
Washington State Energy Office

Energy Ideas Clearinghouse

Profile #86

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Executive Summary

In the mid-1980s, as the Bonneville Power Administration began to ramp up its commercial and industrial demand-side management activities, it recognized the need for a central source for detailed information on energy-efficient technologies. It sought to create a clearinghouse and after a competitive bid awarded the job to the Washington State Energy Office (WSEO). In 1990 WSEO established the Electric Ideas Clearinghouse (EIC, now known as the Energy Ideas Clearinghouse), a free information source for commercial and industrial energy projects in the Northwest.

The EIC has two primary services for utilities, engineers, designers, architects, and other energy professionals, as well as general energy consumers: a telephone/FAX hotline and a computer bulletin board (BBS). For the hotline (which is toll-free in the Northwest), WSEO's initial response time to requests is typically under eight hours. To provide responses, WSEO staff, a network of engineers, librarians, energy specialists, and communication specialists, access an assortment of reference materials. The EIC (in combination with the WSEO library) has the largest energy library in the Northwest, and maintains seven consulting firms on a retainer basis.

The bulletin board is also toll-free in the Northwest and has recently extended its toll-free range thanks to new funding sources. Up to 28 people can access the system simultaneously and it is also linked with the Internet so that the EIC's information can be accessed around the world. The BBS provides users with several services including E-mail, calendars of energy-related events, software libraries, discussion forums (some of which are private), job and resume listings, commercial energy codes, and other pertinent state and federal legislation. Currently new users are being added at a rate of 15-20 per day.

The Energy Ideas Clearinghouse provides an invaluable service in the Northwest and for the western states. While quantifying its effect is impossible, the Clearinghouse stands at the nexus of two concurrent revolutions: First, EIC is squarely positioned in the information revolution. Consumers in New York, for example, could just as easily access the Hotline and BBS as utility customers in Seattle. Second, EIC is clearly in line with the changing demand-side management paradigm. As utilities attempt to revamp their DSM programs – shifting from direct customer incentives to a greater reliance on information – the role of EIC and its importance in promoting customer-driven energy efficiency initiatives, will likely increase.

WASHINGTON STATE ENERGY OFFICE Energy Ideas Clearinghouse

Sector: *Commercial, Industrial*

Mechanism: *Primary services include the Electric Ideas Clearinghouse Hotline and Energy Ideas Clearinghouse Bulletin Board System (BBS). Hotline is a telephone service that can be reached toll free throughout BPA service territory; provides information on commercial and industrial technologies and programs. BBS is a computer bulletin board for energy professionals which can be reached toll free throughout the BPA and Western service territories, and worldwide via the Internet.*

History: *The EIC began providing Hotline and BBS services in 1990*

CUMULATIVE DATA (1990- 1st Quarter 1994)

<i>BBS connections:</i>	<i>83,545</i>
<i>Hotline information requests:</i>	<i>11,075</i>
<i>Cost:</i>	<i>\$2,406,800</i>

CONVENTIONS

For the entire 1994 profile series all dollar values have been adjusted to 1990 U.S. dollar levels unless otherwise specified. Inflation and exchange rates were derived from the U.S. Department of Labor's Consumer Price Index and the U.S. Federal Reserve's foreign exchange rates.

The Results Center uses three conventions for presenting program savings. **ANNUALSAVINGS** refer to the annualized value of increments of energy and capacity installed in a given year, or what might be best described as the first full-year effect of the measures installed in a given year. **CUMULATIVE SAVINGS** represent the savings in a given year for all measures installed to date. **LIFECYCLESAVINGS** are calculated by multiplying the annual savings by the assumed average measure lifetime. **CAUTION:** cumulative and lifecycle savings are theoretical values that usually represent only the technical measure lifetimes and are not adjusted for attrition unless specifically stated.

Agency Overview

The Washington State Energy Office (WSEO) was created by state Executive Order in 1975 in the aftermath of oil supply interruptions and amid concerns over the long-term supply of electricity in Washington. WSEO is an agency that employs 175 people and is located in Olympia, Washington and operates extension offices in Seattle and Spokane. WSEO's responsibilities were broadened by statute in 1976 and again in 1981 to include reporting to the state legislature on energy issues, emergency management for both oil and electricity interruptions, provision of energy information to the public, and administration of federally-funded state energy conservation activities. [R#1,2,9]

WSEO's activity was significantly influenced by the passage of the Pacific Northwest Electric Power and Conservation Act in 1980 which mandated least-cost regional electricity planning. Throughout the 1980s WSEO played a technical support role for regional electricity conservation and demonstration programs. Most of the funding for these programs came from Bonneville Power Administration (BPA) while U.S. Department of Energy funding for state energy conservation programs declined over the 1980s. [R#9]

During the mid-1980s proceeds from oil company price control violation suits (commonly called oil overcharge funds) were allocated to each state, with Washington receiving a total of \$62 million since 1985. These oil funds, which WSEO refers to as "Power Washington," were disbursed among many parties including WSEO, for use in energy-related programs. WSEO's share of the Power Washington funds have totalled \$22 million since 1985. These oil overcharge funds are now steeply declining. [R#1,2,9]

In 1991 the state legislature added several responsibilities to WSEO's mandate including a statewide transportation demand program, a public facility conservation and co-generation program, and support for the development of the Washington State Energy Strategy, a plan to assure Washington of reliable quantities of affordable energy, while protecting the quality of the environment. [R#1,9]

WSEO is a recognized leader in conservation program development, implementation, and technical support. Much of the conservation work has been done on behalf of BPA. In fact about 40% of the agency's FY 93 - FY 95 budget is derived from BPA. Another 16% is provided by the oil overcharge funds. Of the agency's \$51 million biennial budget (over half of which is passed through the agency in the form of grants and loans to local governments, public facilities, and other agencies and parties), less than \$2 million is provided by Washington State general funds and much of the direct state support is required to match federal funds. [R#1,9]

Currently WSEO has several other funding sources including dedicated state accounts to support specific project activities. In addition private foundations have provided financial support for specific programs. [R#9]

In 1993, WSEO conducted a strategic planning process. The resulting plan will guide the agency's decisions about new programs and set funding priorities. The externally focused strategic goals of WSEO are to: 1) provide policy leadership and counsel on current and emerging energy issues that affect the state and region, 2) motivate people through information and education to make energy choices that build a sustainable future, and 3) collaboratively identify, demonstrate and promote promising energy technologies, techniques, and practices. [R#9] ■

Agency DSM Overview

Since the creation of the Washington State Energy Office in 1975 the office has helped provide and support dozens of DSM programs. Some of WSEO's current conservation programs that most directly relate to DSM include:

Energy codes: Over the past 10 years, energy codes covering new residential and commercial construction in Washington State have become some of the most rigorous in the country. The most recent revision to the residential code in 1991 increased the building efficiency standards for all heating fuels. The code also meets the Council of American Building Officials' (CABO) Model Energy Code standards for residential buildings with electric resistance heat. WSEO has played an important role in Washington's code efforts; managing code enforcement incentive programs, operating the Energy Ideas Clearinghouse (the subject of this profile), and providing training. Commercial codes were also revised April 1, 1994 to comply with ASHRAE 90 standards. [R#9]

Northwest Residential Efficient Appliance and Lighting (NW REAL) Group: As the facilitator and a member of NW REAL, WSEO has helped bring together utilities, government agencies, and conservation groups in the Pacific Northwest to collectively promote appliances that are more energy efficient. WSEO performs appliance research; analyzes the cost effectiveness of technologies including efficient water heaters, showerheads, refrigerators, laundry systems, and compact fluorescent lights; and provides technical support and assistance. [R#9]

Computer software: WSEO has produced several software programs promoting commercial and industrial energy efficiency. MotorMaster (see The Results Center Profile #45) and BallastMaster (under development) can quickly determine the energy savings resulting from the selection of higher-efficiency devices as well as making economic comparisons between various models. MotorMaster's current database contains approximately 11,000 motor models. ENACT is an energy accounting tool that can be used to track and display energy consumption (by fuel type, facility, department, or meter) for up to 50 departments, 350 facilities, or 500 separate meter locations. WATTSUN documents Washington State Energy Code compliance for residential buildings by calculating building heat loss and annual space heat energy use. This software also helps evaluate options for insulation, building tightness, passive solar design, and heating system efficiency. HEATMAP is a program that analyzes the feasibility of district heating systems. [R#9]

Education and training: WSEO heads up a statewide education and training program that reaches all energy-using sectors. The agency uses a blend of technical and instructional expertise to present everything from small workshops to major conferences. Teams of energy specialists and trainers work throughout the state to customize training to the needs of specific audiences. Whenever possible, these events are offered in partnership with utilities, trade associations, educational institutions, and community leaders. In the past two years, 17,000 participants attended the 800 education and training events WSEO presented or sponsored. [R#9] ■

Program Overview

The Energy Ideas Clearinghouse (EIC or Clearinghouse) is considered by many to be “the” source for fast, free energy-efficiency information for commercial and industrial projects in the Pacific Northwest. Through telephone or FAX (EIC Hotline), or computer modem (EIC Bulletin Board System or BBS), utilities, engineers, designers, architects, and other energy professionals can quickly access the Clearinghouse to find and share information on energy-efficient products, technologies, and programs. Information is provided on topics including electrical systems, HVAC, motors, insulation, process equipment, computer simulation, boilers, pumps, lighting, refrigeration, and power quality. The services provided by the Hotline and The Electronic Bulletin Board are free to all users and can be accessed toll free throughout the Northwest. [R#3,4]

This entire umbrella service was initially called the Electric Ideas Clearinghouse, but the name was recently changed to the Energy Ideas Clearinghouse to better reflect the fuel blind nature of the service. The telephone Hotline component is still, however, referred to as the Electric Ideas Clearinghouse Hotline. Services provided by the Energy Ideas Clearinghouse include: EIC Hotline, BBS, Motor Challenge Information Clearinghouse, Rural Development Net, and a BBS providing energy information to Washington state residents only. [R#4]

With operations starting in March 1990, the EIC is operated by the Washington State Energy Office. Funding for the Hotline is provided solely by Bonneville Power Administration (BPA), while funding for the Bulletin Board System is provided primarily by BPA, with some added funding coming from Western Area Power Administration (Western), and U.S. Department of Energy (U.S. DOE) and the U.S. Department of Agriculture. [R#5]

During the mid-1980s there were many discussions regarding the need for a technical clearinghouse among Bonneville Power Administration (BPA) representatives, the Northwest Power Planning Council, state energy offices, universities, utilities, and contractors. At the same time BPA implemented the Energy Edge program, a commercial new construction program. This was BPA’s entry into conservation in the commercial sector and pointed out the need to develop an infrastructure to promote energy efficiency in commercial building design. [R#8]

In 1988, BPA held a series of public meetings to assess the needs of the energy community in the coming years. This Public Involvement Program (PIP) constituted a series of meetings designed to gather input on future energy needs. Participants identified information on energy-efficient technologies as a needed service. Later in 1988 BPA staff developed these recommendations into an RFP and reviewed the proposals submitted. In 1989, BPA selected WSEO for the contract to implement the EIC. [R#8]

BPA began the process of establishing the EIC with the goal of supplementing the design assistance and analysis services offered by Northwest utilities to participants in the Energy Smart Design (ESD) and Energy Savings Plan (ESP) programs (See The Results Center Profiles # 18,37). Specifically, the EIC targeted utilities promoting the ESD and ESP programs, customers in these programs, and design professionals assisting in the design and implementation of energy efficient commercial systems. [R#8]

The Clearinghouse is staffed by a team of professionals from the Washington State Energy Office who are experienced in all aspects of commercial and industrial energy use. The staff includes a network of engineers and energy specialists, as well as some consulting firms on retainer. The staff provides answers to questions on energy-efficient design as well as helping to make connections with other technical experts as needed. Typically the front line of communications specialists can answer many of the questions. More complex questions are assigned to commercial and industrial engineers and a research librarian. The key value-added component of the service is the personal contact that users experience with highly trained technical staff. [R#3,4]

The only revision in program design occurred in September 1992 due to a contractual revision in which the industrial component was officially made a part of the EIC package. Prior to this time the service had offered referrals and limited technical assistance for industrial questions. The growth of the ESP for industrial customers and the demand seen in the first few years of the EIC for industrial information led to this change. The industrial component required the EIC to add additional library resources, referral sources, and engineering staff. The initial WSEO EIC contract was for five years (1989 through September 1994), broken up into three year and two year segments. [R#4,8] ■

Implementation

MARKETING

The contract between WSEO and BPA stated that BPA would provide all promotion for the EIC. BPA has funded the design and publication of program brochures, furnished a logo to be used on all publications, and provided assistance with a mailing and open house. [R#8]

The first major promotional effort undertaken by BPA began in November 1991, more than a year after EIC began. This initial campaign targeted newspapers, business journals, and trade publications in BPA's service territory. Following this campaign there was no consistent promotional effort by BPA. Therefore responsibility for keeping the EIC visible fell on the Clearinghouse staff. No additional BPA marketing efforts were implemented until September 1993 when BPA marketing consultants using a list developed by EIC staff invited engineers, architects, and utility personnel to an open house. The increased role of WSEO in marketing the program was formally incorporated into the contract update of September 1992, and EIC staff decided that they must be responsible for their own consistent marketing efforts. [R#8]

The Energy Ideas Clearinghouse produces a wide range of promotional and explanatory pieces to encourage use of the EIC services. These materials emphasize that no question is too simple, complex, political, or product oriented. In addition, WSEO promotes the program through public presentations, marketing the EIC through other WSEO services, and targeted mailing efforts. [R#5,8]

DELIVERY

Groups using the information provided by the Hotline and the Bulletin Board System include utilities, engineers, consultants, designers, building owners and operators, contractors, manufacturers, industries, researchers, and government agencies among others. EIC focuses almost solely on commercial and industrial questions, typically referring residential questions to other sources (in-state callers are referred to WSEO). [R#5]

ELECTRIC IDEAS CLEARINGHOUSE HOTLINE SERVICE

The EIC Information Hotline (Hotline) can be reached in BPA service territory (WA,OR,ID,MT) by telephone at 1-800-872-3568, and is open from 8:00 am to 5:00 pm, Pa-

cific Standard Time, Monday through Friday. People calling after hours can leave messages which are returned the next business day. Users outside the Northwest must dial 206-956-2237, and receive lower priority than local calls in terms of processing requests. Local customers have the option of visiting the EIC in person in Olympia, Washington to access resources directly. In fact, the Clearinghouse offices were moved in February 1993 to a space that is much better equipped to handle walk-in requests. The new location also provides staff with more storage, office, and meeting space. [R#3,5,8]

The Hotline provides information on technologies such as chlorofluorocarbons (CFCs) and ground-source heat pumps, and issues including lamp disposal and power factor correction. Information about specific energy efficiency programs such as Green Lights, Green Seal, or Energy Star are also available as well as product specific information including Green Plug, E-lamp, and LED exit sign retrofit kits. [R#5]

Resources (the EIC library combined with WSEO's library) include thousands of books, hundreds of periodicals, all relevant industry codes and standards, more than a million pages of product literature (primarily on CD Rom or high-speed microfiche), countless papers, reports, and articles on hundreds of technologies, access to 450 databases across the country used for in-depth literature searches, and seven consulting firms on retainer as back ups. [R#5]

Once a user contacts the Hotline, the EIC employee answering the phone gathers and enters into the Hotline database initial information on the caller and his or her request, and then forwards the call if necessary to the appropriate expert, typically the librarian or a lead engineer. Response time to the initial request averages less than 8 hours. The response time is that time by which the requester has been notified, usually by phone, that their request is being processed and is given a date by which they should expect a complete response. [R#8]

When providing answers to callers' questions EIC includes a letter highlighting the answer as well as providing additional information. These responses, when mailed, usually consist of a significant stack of documents. Each response is tailored to the needs of the individual caller as opposed to sending out prearranged packets. Responses

can be delivered by phone, FAX, express mail, or standard mail. When a full response cannot be provided within the agreed time, a partial response is given along with an estimate of the additional time needed to answer the remaining questions.[R#5]

The toll-free FAX line is, of course, open 24 hours a day and can be reached at 1-800-872-3882 for Pacific Northwest users and 206-586-8303 for all other users. The FAX line is typically used to order technical information, articles, reports, and product literature as well as send drawings, figures, or calculations to help an EIC specialist better understand the details of a project.[R#3]

ENERGY IDEAS CLEARINGHOUSE BULLETIN BOARD SYSTEM (BBS)

The Clearinghouse Bulletin Board System (BBS) allows computer users to hook up to a vast amount of energy information with the help of a modem. It is designed and maintained by WSEO and like the Hotline promotes energy conservation in commercial and industrial buildings and applications.[R#5]

The EIC BBS can be reached toll-free throughout the BPA service territory (WA, OR, ID, MT) at 1-800-762-3319, and toll-free throughout the Western Area Power Administration (Western) service territory (AZ, CA, CO, IA, KS, MN, MT, NE, NM, NV, ND, SD, TX, UT, WY) at 1-800-797-7584. Users outside of these areas must call 206-586-6854. Up to 28 people can access the system simultaneously, so callers do not get a busy signal. The Clearinghouse BBS has connections to Internet and the Michigan Energy and Regulatory Matters Board. Through Internet more than 20 million people around the world can access the BBS by telnetting to "eicbbs.wseo.wa.gov." [R#5]

The bulletin board software used on this system is "The MajorBBS" from Galacticomm, Inc. The software runs on a 486 IBM compatible computer with a 500MB hard disk and 8 MB RAM. Incoming channels are handled via three high speed 8 port cards. All of the files on the computer are backed up automatically every night at 11:00 pm to a Microsoft "LanManager" network server where it is archived to tape storage 5 times weekly.[R#6]

While use of the BBS is straightforward for people having experience with modems and electronic bulletin boards, some new users have difficulty logging on as well as up-

loading and downloading information. The EIC provides telephone assistance for users experiencing difficulty operating the BBS and will even walk local users through the key commands necessary to access the desired information. Help for non-local users can be accessed through local Western representatives who have received in-depth training from EIC staff. [R#4]

BBS Options include:

- Electronic mail (E-mail) to communicate with the thousands of registered users as well as the millions of people from around the world on the Internet and other information systems. Users can attach files to messages, such as minutes from a meeting. [R#4,5]
- A training calendar listing hundreds of events. This list is one of the most frequently used BBS services. Users are welcome to add their own upcoming events. [R#5,8]
- A programs and experts database to help users track down technical assistance, speakers, or financing. Users can list their own qualifications and services.
- Software libraries with hundreds of files which can be downloaded and uploaded.
- All of the Clearinghouse fact sheets and case studies can be transmitted to a user's FAX machine automatically.
- Discussion forums on more than 70 topics where engineers, utility representatives, building owners and operators, contractors, architects, and others from around the Northwest and beyond can discuss which energy conservation measures really work from several perspectives. These forums continue indefinitely as long as there is user interest. Each forum has a moderator to make sure questions get answered and to help keep conversations on track. A moderator typically checks in on a forum once or twice weekly. The BBS system operator may drop in occasionally to let users know that a related conversation is taking place in another forum that may be of interest. Users can share information from conferences, a journal article, or recent experience. Approximately 20 of the forums are private, with approval for participation required from the moderator. Michigan Public Service Commission's Energy & Regulatory Matters BBS and the EIC BBS have 15 forums in common, and messages ☞

Implementation (continued)

from these forums are exchanged between the two systems every night. There are also forums for specific technologies and building types. [R#4,5]

- The jobs and resume listing service can help users find potential employees or provide their own credentials by presenting a resume. This service has recently been upgraded to provide many more energy related job leads. [R#4,5]

- A variety of commercial energy codes and other local, state, or federal energy legislation are available on the BBS.

BBS includes the following features which speed up use of the system:

- The ability to handle up to 14,400 baud, with V.42bis and MNP-5 capability.

- A key word search option allows users to quickly research a specific topic within the forums such as "retail lighting."

- Quickscan allows users to only read the messages they have not read before and also only lists forums that the user has previously identified as being an area of interest.

- Most users' communication software allows them to dump information scrolling across their screen into a text file which can then be printed out and/or edited later.

- The off-line mail reader allows users to dump all of their E-mail and new forum messages into a text file to look at off-line (disconnected from BBS), respond to, and then upload when ready. [R#5]

The BBS is accessible 24 hours a day by computer modem. Instructions for use appear each time a call is made. Questions about BBS are handled by the Hotline operator as well as a user's manual. [R#3]

OTHER EIC SERVICES

In addition to the Hotline and BBS, there are several other services provided under the EIC umbrella. The Motor Challenge is a joint effort by the U.S. Department of En-

ENERGY-RELATED BULLETIN BOARD SYSTEMS:

Energy-related electronic information resources (BBS) provide a wealth of information to energy professionals. This information is readily available to people having a personal computer, communication software, a telephone line, and a modem. It is estimated that about 20 million Americans have both a personal computer and modem, and there are dozens of energy-related electronic bulletin boards currently available. [R#5]

Accessing a BBS from out of state (or area code) can often be done through an Internet connection with a local number, and some even provide a toll-free number.

Some of the current energy related bulletin boards include: Consortium for International Earth Science Information Network (CIESIN), EcoNet, Energy Information Administration (EIA), Green Lights, and WATTSLINE (offered by the Association of Demand Side Management Professionals), just to name a few. A description of other available bulletin board systems can be accessed via the EIC BBS. [R#4,5]

ergy (U.S. DOE), industry, motor/drive manufacturers and distributors, and others. The goal of the Motor Challenge is to increase the use of energy-efficient electric motor systems, by providing information about energy-efficient electric motor system technologies. The primary vehicle for disseminating this information is the Motor Challenge Information Clearinghouse, which provides a national toll-free hotline and BBS and is operated by EIC. Services provided are similar to those provided by the EIC Hotline and BBS, except the information focuses on motor systems. The Motor Challenge also encourages organizations to become Motor Challenge Partners, similar to Partners in EPA's Green Lights program (See Profile #35). [R#4,13]

The Rural Development Net (RDN) is an electronic bulletin board service sponsored by the National Rural Development Partnership (NRDP) within the U.S. Department of Agriculture and operated by EIC. RDN is intended to serve as a pioneering communications network for the National Rural Development Partnership and other interagency, intergovernmental efforts focused on rural

America. Toll-free telephone access is available to non-federal members of the National Rural Development Partnership and other authorized users and can be accessed by modem and Internet. The RDN has 15 unique forums as well as 2 library directories.[R#4,12]

A toll-free BBS limited to Washington State residents only will also be available by late summer 1994, providing energy information.[R#4]

The U.S. Department of Energy's Institutional Conservation program (ICP) is a program aimed at schools and hospitals, providing matching funds for energy-conservation audits and/or installations. EIC provides a toll free access number to EIC BBS for all 50 state energy offices involved with ICP.[R#4,12]

The EIC also publishes fact sheets on a range of energy topics not well documented by other sources. EIC has produced 46 of these reports which are typically four to five pages long and cover topics such as building commissioning, energy-efficient motors, and geothermal heat pumps. Two of the 46 are case studies, one examines adjustable speed drives in a lumber dry kiln (Columbia Harbor Lumber Company), and the other looks at the installation of two-speed motors at North Seattle Community College.[R#5,8]

The Clearinghouse library is the largest energy library in the Northwest when combined with WSEO resources, with a collection including product literature, articles, product reviews, reports, and energy-related publications. The library is staffed by a full-time research librarian who sends relevant reports by mail or FAX. Combining the WSEO and EIC libraries, there are 16,000 books and 750 periodicals available. Staff estimate that most requests can be met through the use of in-house resources and interlibrary loans. Perhaps the most important feature of the library is the ability of the staff to quickly perform in-depth literature searches for users. Typically the library provides the user with a detailed list of all available information sources on a given topic and then allows the user to select the documents they would like to receive.[R#3,4,8]

By the end of the Summer 1994, EIC will also have an FTP (File Transfer Protocol), which allows Internet users to access and download the EIC software library.[R#4]

MEASURES INSTALLED

While the EIC is not directly responsible for the installation of energy-conservation measures, information is provided on virtually all energy end uses including adjustable speed drives, lighting and lighting controls, energy-efficient motors, energy management control systems, geothermal heat pumps, and HVAC just to name a few. Thus it is a fair bet that many energy efficiency/conservation measures are installed by users of EIC services, although it is impossible to place an estimate on the number installed.

STAFFING REQUIREMENTS

Within WSEO the Clearinghouse is a unique program. EIC is a regional service provider within a state energy office and functions somewhat independently of WSEO even though the staff are Washington State employees. The program began with a staff of 5 full-time equivalents (FTEs).[R#8]

The EIC is currently staffed by a core group of five full-time employees, supported by 10 other staff members. EIC estimates there are 7.5 full time equivalents (FTEs) working on the program. Additional support is provided by a variety of people within WSEO.[R#4,5]

Of the full-time employees Curtis Framel is the program manager, Rob Penney is the lead engineer, Billie-Gwen Russell is the system operator for Hotline operations, Ellen Leveque is the technical librarian, and Len Garrett provides office support. For the part-time employees, Linda Witham is the system operator for publications and Greg Ware is the system operator for BBS. Additional employees provide technical support, industrial engineering expertise, hardware information, programming, codes assistance, and database entry. These staff members are full-time WSEO employees who dedicate varying percentages of their time to EIC.[R#4,6]

Within BPA, the Contracting Officer's Technical Representative (COTR) has primary responsibility for project oversight. For the EIC the COTR is involved in marketing, supervision, decision-making for contract changes, review of reports, and supervision of the committee of representatives from the area offices, utilities, lighting lab, and EIC.[R#8] ■

Monitoring and Evaluation

MONITORING

Two separate databases record information on Clearinghouse Hotline and Bulletin Board users.[R#8]

The Hotline database was developed initially for reporting purposes, to measure levels of use, identify types of users, and types of technology requests being received. The database was later modified with more extensive categories for major and minor technology categories. The BBS database includes fewer variables, but allows staff to track total users, location, type of computer, employer name, first and last use, and source of referral to the system. Reports within the BBS software are developed using a SYSTATS function. The BBS database is limited and has not received major modifications over time due to limits of the Galacticomm software.[R#8]

The Hotline database includes information on the requester's service area, name, type of requester (firm or organization), address, nature of request, who recommended EIC, response method (immediate, callback, or research) and the approximate time for this method of response, type of assistance provided (written materials, technical assistance, program information, literature search, training information, referral provided, product information), response time for first request, date of request, staff taking request, technical category, utility name and state, and any additional notes regarding the request. The EIC staff code information requests using 37 major technology categories and 447 minor technology categories. The database is easily accessible to staff and provides summary statistics for monthly and quarterly reports. EIC staff can also perform key word searches, which can help to research information requests on similar topics.[R#8]

Once a response to the request has been completed, the system records how response contact was made (phone/and or mail) and what type of response was provided. Staff estimate that the Clearinghouse provides customized research for more than 400 calls per month. Approximately 50% to 75% of these calls require staff research time and are tracked in the database. Questions which can be answered immediately (less than 10 minutes) are not logged.[R#8]

The Bulletin Board database electronically records information on users. When users log onto the system for the

first time, they select a unique user name (typically the first three letters of their first and last name, i.e. William Smith = WILSMI), and must also provide their name, address, telephone number, firm name, type of computer, and source of referral. The system automatically records first and last log on time and date. The BBS software (Galacticomm), like most bulletin board software, is designed for user access and not for data management and reporting. At the end of each month the EIC staff produces a report on the users collected by the system. After that data is printed through a screen dump, the software system no longer stores the data and starts data collection for the next time period. No cumulative data is stored electronically over time.[R#8]

An additional source of customer information are the EIC Evaluation Cards returned directly to BPA by customers. With each piece of information sent to a requestor, an evaluation card is included. The card asks the customer to provide information on means of access to the EIC, type of assistance requested, and to rate the Clearinghouse on 5 characteristics. In general, these ratings have been extremely positive. BPA is supposed to be responsible for analysis of this data and relaying this information to EIC staff. The cards were first made available in November 1990. From 1991 through early 1993 copies of the evaluation cards returned to BPA were sent to EIC staff. BPA has not however, completed a data analysis of the cards. A total of 3,729 user evaluation cards have been mailed with each document sent from the EIC since November 1991. Through 1992 741 cards had been returned.[R#8]

EVALUATION

At present BPA is reducing many expenditures as well as undergoing a major reevaluation of all BPA operations, making the future role of the EIC as a promoter of energy efficiency in the Northwest somewhat uncertain. Based on these factors as well as the approaching close of the five-year contract (September 1994) with WSEO to operate the EIC, BPA wanted to evaluate the satisfaction level among the service's users, assess utility use of the service, and explore current users' willingness to pay for the service in the future.[R#8]

In September 1993, BPA selected Barakat & Chamberlin to perform a process evaluation of the EIC. This report was completed April 8, 1994. The evaluation included five

components: in-person and telephone interviews with staff and former staff of BPA and the Clearinghouse; site visits to the EIC; telephone surveys of both participating and nonparticipating utilities; ESD/ESP customers and other customers; document review; and an analysis of the existing program databases.[R#8]

Telephone surveys were conducted with representatives of the BPA utilities and other users of the Clearinghouse services. A total of 163 interviews were completed with users and 32 interviews were completed with utility representatives in the BPA region. For the interviews of key BPA and WSEO staff, 5 WSEO staff were interviewed in person, 2 BPA staff were interviewed in person, and 3 BPA staff were interviewed by phone.[R#8]

The evaluation came up with the following findings:

- Analysis of the EIC database shows that 83% of all requests over the past four years have received an initial response within 8 hours of the time of their request.[R#8]
- Based on user surveys and EIC databases it appears that EIC users are fairly evenly dispersed throughout the BPA service territory. Interestingly, almost 50% of EIC users reported less than 5 years of experience in the field of commercial/industrial energy efficiency. Based on user surveys, 47% of users indicated they had used the EIC ten or more times in the past six months, and another 28% had used the services 2 to 5 times during the same period.[R#8]
- While 60% of Hotline users surveyed reported that the cost of finding the information for their most recent request would have been \$200 or less, 14% of respondents reported that the cost of the information would have exceeded \$1,000. For BBS users, 63% estimated the cost of alternatives at less than \$50 per request.[R#8]

The process evaluation had the following recommendations:

- BPA should clarify the role of the EIC within BPA, fostering the integration of the EIC with other BPA programs, and increasing education about and support for EIC among area and district offices. This clarification has begun with changing the name of the Clearinghouse to reflect its fuel-blind nature.[R#8]

- BPA should identify nonusers of EIC among the region's utilities and develop targeted marketing efforts to improve awareness of the EIC's range of services. WSEO and EIC staff should work with BPA to use EIC's current databases to prepare targeted, issue-oriented reports that serve to validate services delivered and assist with marketing, program development, and change.[R#8]

- Existing users of the service should be contacted to develop physical demonstrations of commercial and industrial applications, assist with case studies for dissemination, and market the service to nonusers. Frequent users should also be tapped as a source of ideas for service improvements.[R#8]

- BPA should work with WSEO to clarify marketing responsibilities and develop clear and consistent long- and short-range marketing efforts.[R#8]

- A more consistent evaluation of the service should be implemented including an ongoing analysis of the evaluation cards currently used in the system as well as targeted telephone and mail surveys and focus groups.[R#8]

- BPA should explore cooperative efforts with other organizations to retain the cost-free service, but if a fee becomes necessary, a membership fee is preferable at rates comparable to similar services as opposed to a per use charge.[R#8]

The EIC staff plans to use the findings of the evaluation to help program evolution and hopefully solicit a wider funding base.[R#10] ■

Program Savings

Based on the ever-growing number of EIC Hotline and BBS users it is clear that the EIC is having an impact on energy conservation in the commercial/industrial sector. Unfortunately it is almost impossible to attach any quantifiable energy or capacity savings to commercial/industrial retrofits or new construction which incorporate energy conservation measures as a result of EIC information. To do so would require careful reporting on the part of all EIC users detailing exactly which conservation measures were installed due to data provided by the Clearinghouse.

PARTICIPATION RATES

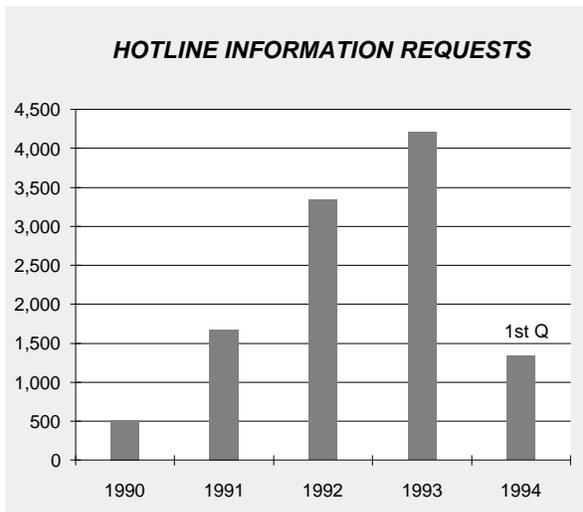
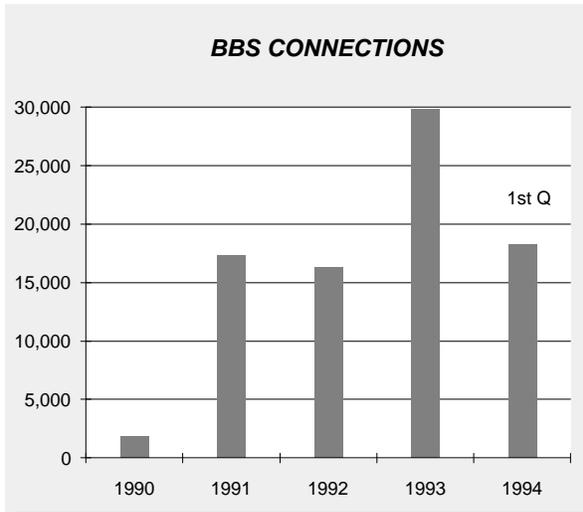
In terms of calls (or connections), the growth rate of the BBS has been tremendous. In 1990 there were 1,879 BBS connections, 17,328 in 1991, 16,316 in 1992, 29,760 in 1993, and 18,262 in the first quarter of 1994. In November 1990, there were 1,214 calls to the system. In May 1994, the number of calls increased to 8,000. From 1990 through May 1994, there have been a total of 4,000 new BBS users. Typically the BBS system has 300 to 400 on-line hours monthly, 16 hours per workday, and 10 to 12 new users per day. Curtis Framel, EIC's Program Manager, reports that for the past four months the BBS has signed up 15-20 new users each day, and that the current doubling time for BBS participants is six months! Clearly the BBS has reached a form of critical mass which is now being bolstered by its growing reputation as a highly technical and responsive service and international Internet connections. Furthermore, thanks to new funding sources all state energy offices have toll-free access to the BBS as do the nine regional U.S. DOE support offices. [R#6,8,10]

<i>EIC USERS</i>	<i>BBS CONNECTIONS</i>	<i>HOTLINE INFORMATION REQUESTS</i>
1990	1,879	518
1991	17,328	1,672
1992	16,316	3,343
1993	29,760	4,201
1994 (1st Q)	18,262	1,341
Total	83,545	11,075

EIC Hotline information requests have also steadily increased over the years with 518 requests in 1990, 1,672 requests in 1991, 3,343 requests in 1992, 4,201 requests in 1993, and 1,341 requests in first quarter 1994. The large majority of these requests (85%) have been made by phone. The jump in 1992 participation can be attributed to increased marketing efforts. Over the past four years, utilities made the highest percentage of Hotline requests, followed by engineers, consulting firms, commercial businesses, and research and educational institutions. [R#8]

FREE RIDERSHIP

Of the Hotline users surveyed for the EIC process evaluation, 51% indicated that in the absence of the EIC, they would have done the research themselves. For BBS users, slightly more than 1/3 also claimed that in the absence of the BBS they would have done the research themselves



using their own company's reference materials. Therefore, while it appears that free ridership levels for EIC are fairly high, free ridership is not a major concern among the EIC staff because the purpose of the Clearinghouse is to disseminate as much information as possible to energy professionals, and to reduce the cost of information for the benefit of utility DSM programs. [R#8]

PROJECTED SAVINGS

The EIC hopes to continue to increase the number of Hotline and BBS users, and there is especially tremendous growth potential for the BBS as electronic bulletin boards become more commonplace in general. (Internet, for a prime example, is growing by 1 million users monthly.) It is a reasonable assumption that users of EIC implement many energy conservation measures learned about through EIC materials. Therefore as the number of EIC users increases, so should the amount of energy savings indirectly attributable to EIC. ■

Cost of the Program

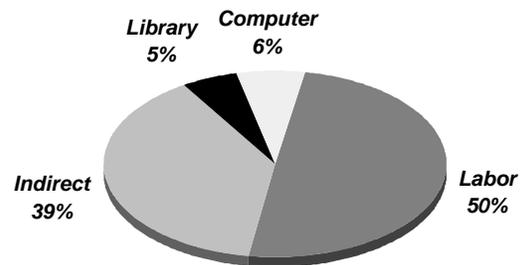
DATA ALERT: Please note that the cost figures discussed below are WSEO approximations of costs and not exact figures. This is due to difficulties in disaggregating cost components from WSEO's overall operating budget. The fiscal year for EIC runs from October 1 through September 30. Dollar figures have been leveled based on the calendar year in which the Fiscal Year ends. i.e., FY 1992 is leveled based on 1992 dollars.

total annual labor costs equal to fully 50% of total program costs.[R#10]

The second most important cost component relates to what EIC considers "indirect costs" since they are assets provided by the WSEO as a whole. Indirect costs include clerical support, mail services, the use of WSEO's computer specialists, a fraction of WSEO's Director's time, accounting services, and other general overhead such as rent and travel. Indirect costs have been approximately

EIC total expenditures have steadily increased along with its stature and customer use, with \$437,000 spent in FY 1990, \$506,700 spent in FY 1991, \$672,700 spent in FY 1992, and \$790,400 spent in FY 1993. The EIC budget for FY 1994 is \$930,000.[R#10]

The EIC Hotline is solely funded by BPA at this point in time. Most of the funding for the BBS is also provided by BPA, with approximately 25% of the total BBS budget coming from Western and U.S. DOE.[R#4]



COST COMPONENTS

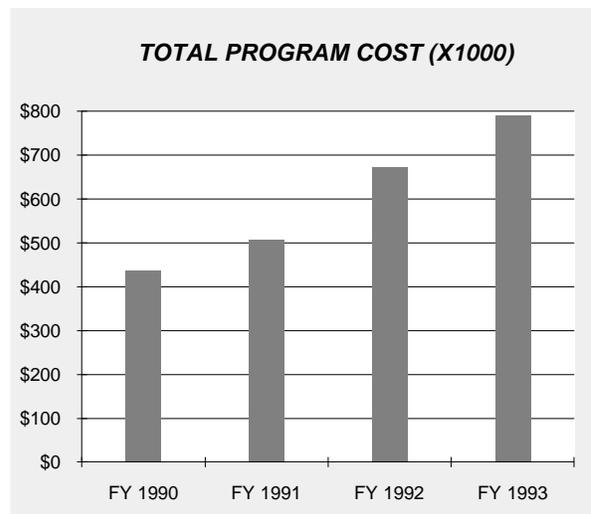
The dominant portion of EIC's costs have been devoted to paying for labor, which EIC defines as salaries for staff and consultants. The staff is experienced and expensive, according to Program Manager Curtis Framel, but absolutely critical to the EIC's impact and importance. EIC spent \$369,500 on labor in FY 1993, and a total of \$1,200,600 on labor from FY 1990 through FY 1993, with

39% of EIC's annual budget, totaling \$931,500 from FY 1990 through FY 1993. Indirect costs for FY 1993 totaled \$306,400 and are budgeted at \$349,000 for FY 1994.[R#10]

COSTS OVERVIEW	LABOR (x1000)	INDIRECT (x1000)	LIBRARY (x1000)	COMPUTER HARD/SOFTWARE (x1000)	TOTAL PROGRAM COST (x1000)
FY 1990	\$240.0	\$165.0	\$12.0	\$20.0	\$437.0
FY 1991	\$252.9	\$191.6	\$35.4	\$26.8	\$506.7
FY 1992	\$338.2	\$268.5	\$26.9	\$39.0	\$672.7
FY 1993	\$369.5	\$306.4	\$48.7	\$65.8	\$790.4
Total	\$1,200.6	\$931.5	\$123.1	\$151.6	\$2,406.8

The costs of the computer equipment and system operations, consisting of hardware, software, telephone bills, and general operating expenses totaled \$65,800 for FY 1993. Computer hard/software expenses have totaled \$151,600 from FY 1990 through FY 1993, equal to 6% of total EIC costs. While computer equipment is at the heart of EIC's services, these costs have been surprisingly small. [R#10]

The fourth most expensive aspect of operating EIC relates to its library. Annual costs for EIC's collection of periodicals and technical papers as well as interlibrary loans and fee services have ranged from \$12,000 in FY 1990 to \$48,700 in FY 1993, equal to 5% of total costs. (Note that EIC maintains a separate collection from WSEO's general library.) Naturally, EIC's track record over time has resulted in a significant collection. The library budget for FY 1994 is \$52,000. [R#10] ■



Lessons Learned / Transferability

LESSONS LEARNED

Perhaps the key lesson learned by the EIC staff is that in order to run an effective energy information clearinghouse, several assets must be in place. First, the clearinghouse needs to be supported by a multi-year, financial commitment so that the clearinghouse can develop two essential ingredients for success: a highly competent staff (which is not only technically adept but possesses good communication skills) and a strong information base. In order for a clearinghouse to reach its critical mass, at which point its benefits clearly exceed its costs, staff needs to be put into place and resources need to be amassed. [R#10]

Another key lesson learned by the staff at WSEO is that staffing levels were grossly underestimated initially for BBS. In fact, BBS was only alluded to in a few sentences in the original WSEO contract with BPA. This oversight was likely due to the fact that six years ago when the contract was drawn up, electronic bulletin board systems were quite uncommon. A few years later it became clear how important this aspect of the EIC would become. [R#4,8]

Rob Penney, Lead Engineer for EIC believes that EIC can be a key tool for designing and implementing successful DSM programs because of the accurate, up-to-date, unbiased information on product performance and application guidelines. Penney thinks that EIC is especially beneficial for smaller utilities because it provides information which these utilities would otherwise not be able to afford to gather. [R#7]

Penney believes that with many early DSM programs the focus was on achieving the highest level of participation possible. Often this resulted in the wide distribution of some energy-saving products early in their development that were misapplied and not always well received. Since that time the drawbacks of these products have been cor-

rected by manufacturers, but many customers have memories of the old energy saving products and may be wary to participate in current DSM programs. It is therefore imperative for DSM planners and implementers to select the best technologies possible, which of course is where EIC comes into the picture. [R#7]

Acquiring up-to-date information on DSM technologies can be a challenge because conservation technologies are changing so rapidly. As a result many publications become quickly outdated. EIC staff members spend a great deal of their time keeping information current. Updating of information often occurs in response to an information request. Another challenge is that many sources of information might have different perspectives than the information users. For example, building operators may receive advice from a utility representative or a manufacturer's representative. Perhaps it is more useful for building operators to be able to easily communicate with other building operators. The EIC provides solutions to both of these challenges by providing up-to-the minute information as well as readily putting energy professionals in contact with other energy professionals throughout the world. This interaction between many diverse individuals is a major strength of the EIC. [R#7]

Penney also believes that EIC could benefit greatly from a more diversified funding base. With funding coming primarily from a single source (BPA), the EIC is at the mercy of BPA policy changes. Limited source funding also has the potential to damage credibility. Funding from other sources would allow additional organizations to "buy into" EIC, which would likely lead to increased use by these parties as well as providing valuable feedback. Presently, the funding for energy conservation programs at BPA is tenuous, and BPA has encouraged the EIC to seek outside funding. However, BPA has repeatedly confirmed their commitment to a goal of 1,500 aMW in DSM savings in the BPA region by the year 2000. [R#4]

One goal of the EIC is to somehow integrate more impact analysis into the program in order to help quantify the EIC's effect on regional conservation efforts. So far EIC has had little luck determining what role it plays in energy conservation projects, leading to an unknown amount of savings. [R#4]

Barakat & Chamberlin's evaluation of the Clearinghouse provides the following lessons learned [R#8]:

One of the most problematic implementation issues has been the role of utilities. While BPA designed the service to support utilities and their commercial program customers, most utilities have been ambivalent about the value of the service. This situation is likely due in large part to a lack of program marketing. In addition, some utilities felt that BPA funds spent on EIC were being taken away from their DSM funding as opposed to benefitting from EIC services. This general lack of utility support for EIC has continued to hamper the program's effectiveness in meeting its goal of fully serving the utilities and their customers. [R#8]

EIC's role is also unclear within BPA. Integration with other programs is difficult because of administrative rules. Area and district offices do not fully understand the EIC and therefore do not market the service to their customers. B&C recommended that BPA staff in charge of the EIC should provide clear and consistent training and information to staff regarding the EIC's services. This is especially important as responsibility for service within BPA becomes increasingly decentralized, and area and district offices assume more responsibility for service. Similarly, if BPA staff are to know about and support the EIC they must be able to use the service. Problems with computers and modem access have prevented this. The problem has been evident for four years and should be addressed as soon as possible. By not addressing this problem, BPA has contributed to an internal perception that the service

is not valuable. [R#8]

Perhaps the biggest challenge to date for EIC has been the marketing, or lack thereof, by BPA. Primary responsibility for marketing the Clearinghouse was assigned to BPA in the original WSEO contract. Contract revisions acknowledge the growing cooperative marketing effort between the two agencies, but direction and management of marketing still formally lies with BPA. General marketing efforts have been sporadic and too broad in focus. EIC staff would like to be more directly involved in marketing the service. EIC would also like to see better linkages between EIC and other BPA conservation programs. Currently there are many BPA employees that do not use EIC services or even know about EIC and as a result these people clearly do not actively market EIC to the utilities they come in contact with. While marketing responsibilities are now more evenly dispersed between BPA and WSEO, BPA's lack of marketing efforts in the past has hampered EIC's effectiveness, particularly in meeting the needs of the priority clients (utilities and their customers). An even clearer delineation of marketing responsibilities is needed to ensure that information about the program's services is available to the widest possible audience. [R#4,8]

TRANSFERABILITY

One of the great ironies of EIC's success is that several other organizations are considering parallel services. While the spirit of this replication is admirable, duplication of efforts makes little sense, especially in this electronic information age. EIC staff strongly encourage utilities considering adopting "the EIC formula," to consider contracting with EIC directly to fulfill this need.

Western Area Power Administration has done just this and as discussed in the body of this profile has expanded the scope of the BBS. At the same time BPA's action has effectively reduced the unit cost of providing technical 

Lessons Learned / Transferability (continued)

information by spreading EIC's fixed costs (including staff time and information resources) to make EIC nothing but more cost effective. Recently the U.S. Department of Energy has arranged to utilize EIC in another way, to promote its Motors Challenge program. EIC welcomes similar discussions with other utilities and government agencies. Because of its experience, the EIC staff believes that with additional funding it is in a great position to expand its capabilities including the range of technologies covered.

Unfortunately there still appears to be a desire for other entities to "reinvent the wheel." For instance, recently the U.S. DOE elected to merge its NATAS (National Appropriate Technology Assistance Service) and CAREIRS (Conservation and Renewable Energy Inquiry and Referral Service) information services into one EREC (The Energy Efficiency and Renewable Energy Clearinghouse). While the merger makes sense, given EIC's structure and expertise EREC appears to be a duplicative effort, increasing costs and causing both information sources to be less cost effective delivery agents of information on energy issues.[R#10]

Key to this line of thinking is the "information highway" and the advances in telecommunications that allows EIC to provide information around the world quickly at low costs. The geographic location of the service provider makes very little difference.

Another prevailing trend also supports the use of EIC: namely increased competition in the U.S. electric utility industry. Competitive forces are causing utilities to reexamine their DSM spending and to revamp their programs to shift from direct customer incentives to a stance whereby utilities provide tremendous information services coupled with access to capital. EIC stands well-positioned to capitalize on and support this key industry trend.

Finally, while it may be more cost effective for North American utilities and energy organizations interested in starting up services similar to those provided by EIC to channel funds directly to EIC, there is tremendous potential to startup similar information services in countries throughout the world.[R#4] ■

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