Cascade Mountains. With four field staff, the program launched a promotion to entice smaller retailers to accept a starter shipment of product and assistance in promoting the product.

ENERGY STAR Resource-Efficient Clothes Washers

PROJECT STRATEGY: The market transformation strategy is to increase market share in the Northwest of ENERGY STAR clothes washers either through the improvement of national energy efficiency standards to levels as high as the program or through the creation of a sustainable market through education, promotion and marketing. The project promotes the benefits of ENERGY STAR clothes washers including substantial energy, water and detergent savings to increase the market share of qualifying machines in all four Northwest states.

PROJECT START: March 1997.

FUNDING SUMMARY*

Through December 31, 1999, the Board allocated $9,034,000 for the project and $135,000 for evaluation. In 2000, the Board allocated an additional $1,630,000 for the project and $45,000 for evaluation.

Allocated Alliance Dollars through 12/31/99	Actual aMW through 12/31/99	Projected aMW through 2010	Estimated Cost Effectiveness Index: Total Resource Perspective	Estimated Levelized Cost: Total Resource Perspective (cents/kWh)
$9,169,000	4.37	98.7	2.6	-2.09**

** The explanation of terms used in this table can be found at the end of the report.*

*** Negative levelized costs indicate that non-electricity savings benefits such as transmission and distribution system benefits, water savings, and natural gas savings are larger than the incremental cost of the energy saving option.*

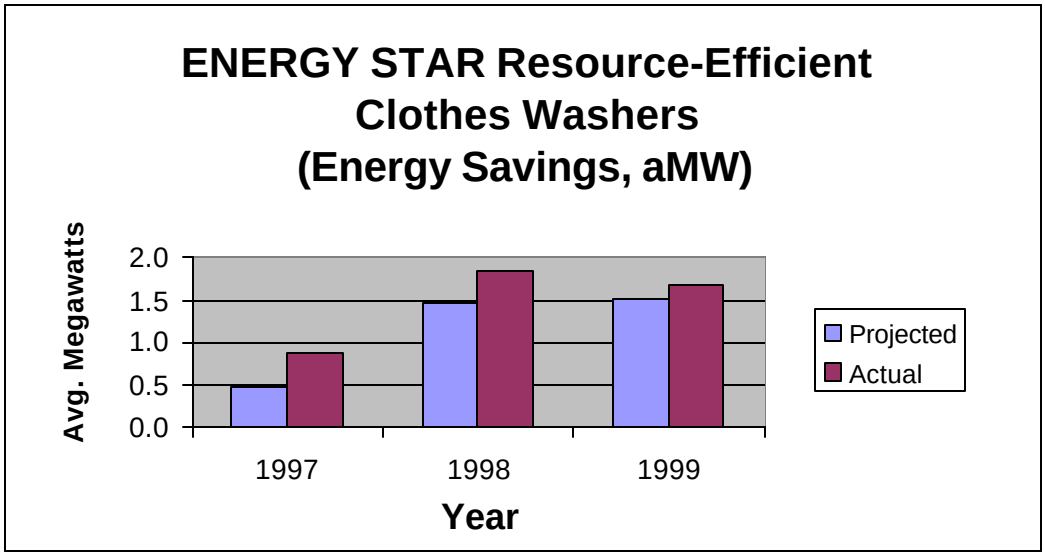
KEY HIGHLIGHTS FOR 1999

- Sold 34,275 units in 1999; held market share at 12.9 percent from 1998 even without rebates on the product. This compares to a 2 percent marketshare from when the program began.
- Five new ENERGY STAR-qualified washers were introduced into the market bringing the total models available to 30.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Adoption of a national appliance efficiency standard for clothes washers or sustaining a 15% market share for energy-efficient washers in the Northwest.	The NW program has influenced the federal standards process by pushing the DOE adoption timeline and by contributing sales and consumer acceptance data to the process.
♦ Increase the number of qualifying machines.	The total number of qualified models has increased from three (all international) at the beginning of the program to 30 by the end of 1999.
♦ Increase consumer awareness and acceptance.	Over half of consumers in the NW are aware of resource-efficient clothes washers. Almost 90,000 units have been sold since 1997 (the first 45,000 were with rebates).

PROJECTED AND ACTUAL ENERGY SAVINGS (aMW)

This is one of the Alliance's most successful near-term projects with market share exceeding expectations. Even after consumer rebates were lowered and then ended in 1998, sales remained strong in 1999. Savings have been consistently higher than anticipated.



COMMENTARY

Despite multiple program modifications -- discontinuing instant consumer rebates and changing the name of the program from Washwise to ENERGY STAR -- sales and dealer participation remain strong in the Northwest. The Northwest remains a leader in the sales of ENERGY STAR clothes washers with nearly twice the market share of the national average. Maytag and Frigidaire sell 97 percent of their ENERGY STAR-qualified clothes washers in the Northwest.

The transition to a new name, look and marketing messages went smoothly. The program is well positioned to leverage national resources and brand awareness efforts to help promote the product.

As a result of the program changes and the elimination of rebates, it is more difficult to obtain sales data and information uncertainties are expected to continue.

The average price of ENERGY STAR clothes washers has declined somewhat, but the incremental cost to consumers remains high.

The Northwest program was successful in launching consumer marketing efforts in the fall of 1999. These marketing strategies included development and sponsorship of the Grimiest Soccer Team promotion and support for short-term promotions that spurred consumer purchases based on a combination of discounts and rebates. Both activities involved the participation of local utilities to help market the promotions as well as leverage individual utility rebates on the sale of ENERGY STAR-qualified clothes washers.

Performance-Tested Comfort Systems (PTCS)

PROJECT STRATEGY: The market transformation strategy is to inform homeowners and contractors about the benefits of a properly functioning residential heating, ventilating and air conditioning (HVAC) systems (which can result in a 30 percent increase in energy efficiency), and increase the demand and satisfaction among residential customers for properly functioning HVAC systems.

The goal is to establish testing, retrofitting and certification of HVAC systems as a viable on-going business for Northwest contractors and create a sustained demand for efficient HVAC systems in new and existing homes in Idaho, Montana, Oregon and Washington.

Additionally, create a self-supporting organization to provide training, certification and marketing to assist contractors and utilities to certify that home HVAC upgrades comply with specifications is planned. The project has developed protocols, specifications and procedures for testing and retrofitting poorly functioning HVAC systems.

PROJECT START: September 1997.

FUNDING SUMMARY*
Through December 31, 1999, the Board allocated $1,042,000 for the project and $240,000 for evaluation. In 2000, the Board allocated an additional $600,000 for the project and $100,000 for evaluation.

Allocated Alliance Dollars through 12/31/99	Actual aMW through 12/31/99	Projected aMW through 2010	Estimated Cost Effectiveness Index: Total Resource Perspective	Estimated Levelized Cost: Total Resource Perspective (cents/kWh)
$1,282,000	0.30	14.3	1.0	2.38

** The explanation of terms used in this table can be found at the end of the report.*

KEY HIGHLIGHTS FOR 1999

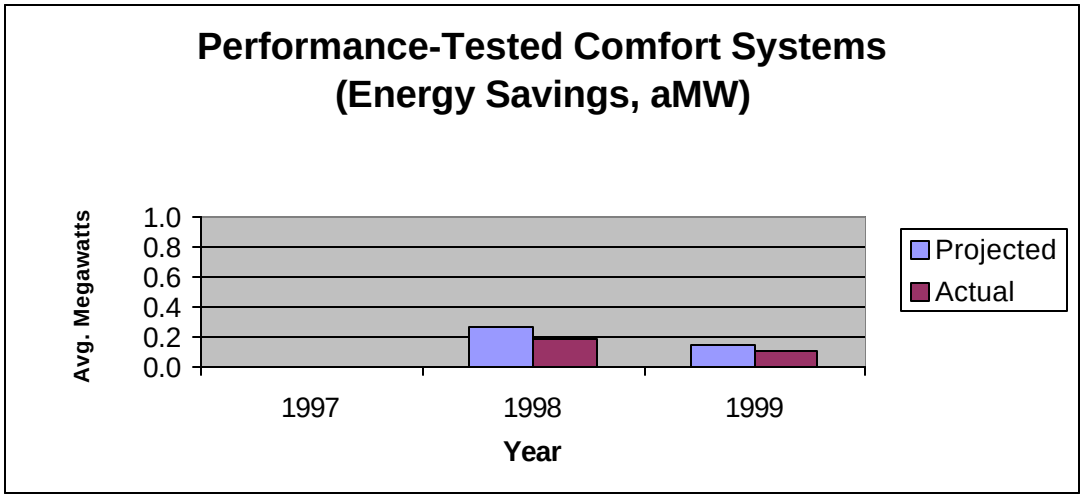
- Expanded the program to cover HVAC and weatherization services in addition to duct systems.
- Forty contractors and 10 utilities received Performance-Tested Comfort Systems (PTCS) marketing training.
- Eighteen contractors were licensed to use PTCS logo and materials.
- Over 2,000 Northwest homes had their ducts tested and certified.
- PTCS incorporated as an independent non-profit organization.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Conduct pilot market tests.	First test: 12 utilities participated. Second test: an additional 11 utilities participated, and a self-supporting certification program began.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Develop a process for home selection, testing, remediation and contractor certification.	Research completed on the cost and benefits of duct sealing in three climate zones and a contractor marketing tool kit was developed.
♦ Train contractors.	Trained and certified over 120 contractors.
♦ Develop a business plan to establish a regional, self-supporting contractor training and certification program.	Completed a business plan.

PROJECTED AND ACTUAL ENERGY SAVINGS (aMW)

Savings for this project were approximately 0.3 aMW during the reporting period. Projected savings were reviewed in late 1998 and were lowered for 1999 to account for a longer development phase in transitioning the project from pilot testing in 1998 to the development of a longer-term project in 1999. This development during 1999 shifts projected savings to 2000 and beyond as a full program ramps up.



COMMENTARY

Based on the results of the original project, a stand-alone duct efficiency improvement service, was found to be an unachievable business venture. It was not cost-effective to screen homes to find ones qualifying just for improvements to the duct system. As a result, the project's business model was redesigned to expand the scope of the services to include all HVAC system improvements and weatherization. The program now offers a range of certified energy efficiency services. The core concept for marketing the program remains performance testing and certification.

The program has expanded its target market to include all existing single family and manufactured homes.

Super Good Cents Manufactured Housing

PROJECT STRATEGY: The market transformation strategy is to bolster market share to the point where fees from the sales of Super Good Cents (SGC) manufactured homes can support the establishment of an ongoing, regional certification and marketing consortium and maintain the infrastructure for manufactured homes built to Super Good Cents (SGC) energy efficiency standards.

The project provides marketing assistance that includes advertising, training, promotion and education. In-plant technical assistance and quality assurance are also provided. SGC homes are typically 20-30 percent more efficient than non-SGC homes.

PROJECT START: July 1997.

FUNDING SUMMARY*

Through December 31, 1999, the Board allocated $1,437,000 for the project and $150,000 for evaluation. In 2000, the Board allocated an additional $1,200,000 for the project and $100,000 for evaluation.

Allocated Alliance Dollars through 12/31/99	Actual aMW through 12/31/99	Projected aMW through 2010	Estimated Cost Effectiveness Index: Total Resource Perspective	Estimated Levelized Cost: Total Resource Perspective (cents/kWh)
$1,587,000	4.07	20.4	1.3	1.91

** The explanation of terms used in this table can be found at the end of the report.*

KEY HIGHLIGHTS FOR 1999

- Over 4,000 SGC homes were produced resulting in over 1 aMW of energy savings.
- A business plan was developed to promote the on going delivery of SGC manufactured homes and to maintain the cooperation of manufacturers.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Stop the loss of market share and gain 25% of sales above baseline.	Market share of SGC manufactured houses declined from 50% in 1997 to 39% in 1999 along with an overall decline of the industry.
♦ By promoting the higher efficiency standard of SGC homes “pull" non-SGC homes to a higher standard.	Overall efficiency levels of non-SGC homes is increasing.
♦ Develop a regional industry-supported business plan for a fully market-supported SGC Manufactured Housing certification and quality assurance program by the end of 2000.	A business plan and organizational structure has been developed. Manufacturers have agreed to increase fees from $50 to $100 per home to support the quality assurance program.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Improve energy performance through quality site preparation and installation of SGC manufactured homes.	Quality installation guidelines have been developed. State and utility-specific training has improved installation.

PROJECTED AND ACTUAL ENERGY SAVINGS (aMW)

In 1997, actual energy savings are less than projected because projections were based on an entire year of energy savings, but actual tracking of savings didn't begin until the project contract was signed in July. In 1998, actual energy savings are greater than expected because it reflects a full year of concerted effort. In 1999, actual energy savings are slightly better than projected despite the fact that projections were adjusted to account for a sharp decline in the overall market.

COMMENTARY

A necessary condition for developing a successful market-supported SGC program is regional coordination for consistent technical specification, certification and marketing messages. This requires increased levels of financial support from the industry and fees which must be aggregated regionally and dispersed in a coordinated manner. Industry participation in the governance and marketing are also critical conditions for the eventual transition to full industry support.

The goal of achieving an industry-supported SGC certification and quality assurance program has been partially accomplished through an increase in the fees paid by manufacturers. Future project activities will concentrate on increasing the market share of SGC homes through project and industry marketing and the development of an industry-managed organization to continue the certification and marketing activities.

The industry has been in a significant state of flux. A trend toward vertical integration of manufacturers and distributors has resulted in an overbuilt market, inflated retail inventories, increased competition and a high repossession rate. Analysis by the SGC team has demonstrated to participating manufacturers that SGC has contributed significantly to their revenue stream and that providing higher-quality and more comfortable SGC manufactured homes improves their competitive position against site-built homes creating an opportunity to expand the overall manufactured housing market. SGC also offers a way to provide a credible and certified distinction over other homes which helps manufacturers differentiate their product from others.

Projects with Documented Savings

Commercial

BacGen BioWise Initiative

Building Operator Certification (BOC)

Commissioning Public Buildings in the Pacific Northwest

BacGen BioWise Initiative

PROJECT STRATEGY: The project develops and demonstrates process controls and micronutrient-assisted digestion technology to improve a wastewater treatment facility's ability to process effluent. The market transformation strategy is that appropriate market segments accept the BacGen technology as a viable, conventional alternative to full mechanical aeration. The 10-year goal is that BacGen, or a similar biological enhancement technology for wastewater treatment, becomes a cost-effective conventional practice in appropriate market segments.

PROJECT START: January 1999.

FUNDING SUMMARY*
Through December 31, 1999, the Board allocated $1,979,000 for the project and $150,000 for evaluation.

Allocated Alliance Dollars through 12/31/99	Actual aMW through 12/31/99	Projected aMW through 2010	Estimated Cost Effectiveness Index: Total Resource Perspective	Estimated Levelized Cost: Total Resource Perspective (cents/kWh)
$2,129,000	0	25.2	4.5	-7.01**

** The explanation of terms used in this table can be found at the end of the report.*

*** Negative levelized costs indicate that non-electricity savings benefits such as transmission and distribution system benefits, water savings, and natural gas savings are larger than the incremental cost of the energy saving option.*

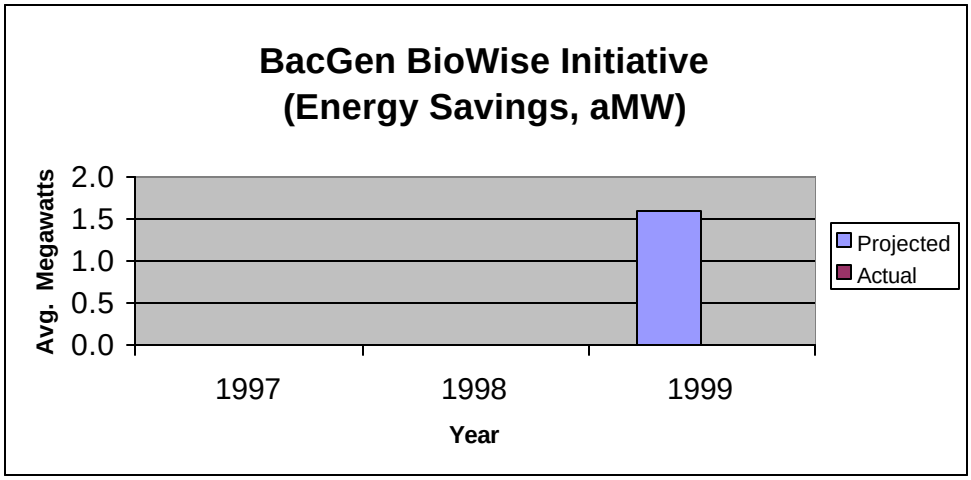
KEY HIGHLIGHTS for 1999

- A non-Alliance demonstration site at the city of Snohomish lowered the amount of energy needed for aeration by 75 percent while meeting discharge permit levels.
- A new demonstration site was established in Dillon, Montana.
- Process controls were developed to improve the micronutrient use and plant operation.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Identify primary and secondary markets and their characteristics.	Field surveys completed that identify facility characteristics and possible demonstration sites.
♦ Establish 12 municipal treatment site demonstrations. Verify electric energy savings of at least 50% during the demonstration period, and at least 70% over the long term.	Two demonstration sites are using BacGen process controls and/or micronutrient product with a 50% reduction in aeration.
♦ Document the costs and non-energy benefits.	In progress.
♦ Increase awareness of the technology to 20% of treatment plants.	The outreach program is planned, but has not been developed yet.
♦ At least one competitor emerges in the regional biological wastewater treatment technology market.	No evidence to date of competitors using a similar combination of process controls and/or micronutrients in this market segment.

PROJECTED AND ACTUAL ENERGY SAVINGS (aMW)

There are no data on actual savings to date, because it has taken longer to initiate demonstration sites than originally anticipated. It will also take a year of monitoring before we fully quantify energy savings. As a result, we are currently monitoring the sites with contracts signed in 1999 and will be able to report the energy savings in 2000.



COMMENTARY

To date, BacGen has gained an understanding of issues affecting its target market including some reluctance on the part of regulators to approve the use of micronutrients, which has resulted in resistance by operators to consider is alternative. The primary interest in BacGen comes from operators whose plants are not currently in compliance with discharge permits. To help fine-tune the application of micronutrients, BacGen developed process controls to provide real-time feedback on plant performance. These controls have enabled plant operators, who do not want to consider the BacGen technology, to reduce aeration – and save electricity – without introducing micronutrients. This option will broaden the potential market for BacGen services.

Outreach efforts will begin once BacGen has accumulated sufficient operating data from demonstration sites to assemble case study reports. Additional sites are anticipated pending approval to proceed in several communities. The BacGen technology may also be suitable in industrial and agricultural wastewater processing applications.

Building Operator Certification (BOC)

PROJECT STRATEGY: The market transformation strategy is to create a lasting improvement in the practice of efficient commercial building operation and maintenance by educating and certifying building operators in energy-efficient practices. Building operators receive training and certification in energy-efficient practices under coordinated programs in all four Northwest states.

PROJECT START: January 1997.

FUNDING SUMMARY*

Through December 31, 1999, the Board allocated $1,456,000 for the project and $197,000 for evaluation. In 2000, the Board allocated an additional $298,000 for the project and $75,000 for evaluation.

Allocated Alliance Dollars through 12/31/99	Actual aMW through 12/31/99	Projected aMW through 2010	Estimated Cost Effectiveness Index: Total Resource Perspective	Estimated Levelized Cost: Total Resource Perspective (cents/kWh)
$1,653,000	0.78	1.7	1.5	1.21

** The explanation of terms used in this table can be found at the end of the report.*

KEY HIGHLIGHTS FOR 1999

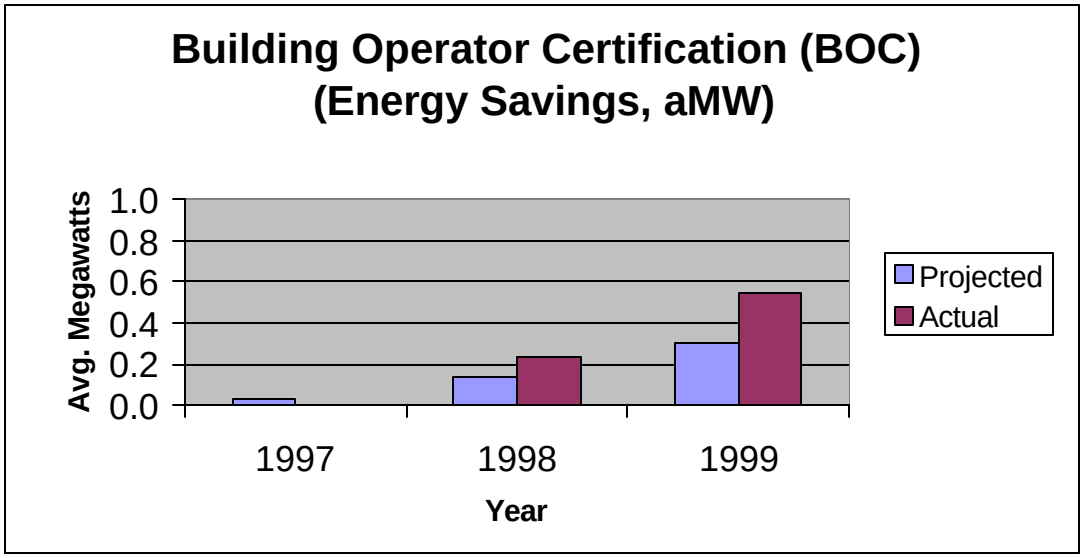
- The project continued to meet or exceed targets for recruitment and certification. (50 operators were certified in Oregon and 79 were certified in Washington).
- The BOC program was extended to Montana.
- Progress was made toward establishing a memorandum of agreement between the Northwest Building Operators Association (NWBOA) and the Northwest Energy Efficiency Council (NEEC) to further regionalize BOC and enhance sharing of curriculum, testing and reciprocity of certification.
- Work began on additional components for Level 2 curriculum.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Establish and sustain an industry-led, voluntary, competency-based certification process that is recognized and valued by building operators and employees.	Training and certification are available in all four states with regional reciprocity.
♦ Secure accreditation and recognition from institutions, employers, and facility-oriented associations.	The curriculum is part of the offerings at two community colleges. Trade associations have recognized BOC as an appropriate program for continuing education.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Increase non-Alliance income; solicit sponsorships and co-marketing opportunities with facility associations, utilities and large employers.	Tuition has been increased to cover course costs; facility associations have become program advocates; utilities have been involved as training hosts.
♦ Conduct ongoing market research to identify additional opportunities for certification.	Market research has been conducted and opportunities have been identified.
♦ Develop and offer two or more levels of training.	Level 1 and 2 training have been developed and in use.
♦ Agree on curriculum and reciprocity.	An agreement was negotiated between NWBOA and NEEC on sharing of curriculum, testing, and reciprocity of certification.
♦ Meet annual enrollment and certification targets for both public and private-sector building operators.	All targets have been met or exceeded.

PROJECTED AND ACTUAL ENERGY SAVINGS (aMW)

This project has consistently exceeded expectations regarding the number of professionals certified and the savings achieved.



COMMENTARY

Activities in Oregon and Washington are managed by the Northwest Energy Efficiency Council (NEEC), those in Idaho and Montana by the Northwest Building Owners Association (NWBOA). NEEC has marketed BOC with the intent of getting support from trade associations.

NWBOA, on the other hand, is a member-driven organization whose support comes directly from building operators.

These different organizational structures have led to the development of unique marketing and training approaches. Future efforts will include signing of an agreement between these two organizations to share information and to enable the organizations to promote BOC as a regional program.

To date, BOC is essentially self supporting in Washington. Efforts continue to reach self-sufficiency in Oregon and Idaho; marketing support began in Montana and will continue through 2002.

Commissioning Public Buildings in the Pacific Northwest

PROJECT STRATEGY: The market transformation strategy is to integrate commissioning into state and local government building projects in the Northwest and to make commissioning the standard practice in the Northwest by ensuring that there are a sufficient number of service providers to meet the demand. Commissioning is the systematic process of ensuring that building systems are designed, built and operated as intended.

The project encourages government support for commissioning through the adoption of policies and guidelines, the demonstration of commissioning in over 30 buildings around the region and dissemination of resulting case studies. The project also supports the development of the Building Commissioning Association (BCA).

PROJECT START: January 1998.

FUNDING SUMMARY*
Through December 31, 1999, the Board allocated $2,032,000 for the project and $126,000 for evaluation. In 2000, the Board allocated an additional $715,000 for the project and $150,000 for evaluation.

Allocated Alliance Dollars through 12/31/99	Actual aMW through 12/31/99	Projected aMW through 2010	Estimated Cost Effectiveness Index: Total Resource Perspective	Estimated Levelized Cost: Total Resource Perspective (cents/kWh)
$2,158,000**	0	8.7	1.4	1.66

**The explanation of terms used in this table can be found at the end of the report.*
*** Includes BCA contract.*

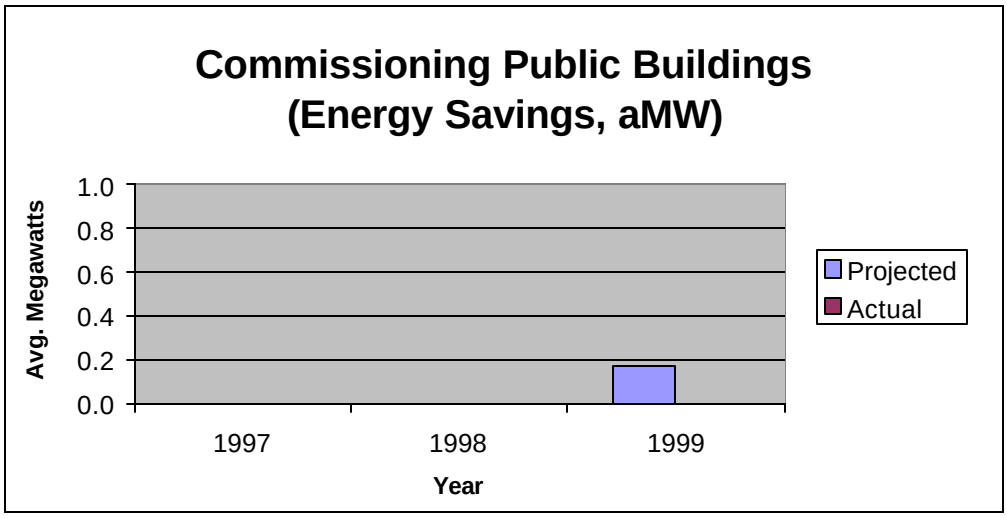
KEY HIGHLIGHTS FOR 1999

- BCA expanded into a national organization and membership grew to over 65 members.
- Commissioning policies and/or guidelines were developed for Washington, Idaho and Montana.
- 35 state and local government and school districts are participating and partially funding projects that demonstrate some form of commissioning in their buildings.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Each state in the region achieves its targeted number of demonstration projects with economic analyses and case studies.	35 demonstration projects are in progress across targeted building types and in each state.
♦ Government agencies adopt policies on commissioning.	Policies and/or guidelines have been developed for Idaho, Washington and Montana.
♦ An agreement is reached among providers on commissioning standards.	BCA members agreed to a set of attributes of good commissioning practices.
♦ BCA is formed.	BCA is formed in May 1998.

PROJECTED AND ACTUAL ENERGY SAVINGS (aMW)

The commissioning project did not achieve any actual energy savings in 1999. Bringing commercial buildings through the design and build cycle takes longer than expected. Savings are anticipated to start as each of the 35 demonstration buildings have commissioning completed.



COMMENTARY

Significant progress has been made on the project objectives. Baseline research on market characteristics was conducted. Customer awareness workshops and training sessions in how-to-do commissioning have been conducted in the region. Procedures have been developed for delivery of commissioning for public buildings in each state. Methodologies for cost and savings analyses have been established. Draft commissioning policies or guidelines have been prepared and made available to participants and others who express an interest in commissioning.

Demonstration projects are underway in all four states and experience selling the demonstration projects to the responsible owners and managers has been gained.

There is also the emergence of an ongoing infrastructure for support of commissioning in each state. With the establishment of the BCA, a mechanism is now in place to help the industry grow and assure providers.

Projects with Quantified Savings

Industrial

Evaporator Fan Variable Frequency Drive Initiative

Fan Speed Reduction on Pneumatic Conveying Systems (Just Enough Air)

MagnaDrive (Field Testing Speed Control Technology on Northwest Industrial Applications)

SAV-AIR

Silicon Crystal Growing Facilities

Evaporator Fan Variable Frequency Drive Initiative

PROJECT STRATEGY: The market transformation strategy is to make variable-frequency drives (VFD) the standard technology for evaporator fans in Northwest storage facilities (refrigerated and controlled atmosphere) by demonstrating to warehouse owners the benefits and performance of VFD technology.

Project activities include demonstrating that lower airflows from VFD can lower energy costs and have a positive impact on fruit quality. Benefits include energy savings, reduced mass loss of fruit in controlled-atmosphere facilities and improved worker comfort due to decreased airflows. The project documented that problems with motor protection and harmonics are preventable.

PROJECT START: January 1998.

FUNDING SUMMARY*
Through December 31, 1999, the Board allocated $1,663,000 for the project and $50,000 for evaluation.

Allocated Alliance Dollars through 12/31/99	Actual aMW through 12/31/99	Projected aMW through 2010	Estimated Cost Effectiveness Index: Total Resource Perspective	Estimated Levelized Cost: Total Resource Perspective (cents/kWh)
$1,713,000	0.07	13.2	2.5	-0.40**

**The explanation of terms used in this table can be found at the end of the report.*

*** Negative levelized costs indicate that non-electricity savings benefits such as transmission and distribution system benefits, water savings, and natural gas savings are larger than the incremental cost of the energy saving option.*

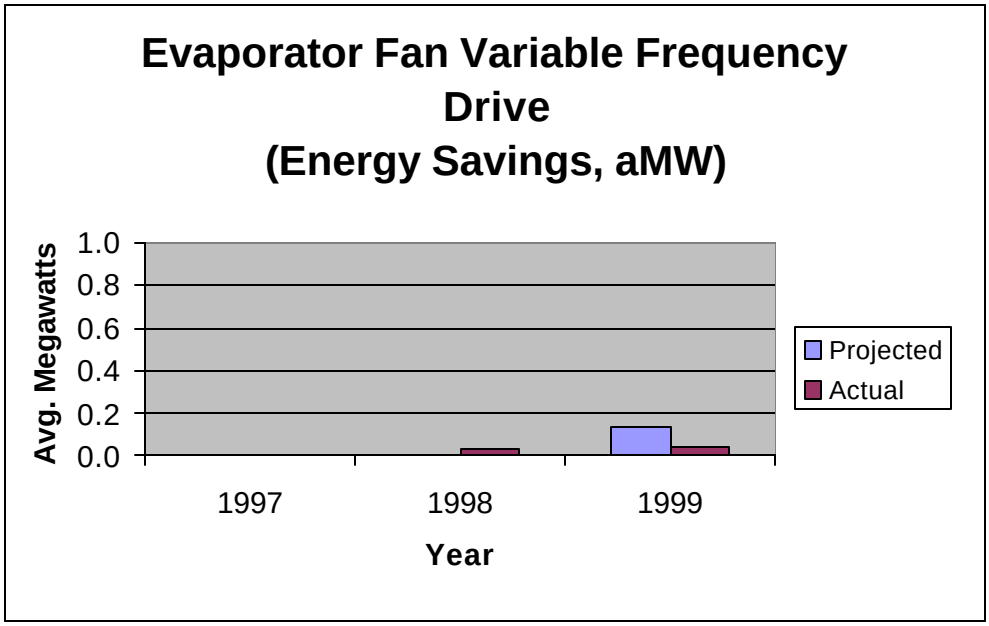
KEY HIGHLIGHTS FOR 1999

- Conducted demonstrations in seven controlled-atmosphere (CA) facilities and four conventional warehouses.
- Analyzed data from the first year's trials and prepared case study reports.
- Presented findings at trade conferences.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Conduct field trials at 30 sites in the first two years and achieve two comprehensive installations.	Test sites have been developed at 21 CA storage facilities and four refrigerated warehouses. Energy savings and fruit quality improvement has been documented.
♦ Develop a database on storage facilities.	Developed a database on over 500 facilities.
♦ Increase by 5% the number of refrigerated warehouses and storage facilities that have VFDs by 2000.	Four test-site facilities are considering full-scale installations.
♦ Increase market penetration of VFDs to at least 31% of warehouses and 47% of fruit storage facilities by 2007.	In progress.

PROJECTED AND ACTUAL ENERGY SAVINGS (aMW)

Actual savings from the project occurred earlier than anticipated (in 1998 instead of 1999) which accounts for most of the shortfall for 1999. While not reported in actual savings, it appears that facility owners are becoming aware of the benefits from installing VFDs and are taking steps on their own to install them. Data on these market effects will be reported in future reports.



COMMENTARY

The field trials in both controlled-atmosphere and conventional refrigerated warehouses have proven the energy-savings potential of VFDs. Non-energy benefits are a significant selling point in the fruit storage market where savings in fruit mass loss and improvements in fruit quality can enhance a facility's competitive position. In most cases, test results have shown fruit quality benefits from installation of VFDs. As results are documented, the contractor is preparing case studies and presenting findings at trade conferences. A marketing brochure is available as well. Early evidence suggests that warehouse owners are being motivated to install VFDs as a result of information collected from demonstration sites.

Fan Speed Reduction in Pneumatic Conveying Systems (Just Enough Air)

PROJECT STRATEGY: The market transformation strategy is to build market awareness and demand for conserving energy in pneumatic conveying systems through the development and marketing of case studies. The project works to increase the energy efficiency of low-pressure pneumatic waste conveying systems in the secondary wood processing industry, which represents 10-40 percent of energy consumed wood re-manufacturing facilities.

The initial test site candidates are manufacturers who operate at least two low-pressure pneumatic conveying systems (with at least one system having 150 hp of motor load) for two shifts a day. Manufacturers with one pneumatic conveying system under 50 hp will be targeted in 2000.

PROJECT START: April 1999

FUNDING SUMMARY*
Through December 31, 1999, the Board allocated $820,000 for the project and $80,000 for evaluation.

Allocated Alliance Dollars through 12/31/99	Actual aMW through 12/31/99	Projected aMW through 2010	Estimated Cost Effectiveness Index: Total Resource Perspective	Estimated Levelized Cost: Total Resource Perspective (cents/kWh)
$900,000	0	7.8	1.8	1.35

- *The explanation of terms used in this table can be found at the end of the report.*

KEY HIGHLIGHTS FOR 1999

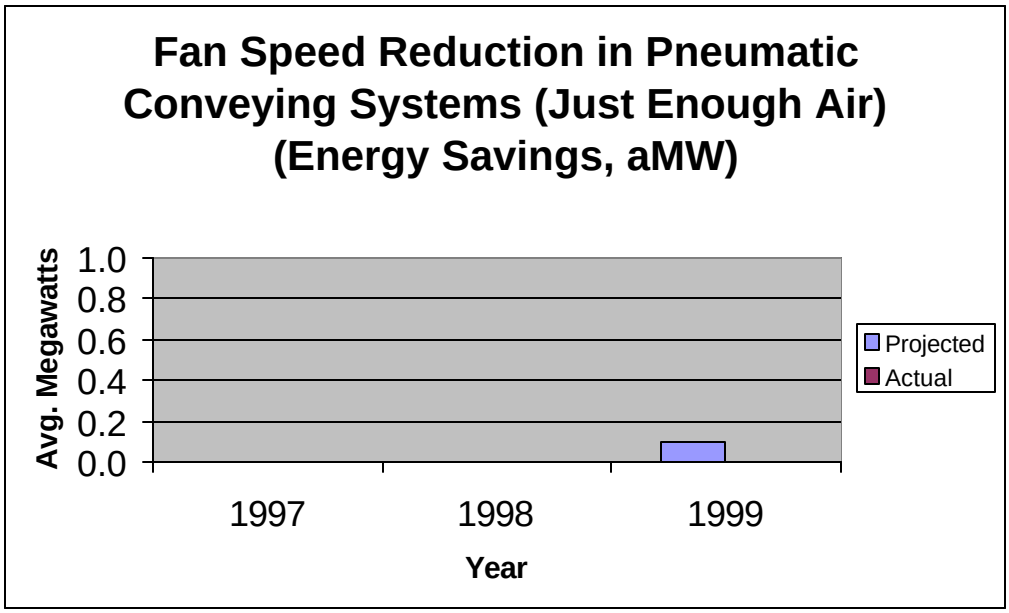
- Two hands-on demonstration tools for education, training and promotion were developed. One is a spreadsheet used to estimate potential energy savings for individual pneumatic conveying systems. The other is a tabletop model of a pneumatic conveying system. The fan speed for the model can be adjusted and viewers can see the effect on wood waste pick-up and fan power.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Verify the estimated savings potential of 57,800 MWh/year exist.	Market research has been completed that verifies the savings potential.
♦ Set up, test and market 10 geographically diverse demonstration sites.	Eighteen candidates have been recruited at demonstration sites. One demonstration in Everett, Washington, has been completed and is saving 217,525 kWh (25% of the load) a year.
♦ Develop and hold at least three training sessions for at least eight service providers. Create a network (three firms plus project contractors) of trained service providers.	The team made two presentations at trade fairs in Washington and Oregon.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Implement a prescriptive program for the small manufacturer segment.	In progress.

PROJECTED AND ACTUAL ENERGY SAVINGS (aMW)

The project did not achieve the savings anticipated in 1999 because fewer demonstration sites were implemented.



COMMENTARY

The project has encountered slow acceptance due in part to the lack of information about system costs within the industry, little industry involvement and a slow business decision cycle. This has resulted in fewer case studies accomplished in 1999 than anticipated.

MagnaDrive (Field Testing Speed Control Technology on Northwest Industrial Applications)

PROJECT STRATEGY: The market transformation strategy driving this project is the potential of this new technology to expand applications in the whole speed control market, rather than just replace variable frequency drives (VFDs) in their existing market applications. In addition, it is believed this product introduction will stimulate the development of a new generation of VFD's, that will provide both energy and non-energy benefits.

The primary purpose of the project is twofold; 1) confirm the performance of the product, and 2) gain an understanding of the total Northwest speed control market, it's dynamics and the MagnaDrive coupling opportunity.

This project is the first step in achieving the ultimate goal of market transformation of speed control market.

PROJECT START: May 1999.

FUNDING SUMMARY*
May 1999 – December 2001, the Board allocated $1,000,000 for the project. In 2000, the Board allocated an additional $1,100,000 for the project and $150,000 for evaluation for a second phase of the project with new project progress indicators.

Allocated Alliance Dollars through 12/31/99	Actual aMW through 12/31/99	Projected aMW (Venture plus Post-Venture) through 2010	Estimated Cost Effectiveness Index: Total Resource Perspective	Estimated Levelized Cost: Total Resource Perspective (cents/kWh)
$1,000,000	0.07	33.4	1.9	1.35

** The explanation of terms used in this table can be found at the end of the report.*

KEY HIGHLIGHTS FOR 1999

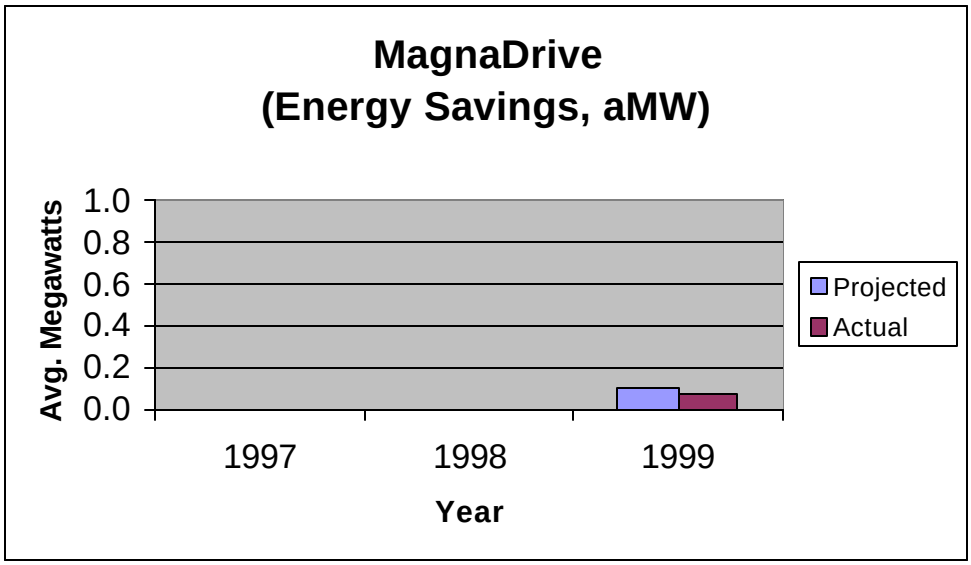
- The market assessment and baseline study found that large blower drives in the pulp and paper industry and low-head pumping applications in wastewater treatment facilities are the best opportunities for energy savings using the MagnaDrive technology in the Northwest.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Determine that the market potential exists beyond the current and projected VFD sales in the Pacific NW region.	An in-depth market assessment and baseline study was completed that concludes that the best opportunities in the Northwest are in large blower drives in the pulp and paper industry and in wastewater, low head pumping applications.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Independently verify that the MagnaDrive coupling technology saves at least 60% of the energy saved by typical VFDs across a range of speed control applications.	50, 100 and 200 HP MagnaDrive couplings were tested at the Oregon State University Motor Systems Resource Facility along with three VFDs rated at 50kVa, 100kVA and 250kVA. Results of the testing show the MagnaDrive coupling achieves an average of 62% of the VFD energy savings for fans and 65% of the VFD savings for pumps.
♦ Install the MagnaDrive coupling in at least three field sites where VFDs have been unsuccessful in penetrating the market.	To date, MagnaDrive couplings have been installed at five field sites.

PROJECTED AND ACTUAL ENERGY SAVINGS (aMW)

This project was just beginning its in-field demonstration phase in 1999. We expect the savings in 2000 to increase, relecting the increased number of demonstration sites.



COMMENTARY

Independent testing and field verification has substantiated performance estimates of the MagnaDrive coupling providing information on both the energy and non-energy benefits. The non-energy benefits include elimination of vibration.

In many of the applications targeted by MagnaDrive the installation of an electronic VFD would have been unlikely. As a result the MagnaDrive Coupling can offer additional energy saving opportunities to the region beyond the application already appropriate for electronic VFDs.

SAV-AIR

PROJECT STRATEGY: The market transformation strategy is to gain acceptance of compressed air management by manufacturers as a system-wide effort to improve efficiency rather than component-specific effort. The goal is to develop and launch self-sustaining businesses that specialize in optimizing the energy-efficient operation of compressed air systems in the Northwest through the use of local and remote monitoring systems. The program targets industrial manufacturing facilities with compressed air systems larger than 450 hp in all four Northwest states.

PROJECT START: December 1998.

FUNDING SUMMARY*
Through December 31, 1999, the Board allocated $1,795,000 for the project and $125,000 for evaluation. In 2000, the Board allocated an additional $l,000,000 for the project and $70,000 for evaluation.

Allocated Alliance Dollars through 12/31/99	Actual aMW through 12/31/99	Projected aMW through 2010	Estimated Cost Effectiveness Index: Total Resource Perspective	Estimated Levelized Cost: Total Resource Perspective (cents/kWh)
$1,920,000	None projected or achieved.	40.0	1.3	1.99

** The explanation of terms used in this table can be found at the end of the report.*

KEY HIGHLIGHTS FOR 1999

- Negotiations were conducted with companies in forest products, mining, food products, microelectronics and transportation for securing demonstration sites.
- Completed three site compressed air system evaluations.
- Created a prototype demonstration test site.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Create a self-sustaining business entity that offers compressed air management systems.	In progress.
♦ Overcome the market barriers of technical expertise, funding, attitude and accountability.	In progress.
♦ Establish six demonstration sites. Gain a commitment by the six sites to replicate SAV-AIR services throughout their corporations.	The prototype demonstration site is operational and provides information on field testing of components, training and sales.
♦ Secure at least 50% matching funds from non-Alliance sources by the end of the funding period.	In progress.

PROJECTED AND ACTUAL ENERGY SAVINGS (aMW)

Sav-Air had no projected or actual energy savings in 1999. Actual energy savings achieved from demonstration sites will be reported in 2000.

COMMENTARY

Several companies have expressed a strong interest in hosting demonstration sites. Performance evaluations have been completed at several sites. Progress after that has languished due to three factors: 1) the SAV-AIR product was not fully developed, 2) the projects offer significant savings at each site, but also involve substantial capital costs, 3) several of the projects are tied up in the corporate decision-making process.

The focus of the project has changed from monitoring only to monitoring and controlling compressed air use. The change was a result of market demand to both monitor and control. This added complexity has delayed development of the project. The benefit of this change is that the control system provides a method for locking in energy savings and increases customer satisfaction by meeting a greater range of needs.

Silicon Crystal Growing Facilities

PROJECT STRATEGY: The market transformation strategy is to seek improved efficiencies in energy-intensive crystal growing furnaces in which silicon ingots are produced for photovoltaics and semiconductor industries leading to the widespread adoption of this new technology. Customer benefits include reduction in the use of energy and argon gas and improvements in productivity, yield and ingot characteristics.

The initial focus is to develop and implement a new, more efficient furnace technology and retrofit all of the furnaces at Siemens Solar Industries facility in Vancouver, Washington. The eventual goal is to transfer the new technology of a more efficient, smaller silicon-growing furnace to other companies in the semiconductor industry.

PROJECT START: April 1998.

FUNDING SUMMARY*
Through December 31, 1999, the Board allocated $1,005,000 for the project and $45,000 for evaluation.

Allocated Alliance Dollars through 12/31/99	Actual aMW through 12/31/99	Projected aMW through 2010	Estimated Cost Effectiveness Index: Total Resource Perspective	Estimated Levelized Cost: Total Resource Perspective (cents/kWh)
$1,050,000	0.24	71.5	11.8	-25.56**

** The explanation of terms used in this table can be found at the end of the report.*

*** Negative levelized costs indicate that non-electricity savings benefits such as transmission and distribution system benefits, water savings, and natural gas savings are larger than the incremental cost of the energy saving option.*

KEY HIGHLIGHTS FOR 1999

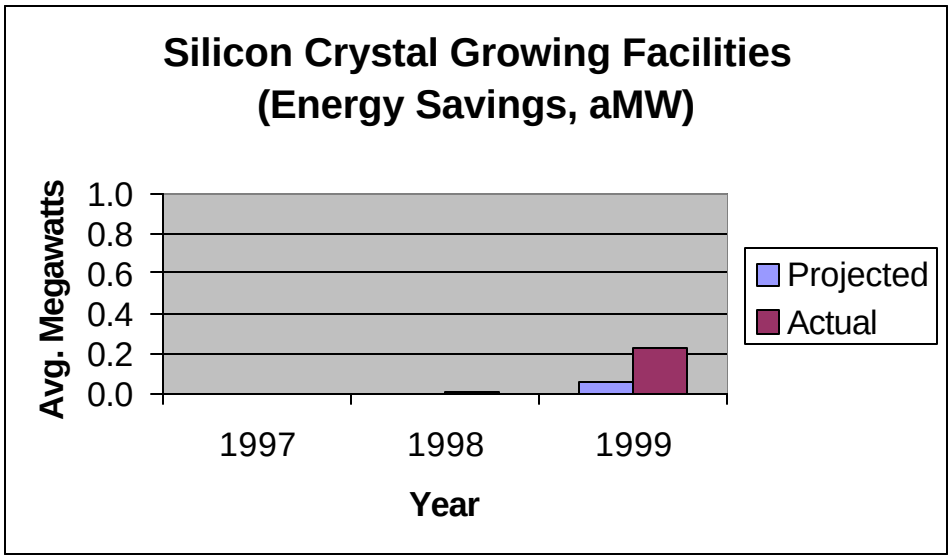
- The project team at Siemens started direct meetings with semiconductor manufacturers.
- Market research found that granular polysilicon, manufactured in a fluidized bed, requires 70-90 percent less energy to make than rod polysilicon that currently comprises the majority of the feedstock manufactured here in the Northwest.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Develop an accurate modeling tool for current and future hot zone designs.	A modeling tool was developed to redesign the furnace. The new design is now commercially available through a major furnace maker.
♦ Reduce the furnace hot zone energy consumption by at least 40%; reduce cycle time by at least 15% and reduce argon consumption by at least 50% while improving and maintaining ingot quality.	Reduced energy consumption by 51%. Reduced argon consumption by 85% and improved ingot characteristics by reducing oxygen content. Increased productivity 20-40% and yield 3-8%.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Construct a new hot zone design. Install all new and retrofitted hot zones at the Siemens facility.	Eleven furnaces have been installed and are being tested.
♦ Adopt the optimization methods at one or more semiconductor manufacturers.	One semi-conductor manufacturer is considering adopting some of these options.

PROJECTED AND ACTUAL ENERGY SAVINGS (aMW)

In 1999, actual savings were greater than projected because systems were installed by Siemens at a faster rate than anticipated.



COMMENTARY

The project has been successful beyond both the Alliance's and Siemen's expectations by meeting or exceeding all goals. There are strong indications that the project is affecting the market, but additional time is needed to determine the ultimate effect on growers in the semiconductor industry.

Projects with Quantified Savings

Agricultural

Scientific Irrigation Scheduling

Scientific Irrigation Scheduling

PROJECT STRATEGY: The market transformation strategy is to make scientific irrigation scheduling a common practice for irrigators. The project is working to provide information, education and technical assistance to irrigators and crop consultants to encourage the practice of scientific irrigation scheduling (SIS). By 2010, the project intends to influence growers controlling 50 percent of the region's pressurized irrigated acres to use SIS to meet crop moisture needs by supplying the right amount of water at the right time and thereby reduce energy demand for pumping water.

Energy costs can be reduced by an average of 16 percent. Non-energy benefits include reduced water use, lowered agricultural chemical needs, potentially improved crop yield and quality, and reduced run-off and soil erosion. An additional benefit is water not used for irrigation can be returned to streams to help maintain flows for fish.

PROJECT START: January 1998.

FUNDING SUMMARY*
Through December 31, 1999, the Board allocated $2,348,000 for the project and $75,000 for evaluation. In 2000, the Board allocated an additional $1,158,000 for the project and $ 90,000 for evaluation.

Allocated Alliance Dollars through 12/31/99	Actual aMW through 12/31/99	Projected aMW through 2010	Estimated Cost Effectiveness Index: Total Resource Perspective	Estimated Levelized Cost: Total Resource Perspective (cents/kWh)
$2,423,000	0.58	21.3	1.8	1.21

** The explanation of terms used in this table can be found at the end of the report.*

KEY HIGHLIGHTS FOR 1999

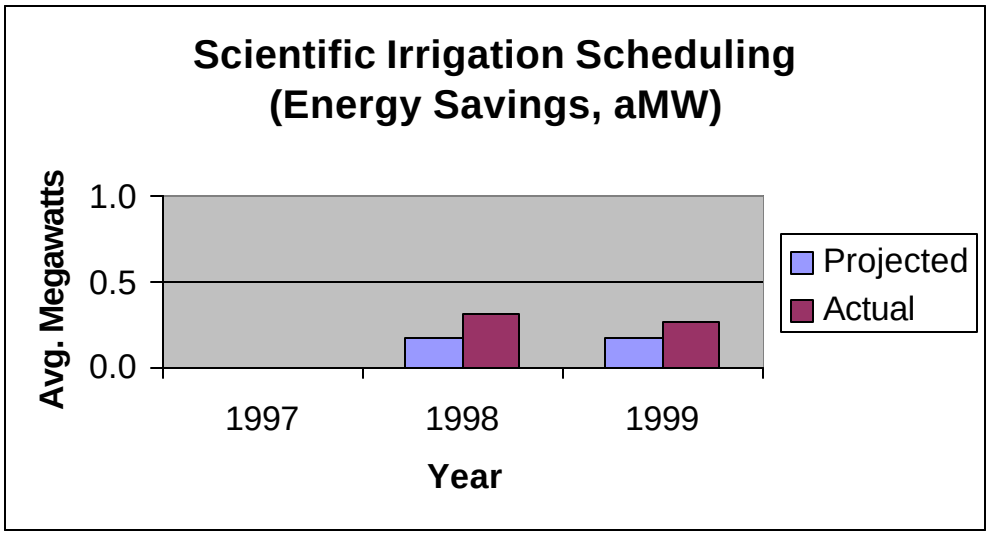
- Contractors enhanced the range of services offered to agricultural producers and expanded the geographic area served. The total number of demonstration fields increased to 72 in Idaho.
- Two scientific irrigation-scheduling consultants operated in Oregon counties targeted by the project.
- Encouraged the development of the Hanson Meter, a low-cost soil moisture sensor. This technology shows promise in reducing the cost and burden of implementing soil moisture measurement.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Demonstrate to farmers the benefits of using SIS.	150 irrigators with 27,000 acres are participating in SIS demonstrations.
♦ Increase the number of trained agricultural consultants who can provide SIS as part of their on-farm services without utility assistance.	A new company selling low-cost soil moisture systems has entered the market. Offered 15 field demonstration training days.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Increase the use of data from Agri-Met weather stations.	Maintained 48 and installed four new Agri-Met stations. Added maintenance for four additional stations and installed one new Agri-Met station in eastern Montana.
♦ Establish local networks to provide education and technical assistance after the end of the venture.	WISE, a new SIS computer program, is helping farmers conduct SIS in Washington. Irritalk, a call-in SIS service for farmers, is now offered in Idaho.

PROJECTED AND ACTUAL ENERGY SAVINGS (aMW)

Actual energy savings are larger than the projected savings for this project. Adoption and acceptance of the SIS technology by farmers and irrigators with high-yield crops in Washington, Oregon and Idaho occurred at a much faster rate than had originally been anticipated. The original goal of achieving 50 percent market penetration by the year 2010 was achieved in the first two years of the project largely because the marketplace was already further along in adoption of this practice than estimated.



COMMENTARY

The SIS contractors have successfully recruited farmers, irrigators and private consultants to increase demand for SIS and providers of the service. In the demonstration portion of the project, growers are recruited every spring. They receive weekly or bi-weekly readings of the soil moisture in their fields and field agents provide technical assistance and training on how to use the AgriMet weather station or Public Agricultural Weather System (PAWS) data to prepare watering schedules. Education and promotion of the project includes classes in SIS for growers and consultants, participation in events where potentially interested growers and consultants will be present, and development of marketing materials.

The 50 percent market share was met earlier than anticipated because of a high base line due in part to over ten years of prior programs.

Projects without Quantified Savings

Residential

Public Housing Efficiency

Public Housing Efficiency

PROJECT STRATEGY: The market transformation strategy is to demonstrate to public housing authorities the benefits of life-cycle cost analysis and resource management services to improve the efficiency of public housing heating systems and appliances.

Work with state and federal agencies to develop regional energy efficiency guidelines and institutionalize energy-efficient practices in new and existing publicly funded housing projects in all four Northwest states.

PROJECT START: April 1998.

FUNDING SUMMARY
Through December 31, 1999, the Board allocated $305,000 for the project and $30,000 for evaluation.

KEY HIGHLIGHTS FOR 1999

- The baseline and needs assessment was completed.
- Partnered with Washington State Department of Community, Trade, and Economic Development on the Housing Trust Fund Sustainability Program.
- Worked with Housing and Urban Development (HUD) to develop an energy audit tool.
- Completed eight case studies.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Establish a baseline of current policies, practices and needs for the public housing sector.	Baseline study and needs assessment were completed.
♦ Influence and establish state and federal energy efficiency policies and guidelines for public housing.	Partnered with the Washington State Department of Community, Trade, and Economic Development on the Housing Trust Fund Sustainability Program. Worked with HUD to develop an energy audit tool.
♦ Improve the technical capabilities of the public housing authorities.	Trained and demonstrated new technologies; developed eight case studies.

COMMENTARY

Institutionalizing energy efficiency practices in new and existing public housing is a challenging goal. Many of those involved in public housing policy decisions are focused on providing as many affordable housing units as possible. Anything that increases the first cost of housing is viewed as reducing the number of units the project can afford to build.

Despite these barriers, the contractors have increased awareness of energy efficiency and life cycle cost analysis in public housing. By networking and partnering with local public housing authorities, the National Association of Housing Redevelopment Officials (NAHRO), the Department of Housing and Urban Development and other agencies, the contractor has increased the use of life-cycle cost analysis and encouraged the incorporation of energy efficiency options

in both new and renovated public housing. They have also provided technical assistance and educated public housing authority staff at workshops and in training sessions.

In the public housing energy efficiency project, both the baseline analysis and needs assessment proved to be extremely important. The baseline identified the characteristics of public housing authorities in the Northwest. The needs assessment identified opportunities for influencing decision makers in that market. Furthermore, it identified NAHRO as the appropriate agency to take over the necessary follow-up activities for the project because of their regional focus and influence within the public housing sector.

Projects without Quantified Savings

Commercial

Architecture + Energy: Building Excellence in the Northwest

Efficient Building Practices Initiative

EZ-Sim: Billing Simulation for Small Commercial Facilities

Lighting Design Lab

Northwest Lighting On-Line

Architecture + Energy: Building Excellence in the Northwest

PROJECT STRATEGY: The market transformation strategy is to transform architectural industry practice through the use of regional workshops and outreach efforts to educate people who design commercial buildings about the value and benefits of energy-efficiency and sustainable design principles. The project emphasizes education of energy efficiency as a design criterion through workshops and one-on-one consultations.

PROJECT START: December 1997.

FUNDING SUMMARY
Through December 31, 1999, the Board allocated $692,000 for the project and $63,000 for evaluation.

KEY HIGHLIGHTS FOR 1999

- The contractor, the Portland chapter of the American Institute of Architects, held an awards program, two workshops, a "lessons learned" session at the National Commissioning Conference, and a lecture on sustainable design during Architecture Week in Portland.
- The Alliance renewed funding for the project for workshops and one-on-one firm visits for 2000.
- Any future activity will be incorporated into the Alliance's Efficient Building Practices Initiative.

Project Progress Indicator through 1999	Project Activity through 1999
♦ The awards program receives entries from around the region.	Received 13 entries from Montana, Oregon and Washington.
♦ Participants in the awards events and field workshops take action to apply energy efficiency concepts in their designs.	Evaluation results show that more than 50% of participants have taken action.
♦ Entrants indicate that interest in the awards influenced their design submittals and other projects.	Two workshop participants in 1999 changed their designs based on what they learned.
♦ Non-Alliance sources provide at least 15% in matching funds for operating the program by the end of Alliance funding.	No matching funds obtained, however workshop fees covered about 2% of annual budget.

COMMENTARY

The project contractor is seeking non-Alliance funding for 2000 and beyond in an effort to reinstate the A+E Design Awards program which offers highly visible recognition for exemplary integration of design and energy efficiency.

In 2000, Alliance staff and the American Institute of Architecture/Portland will assess the possibilities for future A+E activities that may be offered in conjunction with the Efficient Building Practices Initiative efforts.

Efficient Building Practices Initiative

PROJECT STRATEGY: The market transformation strategy is to increase awareness of, and demand for, the benefits of energy-efficient commercial buildings.

Efficient Building Practices Initiative (EBPI), consists of a set of programs including:

- New Construction Baseline Study
- Regional Public Information Program
- Energy Code Support
- State Special Projects
- Seed Funding
- Transition Funding

PROJECT START: May 1998.

FUNDING SUMMARY
Through December 31, 1999, the Board allocated $6,400,000 for the project and $500,000 for evaluation.

I. New Construction Baseline
Intended to document current residential and commercial building design and construction practices that affect energy consumption, such as building envelope, HVAC systems and lighting.

II. Regional Public Information Program (betterbricks.com)
An overall effort to raise consumer awareness of the benefits of efficient building design. Advertising and web site highlight increased comfort and productivity. A help desk for further information is also available.

III. Energy Code Support
Provides resources to the state agencies that administer energy codes, provide technical support, develop code revisions and maintain a record of interpretations. The agencies are the Washington State Building Code Council, the Washington State University Energy Program, the Oregon Office of Energy and the Idaho Department of Water Resources (IDWR).

IV. State Special Projects
Supports public agencies and private industry proposals for energy code activities that would not normally be funded by existing code programs. The purpose is to enhance effectiveness and to advance energy codes through innovative ideas.

V. Seed Funding
Helps create a strong, effective corps of energy efficiency advisors throughout the region. The vision is to support private industry in creating new services that would become self-supporting over time.

VI. Transition Funding
One time modest support to state energy code agencies to help them wind down work activities that had been supported through the region's utilities and the Bonneville Power Administration.

KEY HIGHLIGHTS FOR 1999

- New construction baseline completed.
- Market research conducted.
- A marketing plan was developed.
- Nine projects funded under State Special Projects.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Increase awareness of the benefits of energy efficient buildings.	Market Research was conducted and a marketing plan was developed that recommended the development of the www.betterbricks.com campaign as an informative and persuasive web site, print and television advertising, and public relations. The campaign will be launched in 2000.
♦ Create demand for more energy-efficient buildings among target audiences.	
♦ Increase understanding and acceptance of the relationships among energy efficiency, building quality, and productivity by the general public, government and industry.	
♦ Improve building quality, strengthen the building industry and increased energy performance beyond code requirements.	The new construction baseline fieldwork has been completed and analysis started. Work with state agencies in Washington, Oregon and Idaho to administer energy codes, provide technical support and develop code revisions has been started.
♦ Change attitudes and practices among key players including new and voluntary initiatives from the private sector in a regional cooperative forum.	In progress.

COMMENTARY

This is a large and extensive project that is attempting to make new buildings more energy efficient. The largest budget item is the regional public information program which will try to increase demand for energy efficient commercial buildings. Because of the long lead time to plan and build commerical structures, the effects of this project will only show over a long period of time. However, if successful, the impact can be significant.

EZ-Sim: Billing Simulation for Small Commercial Facilities

PROJECT STRATEGY: The market transformation strategy is to increase the viability and adoption of energy efficiency retrofits and related services in small commercial buildings (particularly in rural areas) through the use of simplified engineering simulation of energy consumption in buildings. EZ-Sim is a software program that performs a simple, billing-based analysis that can identify performance problems and help consumers understand the benefits of performance-based contracting.

This tool helps clients manage energy consumption and prioritize energy management resources by 1) fine-tuning business performance, 2) identifying efficiency opportunities, and 3) validating savings. Customer support includes sales, service and training associated with the product in all four Northwest states.

PROJECT START: December 1997.

FUNDING SUMMARY
Through December 31, 1999, the Board allocated $129,000 for the project and $35,000 for evaluation.

KEY HIGHLIGHTS FOR 1999

- Trained 52 people to use the simulation tool.
- Coordinated class offerings through the Northwest Energy Education Institute.
- EZ-Sim became part of Lane Community College's two-year energy management degree program.
- An e-commerce web site was developed.
- EZ-Sim has been demonstrated in case studies throughout the region.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Within two years, at least 15% of the target market uses EZ-Sim.	80 people (18% of target market) trained at training sessions since the beginning of the project.
♦ Develop a strategic alliance with a large energy services company.	Developed relationships with several smaller ESCOs.

COMMENTARY

Reaching15 percent of the target market for EZ-Sim has been surpassed with 18 percent of market share achieved to date. The current major barrier is that people tend to be satisfied with the analysis products that they are already trained to use and are using. People who try EZ-Sim, however, appreciate its accuracy, simplicity and diagnostic capabilities. At this time, Alliance support will conclude at the end of 2000. EZ-Sim has accomplished its short-term objectives and is preparing to meet the goals of its long-term business plan.

Lighting Design Lab

PROJECT STRATEGY: The market transformation strategy is to effect long-lasting acceptance in the regional marketplace for highly efficient, state-of-the-art daylighting and electric lighting systems and design approaches for both new construction and retrofit markets.

The Lab provides training and support for lighting designers through the use of its facilities and outreach efforts to promote energy-efficient lighting in the Pacific Northwest. It provides reliable, quality, unbiased education, information and demonstration of state-of-the-art lighting design and products to promote energy efficient lighting practices in commercial and residential buildings.

PROJECT START: January 1998.

FUNDING SUMMARY

Through December 31, 1999, the Board allocated $1,858,000 for the project and $240,000 for evaluation.

KEY HIGHLIGHTS FOR 1999

- Four Technical Advisory Committees (TAC) were established in Boise, Spokane, Portland and Helena. The TACs are credited with building stronger programs and curriculum for regional outreach.
- The Lab became the home for another Alliance project, Northwest Lighting On-Line, a web-based source providing information on energy efficient lighting.
- Customer use of the website doubled since the Lab took over the site from northwestlighting.com.
- Increased the offering of daylighting services while promoting the service through targeted marketing and outreach to regional architectural firms. Conducted 45 seminars to over 600 architects.
- Increased the number of first-time visits from outside the Puget Sound area from 113 to 208.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Increase services offered outside the Puget Sound region.	Increased the number of classes offered outside Puget Sound from 39 to 50.
♦ Increase overall use of the Lab facility and services.	Increased first time visitors to the Lab from 1,015 to 1,599. Increased tour attendance from 597 to 634. Increased mock-up facilities from 30 to 36.
♦ Collaborate with other regional marketing efforts in support of efficient lighting practices.	Collaborated with LightWise, Building Operator Certification, Electric Ideas Clearinghouse, Northwest Lighting On-Line, the Lighting Research Center and the Northwest Energy Education Institute.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Broaden the funding base and become a sustainable organization.	Hired a consultant to research options to move toward an independent entity. The selected option will bring the operations, including staffing and administration, under Seattle City Light.

COMMENTARY

In the three years since the Alliance began funding the Lab, significant progress has been made in the Lab's ability to provide services regionally instead of services only being available to those who visited the Lab. The Lab has broadened its outreach by regularly offering classes around the region. Initial evaluations indicate that those who use the Lab or attend training sessions find the services useful.

Northwest Lighting On-Line

PROJECT STRATEGY: The market transformation strategy is to offer Internet access to energy-efficient, state-of-the art lighting design resources, primarily for lighting specifiers and contractors in the commercial lighting market. The web site includes design features, product search tools and lighting consultations providing specifiers with a reliable and fast alternative to traditional specifying tools (e.g., product binders on a shelf).

On-line features include up-to-date searchable directories on lighting products, product manufacturers, sales representatives, distributors, searchable archives of lighting design case studies, research reports, and publications.

PROJECT START: November 1997.

FUNDING SUMMARY
Through December 31, 1999, the Board allocated $108,000 for the project and $20,000 for evaluation.

KEY HIGHLIGHTS FOR 1999

- The NW Lighting On-Line (NWLOL) site was moved to the Lighting Design Lab (LDL) which will be responsible for continued maintenance of the site.
- Participation in the website almost doubled from 7,000 to 13,000 hits per month.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Create a Northwest Internet web site for lighting.	Launched the NWLOL site in January 1998.
♦ Integrate new product and design search tools on existing web sites.	Upgraded the Inter.Light site to include capabilities to search for energy-efficient products.
♦ Increase support and coordination with other Alliance lighting ventures.	NWLOL is connected to Alliance residential lighting ventures through hot links and serves as the home site for the LDL, the only other Alliance-supported lighting activity.
♦ Increase self sufficiency through revenues and sponsorships.	Decided to incorporate the NWLOL site into the LDL by the end of the contract. No revenues or advertising will be sought.

COMMENTARY

The Lighting Design Lab, with NWLOL as a component, is becoming the lighting source for the region. Since the NWLOL is now the Lab's web site, commercial sponsorship of NWLOL could compromise the objectivity and independence of the Lab.

The Lab is marketing and promoting the website to increase awareness of the website for Lab and internet users. In the future, the website can be an excellent extension of the Lab with the potential to be more experimental in its offerings.

Projects without Quantified Savings

Industrial

Compressed Air Challenge

Drive Power: Quality Motor Reconditioning and Motor Management

Microelectronics Industry Efficiency Initiative

Compressed Air Challenge

PROJECT STRATEGY: The market transformation strategy is to co-sponsor a national initiative to improve the efficiency of compressed air use in industrial production processes including a customer awareness campaign on the benefits of efficient compressed air use and the development of a training and certification program for plant personnel.

The goal is to establish an independent, non-profit organization to maintain and build a national collaborative. The organization will develop and provide resources that educate the industry about opportunities to increase net profits through compressed air system optimization.

PROJECT START: October 1997.

FUNDING SUMMARY
Through December 31, 1999, the Board allocated $120,000 for the project and $10,000 for evaluation.

KEY HIGHLIGHTS FOR 1999

- Worked with local partners to host 6 classes across the region. Trained 140 people.
- Set up an advisory group and co-marketed a one-day course, "Fundamentals of Compressed Air Management" which began in spring 1999.
- Evaluations of the course consistently received very high marks.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Raise awareness of the importance of efficient, effective plant air systems.	Formed the Compressed Air Advisory group. The Washington State University Cooperative Extension Energy Program runs the Compressed Air Challenge (CAC) hotline in partnership with Energy Ideas Clearinghouse (EIC).
♦ Train industrial plant engineers on best practices for plant air systems.	Created a new one-day course ("Fundamentals of Compressed Air Management") to build awareness of design and to highlight the benefits of using a systems-approach to managing compressed air. In addition, conducted six classes, training 140 people.
♦ Expand the market for expert plant air assessment services.	Rolled out "Fundamentals of CAC" training on a national basis. Established a trained pool of instructors. Developed a marketing strategy for a public awareness campaign.
♦ Help build the local market infrastructure to deliver these services.	Reviewed, published and marketed an industry sourcebook, launched a website and set up a toll-free hotline.

COMMENTARY

The Compressed Air Challenge (CAC) is a voluntary national collaboration of industrial users, manufacturers, distributors, facility operations personnel, consultants, state research and development agencies, energy efficiency organizations and utilities. The CAC provides a bridge between the compressed air market and energy efficiency efforts in different parts of the country.

There are many competing training programs in the market and the information provided to end-users can be contradictory, confusing, or designed with a distinct solution or product bias. The mission of the CAC is to develop and provide unbaised resources that educate the industry on the opportunities to increase net profits through compressed air optimization.

CAC courses are designed and promoted with a vendor/solution neutral approach. All parties participating in the CAC agree that there are significant energy savings opportunities in this market and increased awareness brought about by high quality, vendor neutral messages. Feedback about the course and content has been very positive.

Drive Power: Quality Motor Reconditioning and Motor Management

PROJECT STRATEGY: The market transformation strategy is to improve the overall fleet efficiency of installed motors in the region. Objectives include increasing efficiency of repaired and replaced motors, improving the quality of motor reconditioning and increasing the purchases of premium motors to replace old motors and in new applications. The project strategy includes targeted demonstrations where tailor-made motor management and decision-making information and services are provided for companies with substantial motor loads to improve motor-management practices. Specially trained field consultants use motor analysis tools, repair guides and specifications, sample procurement policies, case studies, on-site motor testing and staff training. The project target group includes industrial and commercial companies, motor dealers and repair shops, industry associations and electric utilities in all four Northwest states.

PROJECT START: January 1999.

FUNDING SUMMARY

Through December 31, 1999, the Board allocated $674,000 for the project and $130,000 for evaluation. In 2000, the Board allocated an additional $1,410,000 for the project and $ 150,000 for evaluation.

KEY HIGHLIGHTS FOR 1999

- A toolkit was assembled for project field consultants to use.
- Visits to over 60 utilities were made to explain the program and to seek their support for the project.
- One-on-one site meetings have been conducted at over 40 industrial facilities.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Develop a team of field consultants.	Four specialists have been hired and trained.
♦ Promote comprehensive motor management practices and change motor reconditioning service offerings.	Visited 48 industrial customers; working with 10 industrial customers to implement specific motor management activities. Visited 23 motor sales/service centers and 63 utilities.
♦ Provide general and technical information.	Completed tool kit on motor repair and management; gave training sessions and presentations. Conducted seven seminars. Published four newsletter issues.

COMMENTARY

The project has been operating for a year and a half. Much of the first year was spent developing strategies and materials, and recruiting and preparing the technical field consultants. A tool kit was assembled for the field consultants to use including creation of several key documents such as a decision making tool for the repair/replacement and a compact, user-friendly version of the US DOE repair specifications. The project is coordinating nationally with CEE's initiatives.

Less than a year of fieldwork has resulted in numerous visits to industrial customers in multiple industries and repair shops (i.e., motor service centers) across the region. There have been two case studies completed and eight others are in process.

Work with service centers was initially delayed because it took more time to produce the repair specification. Renewed emphasis on helping service centers and consultants expand their business offerings to include motor management services is underway.

Microelectronics Industry Efficiency Initiative

PROJECT STRATEGY: The market transformation strategy is to identify and pursue efficiency opportunities in the energy-intensive Northwest microelectronics industry. The Alliance is promoting an integrated design process to enhance energy efficiency in semiconductor manufacturing facilities, and assess potential efficiencies in the polysilicon manufacturing process.

The goal is to incorporate energy efficiency practices into the design and operation of tools and facilities in the semiconductor and microelectronics industries in the Pacific Northwest. The project includes conducting engineering studies that take a whole-systems approach and allow for comparison between different designs at different microelectronics manufacturing facilities.

PROJECT START: March 1998.

FUNDING SUMMARY
Through December 31, 1999, the Board allocated $1,650,000 for the project and $100,000 for evaluation.

KEY HIGHLIGHTS FOR 1999

- Conducted detailed engineering studies at two major Northwest semiconductor manufacturing facilities.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Develop and assemble information on high priority energy and resource efficiency opportunities within the semiconductor manufacturing industry.	The project has received several favorable citations including two citations in books published in 1999 -- *Cool Companies* and *Natural Capitalism*.
♦ Participate in one or more integrated design processes.	Several consultants now support an integrated, whole-systems resource efficiency strategy. Five major Northwest chip manufacturers are either implementing or in negotiations with the Alliance for implementing energy efficient projects.
♦ Participate in meetings and/or conferences with industry associations, to present energy efficiency strategies and opportunities for green fab collaborative projects.	Have participated in six key industry meetings including the World Semiconductor Council, Asia Pacific Economic Council and US DOE workshops on energy efficiency.
♦ Increase awareness of energy efficiency opportunities among representatives of major microelectronics manufacturing companies.	Business-to-business presentations have been made at three major Northwest manufacturing companies.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Attend project workshops to discuss and promote world class energy efficiency opportunities in the microelectronics industry.	Key industry representatives have attended two workshops for regional facility managers. Have gained a commitment among NW participants to share facility-related (not process-related) information to help improve energy efficiency.

COMMENTARY

The project timing and message have been well received by industry. The microelectronics industry has experienced a significant down turn that has pushed them to look for cost-cutting measures.

Projects without Quantified Savings

Education and Support

Con.WEB

Energy Ideas Clearinghouse (EIC)

Local Government Associations

National Standards

Northwest Energy Education Institute

Con.WEB

PROJECT STRATEGY: The project goal is to publish a monthly on-line newsletter reporting on Pacific Northwest energy efficiency and renewable energy developments and trends, along with other information. *Con.WEB* supports the dissemination of information about energy efficiency in the region with an emphasis on market transformation and the in-depth coverage of issues (e.g., public purposes legislation). *Con.WEB* first appeared on the World Wide Web in January 1996 as a successor to the *Conservation Monitor*.

PROJECT START: January 1997

FUNDING SUMMARY
Through December 31, 1999, the Board allocated $611,000 for the project.

KEY HIGHLIGHTS FOR 1999

- User sessions for the monthly newsletter in 1999 were nearly double those in 1998. The number of subscribers also increased about 75 percent from September 1998 through July 1999.
- *Con.WEB* published two special issues in 1999 on electric industry restructuring/public purposes and market transformation.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Become the preferred news resource for people in the Northwest interested in energy efficiency and renewables.	The publication has seen a steady increase in subscription rate and user sessions.

COMMENTARY

Con.WEB has effectively supported the dissemination of information about energy efficiency in the region with an emphasis on market transformation. Marketing and notification strategies have relied heavily on electronic mediums such as email and web site links.

One of the most useful products resulting from the project has been the publication's special issues featuring current topics of interest.

While the number of *Con.WEB*'s subscribers and user sessions has increased, the project is working to further expand its reader base through enhanced marketing and outreach.

Energy Ideas Clearinghouse (EIC)

PROJECT STRATEGY: The market transformation strategy is to increase the knowledge of energy efficiency by providing fast, cost-effective and centralized access to comprehensive, objective and targeted energy information, education, resources and technical assistance. EIC provides energy professionals and decision-makers with energy information regionally and nationally.

Engineers, librarians and other technical staff perform research and provide quick customized technical assistance including engineering analysis, identification of practical solutions and lists of other possible resources to clients requesting this information. The public can access this service through the use of the website, listserv, telephone hotline, e-mail, mail and fax in all four states.

PROJECT START: July 1997.

FUNDING SUMMARY
Through December 31, 1999, the Board allocated $1,553,000 for the project and $150,000 for evaluation.

KEY HIGHLIGHTS FOR 1999

- The Energy Solutions Database was significantly expanded to include approximately 800 on-line resources including information about energy codes, agricultural energy use, home energy, and industrial applications.
- Managed seven listservs with a total of 892 subscribers. Streamlined information delivery so that the majority of clients have their questions answered via low-cost electronic information such as the Web page or listserv.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Provide a source of unbiased, free and timely information on energy efficient technology, products and services.	Developed a tiered system of information dissemination that includes: ♦ New and improved energyideas.org, a web-based information and resource database. ♦ Targeted fact sheets covering items of specific interest to customers in the region. ♦ Live customer service for personal assistance and reassurance for decision making. ♦ Technical assistance from staff energy specialists, engineers and research librarians. ♦ Toll-free hotline. ♦ Seven energy listservs.

COMMENTARY

The Energy Ideas Clearinghouse (EIC) serves energy professionals in the Pacific Northwest by providing fast, centralized access to comprehensive and objective information and technical assistance on energy-related topics. The Clearinghouse targets its informational services to decrease at least two market barriers that limit adoption of energy efficient practices:

1. The lack of awareness of how energy is used and the associated energy/non-energy benefits.
2. The cost of the search and acquisition of energy efficiency information.

The Alliance has leveraged other resources through the EIC. Clearinghouse staff also support a number of other information services including services provided to the Western Area Power Administration, the Department of Energy (DOE) Office of Technologies, and DOE Compressed Air Challenge that allow for synergies of staffing and resources.

Local Government Associations

PROJECT STRATEGY: The market transformation strategy is to support the education of city and county government officials and staff on the benefits of energy efficiency. The project also promotes specific Alliance projects among towns, cities and counties and fosters community-based energy efficiency programs. It links Alliance goals and projects with community goals such as housing affordability, neighborhood revitalization, local economic development, environmental stewardship, and efficiency in local government operations and reliable low-cost utility services.

This effort is a partnership with local government asssociation representatives in Idaho, Montana, Oregon and Washington and supports their attempts to educate their members on the benefits of efficiency and how they can use Alliance initiatives.

PROJECT START: July 1997.

FUNDING SUMMARY
Through December 31, 1999, the Board allocated $664,000 for the project and $87,000 for evaluation. In 2000, the Board allocated an additional $811,000 for the project and $45,000 for evaluation.

KEY HIGHLIGHTS FOR 1999

- Two Idaho cities adopted energy plans.
- The Association of Idaho Cities held a successful energy conference.
- The League of Oregon Cities was active in the 1999 Oregon legislative session in support of the passage of SB1149, which will provide public purposes funds for conservation and renewable energy services.
- The Washington Association of Cities and Counties distributed an energy handbook for local governments.
- Local governments in Montana were active in marketing the Building Operators Certification program.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Provide regional coordination between the Alliance and local governments.	Coordinated on publication development and messages to explain the benefits of energy efficiency and Alliance programs.
♦ Provide program support for and promotion of Alliance projects.	Promoted Energy Star programs, BacGen, EZ-Sim, BOC, EBPI and Commissioning.
♦ Increase the communications and networking between local governments and the Alliance.	Included Alliance information in newsletters. Promoted Alliance projects at annual conventions and energy conferences.
♦ Keep informed about electric restructuring and public purposes legislative activities.	Kept Alliance staff informed on developments including the public purposes legislation; distributed information on public purposes to interested governments; testified at legislative committees.

COMMENTARY

Each local government association has an ongoing relationship with the Alliance, exemplified by a series of activities intended to benefit both organizations. As a result, local governments benefit from Alliance projects and the Alliance benefits from learning about the effect of energy-related issues on local government decision making.

Each association provides general services in support of the project goal, but also tailors its work to fit local needs. In Oregon, a pressing matter is the implementation of SB1149 and public purposes. In Idaho, one focus is the local adoption of 5-year energy plans. In Washington, concerns continue about proposed legislation's effect on electric utility restructuring. In Montana, there is a need to establish the BOC program. An Alliance Board subcommittee for each State acts as a sounding board for setting priorities in the implementation of activities.

National Standards

PROJECT STRATEGY: The market transformation strategy is to secure efficiency gains in the marketplace through the improvement of existing or promotion of new energy efficiency standards. A key strategy is the direct involvement in the national standard setting processes. One primary audience is the US DOE Office of Codes and Standards for appliance efficiency standards which cover clothes washers, water heaters, electronic ballasts, dishwashers, air conditioners and heat pumps. ASHRAE has also been a primary focus.

PROJECT START: October 1997.

FUNDING SUMMARY
Through December 31, 1999, the Board allocated $335,000 for the project.

KEY HIGHLIGHTS FOR 1999

- Made significant progress toward a new national standard for clothes washers.
- Progress was made on electronic ballast standards.
- Work began on raising efficiency requirements for water heaters and dishwashers.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Obtain national standards at the desired levels.	The ASHRAE and IESNA Boards have adopted revised 90.1R standards for commercial lighting. Progress has been made toward a new national standard for clothes washers and electronic ballasts.

COMMENTARY

Working on improving energy standards at the national level is critical to support the region's long-term market transformation efforts. Providing independent data and comments in the national standard setting process has been a very effective mechanism.

Northwest Energy Education Institute

PROJECT STRATEGY: The market transformation strategy is to provide customized training throughout the region in support of Alliance-sponsored projects and energy efficiency in general. The Institute offers an energy efficiency certification program and promotes energy efficiency curricula in Northwest community colleges. The Institute's energy education program is designed to respond quickly to industry trends and incorporate advanced educational delivery technology. The program matches training to fit the client needs of practicing professionals.

PROJECT START: January 1998.

FUNDING SUMMARY
Through December 31, 1999, the Board allocated $600,000 for the project and $45,000 for evaluation. In 2000, the Board allocated an additional $65,000 for the project.

KEY HIGHLIGHTS FOR 1999

- Developed the curriculum for the energy management certification program.
- Implemented CAC training program across the region.

Project Progress Indicator through 1999	Project Activity through 1999
♦ Develop and offer an energy efficiency certification program for practicing professionals.	Developed a certification program that will start in April 2000.
♦ Develop and implement training in support of Alliance market transformation ventures.	Managed BOC marketing and administration in Oregon; launched CAC training at five regional sites; conducted one EZ-Sim training.
♦ Develop customized training.	Offered 10 customized training classes in energy efficiency, HVAC analysis and photovoltaics. Trained 140 people.
♦ Develop a community college curriculum.	Participated in course development sponsored by Partnership for Environmental Technology Education.

COMMENTARY

The Institute formed a regional advisory committee to identify prime areas of focus including training in support of Alliance ventures, customized training and the Energy Management Certificate program. The committee meets three times per year.

The Institute receives support from the Partnership for Environmental Technology Education to develop energy curriculum for community colleges. The Institute also received a $75,000 grant from Honeywell for the development and marketing of the Energy Management Certification program.

Support for the Alliance projects, particularly the CAC and BOC, has been well received. In 2000, the Institute will hold a BOC session in Bend, Oregon, the first such offering east of the Cascades Mountains in Oregon. Efforts to market classes in Idaho and Montana will continue.

EXPLANATION OF TABLES

Allocated Alliance Venture Dollars – The total dollars allocated, not necessarily spent, to the project by the Alliance through 1999.

Actual aMW through 12/31/99 – The energy savings in average megawatts accomplished through December 31, 1999.

Projected aMW through 2010 – The projected energy savings from the project from the contract start date through the year 2010.

Estimated Cost Effectiveness Index (Total Resource Perspective) – The CE Index is a ratio of all the regional benefits divided by all regional costs. If the CE Index is greater than 1.0, the project is cost effective compared to alternative sources of electricity.

Estimated Levelized Cost (Total Resource Perspective) – The present value of a resource's cost (including capital, financing and operating costs, and quantified non-energy benefits) converted into a stream of equal annual payments and divided by the annual kWh saved. For example, if no down payment is paid on a house, and the entire amount needed to buy it is borrowed from a bank, that amount is the present value of buying a house. The mortgage payment including interest on a house is the levelized cost of that house. (Unit levilized life cycle costs, in cents per kWh, are obtained by dividing the payment by annual kWhs saved.) Unlike installed cost, levelized costs permit comparisons of resources with different lifetimes and generating capabilities. If the total non-electric benefits are larger than the total investment in the cost of higher efficiency, levelized costs will be negative.