

# Energy Innovator Award Winners

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## 2022

### **Sacramento Municipal Utility District (SMUD), CA: Natural Refrigerant Incentive Program**

Sacramento Municipal Utility District launched a pilot natural refrigerant incentive program intended to leverage existing relationships with its electricity customers to inspire and test local installations of innovative climate-friendly natural refrigerant systems. The program has been in operation since 2017, with two grocery store chains currently participating in a comparative performance evaluation. Supermarket refrigeration systems have been identified as a leading contributor to the emissions of harmful gases due to their complex designs and typically high leak rates. Because SMUD had been active in local climate collaborative planning and regional greenhouse gas inventory development, the utility realized that it had an opportunity to assist the region in raising awareness and helping its customers make this transformation. The innovation of the SMUD natural refrigerant incentive program will result in benefits not only in providing utilities with a blueprint for achieving deep decarbonization of existing buildings, but by providing third-party validated energy performance, cost analysis, and overall emissions reductions.

## 2021

### **Southern Minnesota Municipal Power Agency, MN: *SMMPA Member EV Charging Network***

Southern Minnesota Municipal Power Agency's (SMMPA) Member EV Charging Network was a collaboration between the agency, 17 of its member utilities, and ZEF Energy to facilitate the acceptance of electric vehicles and help with the transformation of both the electric utility and transportation industries. SMMPA made the investment in the chargers and maintenance programs, while member utilities located suitable sites and handled the installation. This project will bring fast charging stations to the region and reduce range anxiety by providing EV owners with a quick charge when they are traveling longer distances. SMMPA has developed a blueprint for how to create an EV charging network across members within a joint action agency and has learned valuable lessons throughout this project. As a result, SMMPA has had several webinars on this project, including sessions on siting and site design, installation and commissioning, pricing and rate setting, and using the portal and various apps.

### **Orlando Utilities Commission, FL: *Nanogrid***

OUC developed a nanogrid with the aim of achieving transformative strategic objectives that addressed decarbonization of the grid, electrification, and decentralization. OUC's nanogrid will provide real-world testing of new technologies at a scale that allows OUC to gain valuable operational data, with lower investment risk. The nanogrid aims to solve the key challenges of vehicle electrification, demand charge mitigation and resiliency through direct-coupled solar PV and battery storage with electric vehicle chargers. Additionally, the nanogrid will be integrated with a hydrogen system for backup power, consisting of an electrolyzer, hydrogen storage tanks, and two fuel cells, which are part of a Department of Energy-supported green hydrogen feasibility demonstration. In essence, the nanogrid represents a plug-and-play solution utilizing smart controls to serve as a flexible resource to meet future distributed energy resource needs that is easily replicable and deployable.

## 2020

### **American Municipal Power, OH; *Public Power EV Planning Toolkit and Guidebook***

American Municipal Power teamed up with Smart Electric Power Alliance (SEPA) to create a DEED Public Power Electric Vehicle Planning Toolkit and Guidebook. The EV Toolkit is a user-friendly, intuitive resource for APPA member public power agencies to obtain insight into the preliminary economic impacts of electrification efforts with their internal fleet vehicles, and increased loading on residential distribution system service transformers under various EV charging scenarios. The EV Toolkit also provides increased awareness of EVs and associated market trends; supports the preliminary evaluation of customer engagement and EV charging management options when creating a program; provides insight into the potential timing at which proactive steps are best taken for maximum economic impact; and supplies accurate data and useful resources to support preliminary EV planning activities.

### **Heartland Consumers Power District, SD; *Renewable Cost Calculator***

During the summer of 2019, Heartland employed a college intern to develop calculator tools to help determine the annual benefit and cost of installing a renewable energy system, particularly a solar array. One calculator is for retail customers who want to install solar panels on their property, while the other is for the utility to determine the cost to the utility itself. The solar calculators are complete and functional within the Microsoft Excel program. The calculator makes some assumptions but does so based on answers to certain questions including geographic location, making it a useful tool for any utility.

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without wi-fi or wireless networks, to enable field crews to input real-time damage assessment information while at the worksite.

### **2019**

#### **City of Palo Alto Utilities, Home Efficiency Genie**

The Genie House Call program has generated a high level of trust in the Palo Alto community by providing services tailored to individual needs since each home and its occupants are unique. As a result, the program has received a high Net Promoter Score: 9 out of 10 Genie House Call customers would recommend the program, and 94% of Genie House Call customers say they are “very satisfied” with their utility, compared to 76% of CPAU customers overall. Comparatively statewide, 57% of municipal customers say they are “very satisfied” with their utility. The Genie has become a supportive and reliable resource for all of a homeowner’s efficiency needs, earning APPA’s Energy Innovator Award for 2019.

#### **Fayetteville Public Works Commission, Determining Distance to the Fault**

Fayetteville Public Works Commission has developed an innovative way to locate faults in its electricity distribution system. This has allowed PWC to limit outage durations, reduce callouts, and enhance the quality of life for its community. Now, PWC customers know that any outages will be taken care of as quickly as possible. Improved reliability has resulted in savings on labor costs, vehicle maintenance, fuel, vegetation management, and electrical component maintenance.

#### **Nebraska Public Power District, Pathways to a Technical Future**

Nebraska Public Power District implemented the “Pathways to a Technical Future” program to connect the STEM curriculum for students in kindergarten through college skills required for energy and public power careers. NPPD helped teachers and administrators work with local utilities, businesses, and other community members to integrate Pathways concepts into their systems. Pathways helps to increase understanding of how electricity works, how to use it safely, and how to develop 21st century skills. The Pathways project is funded by the American Public Power Association’s DEED program and by NPPD’s Domestic Energy Research and Application Initiative.

### **2018**

#### **CPS Energy Texas, SaveNow Program**

CPS Energy implemented several different initiatives in San Antonio as part of their SaveNow Program including free home energy assessments and home energy kits, in-store rebates with major retailers throughout the community, and a multi-family energy efficiency program. Previous programs have exceeded enrollment goals, but often carried barriers for the community’s lower to middle income customers to participate. With these low to no cost offerings, CPS Energy is reaching San Antonio’s lower to middle income demographic with new and cost-effective energy programs, and paving the road to reach their STEP goal of saving 771 MW by 2020.

#### **Braintree Electric Light Department, Massachusetts, Bring Your Own Charger Program**

Braintree Electric Light Department’s Electric Vehicle (EV) marketing program is one of the first marketing-focused EV programs by a public power utility. The program is designed to use community-based social marketing and grassroots tactics to increase EV adoption. Since the start of the program, the number of resident EV’s in their service area has increased from 10 to 55, awarding Braintree the highest EV per capita adoption rate among area municipalities with similar demographics, and competitive with the rates seen in significantly more affluent areas. Additionally, Braintree’s Bring Your Own Charger program provides incentives to customers who charge during off-peak hours, mitigating the impact of EV peak load charging.

#### **New York Power Authority, New York, Advanced Asset Management through Fleet-Wide Monitoring and Diagnostics**

New York Power Authority is using new technology and approaches to better manage advanced and aging assets. They are leveraging the digital transformation of utilities to create first-in-class asset

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management initiatives and have experienced significant benefit even from the early stage deployment of the approach. They have been able to alert plant staff to early indications of asset anomalies and faults that, if left unchecked, could result in equipment damage, outages, or even safety concerns. They have also avoided lost efficiency and damage. The core effort of the project is the collection of data from more than 24,000 sensors that monitor all NYPA's generation and transmission assets.

### **2017**

#### **Village of Minster, Ohio, Solar and Energy Storage System**

The Village of Minster in Ohio developed its own Solar and Energy Storage System which resulted in rates far lower than the standard market rate. The storage system reduces peak load and generates revenue through land rental payments, which are then fed back into the budget and used to purchase the power generated from the solar array. The project resulted in transmission and capacity savings of \$120,000, lowered electrical peak demand, and proved that even small utilities can undertake ambitious distributed generation projects.

#### **Tacoma Power, Washington, Video Chat Inspection Pilot**

Tacoma Power's energy conservation program was recognized for its Video Chat Inspection pilot. The pilot was designed to test whether high quality video could replace in-person home inspections for ductless heat pumps, effectively saving the utility time and money. Moving inspections from the physical to the digital realm resulted in shorter inspection times, higher customer satisfaction, and shorter commutes for utility employees – at no additional cost to the utility.

#### **Fort Collins Utilities, Colorado, Efficiency Works Neighborhood Pilot**

Fort Collins' Efficiency Works Neighborhood Pilot tested a new model for comprehensive home performance contracting. The aim was to overcome barriers to customer participation and project implementation common to traditional energy audit programs. The model used a combination of direct mail marketing and an efficiency assessment performed by a third-party contractor. It also took advantage of Fort Collins' On-Bill-Financing HELP loan. The new program reached twice as many customers as Fort Collins' traditional efficiency audit, and significantly decreased customers' approval time.

#### **Sacramento Municipal Utility District, California, Indirect Evaporative Cooling Systems Program**

Sacramento Municipal Utility District in California has long recognized the heavy demand that summer air conditioning puts on the grid. Eighty percent of commercial HVAC systems are located on rooftops, leading to startling inefficiencies as outside temperatures rise. However, alternative systems using indirect evaporative cooling showed potential in reducing peak demand. SMUD ran multiple field tests with large commercial customers to evaluate the feasibility of the technology. It found that despite the high initial cost of converting to a different cooling technology, the conversion results in significant energy savings over time, and can reduce peak demand by up to forty percent.

### **2016**

#### **CPS Energy, San Antonio, Texas, Simply Solar Program**

In San Antonio, Texas, CPS Energy's Simply Solar program offers options for every customer interested in solar power, regardless of socio-economic or roof-ownership status. Simply Solar relies on a purchase power agreement to finance the installation of PV, allowing CPS Energy to recover its fixed and variable costs. The program was popular with low-income customers, as well as local government, school districts, hospitals, and non-profits.

#### **Independence Power and Light, Missouri, Home Energy Loan Program**

Independence Power and Light in Missouri developed its Home Energy Loan Program to help home owners' access funds to make energy efficiency improvements to their homes. The city has a large population of retirees and blue collar workers who are home owners but may not have the resources to make energy efficiency improvements. The improvements funded by the utility will result in substantial savings for customers over time.

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### **Moorhead Public Service, Minnesota, Capture the Sun Community Solar Garden**

Moorhead Public Service in Minnesota developed its Capture the Sun community solar garden after it identified that many homeowners, who like having some of their energy needs met through solar, do not have good resources at their location. M-P-S created a community solar garden, a collection of solar P-V modules at a suitable site. Customers can participate and buy a share of the energy generated. The value of the energy generated by the solar P-V panels is pro-rated annually in the form of bill credits to participating customers.

### **New York Power Authority, NY Rikers Island Cogeneration Project**

New York Power Authority's Rikers Island Cogeneration Project is a new combined-heat-and-power plant located at the Rikers Island Correctional Facility in Queens, and is part of its new 15-MW microgrid. The plant can cover the majority of the steam load of the island throughout the year and replaces the older, inefficient boiler plant that served the island. The project reduces greenhouse gas emissions by 22,000 tons a year by displacing generation from centralized power plants. Rikers can run independently of the grid and has the electricity and steam to operate in the event of a grid blackout.

## **2015**

### **Central Lincoln People's Utility District, Oregon, Conservation Voltage Regulation Using Advanced Metering Infrastructure**

Central Lincoln People's Utility District in Oregon has implemented a unique approach to conservation voltage regulation. A C-V-R pilot program used the latest technologies, including an advanced metering infrastructure communications network, to drive significant customer savings and utility benefits. The C-V-R pilot reduced voltage by nearly three percent and provided over two percent in energy savings. This translates to annual savings of 325 megawatt hours from a single substation transformer.

### **Public Utility District No.1 of Kittitas County, Washington, Automatic Meter Reading by Airplane**

The Public Utility District No.1 of Kittitas County, Washington, implemented an automatic meter reading system to allow planes equipped with radio transceivers to fly by and read meters. Kittitas County has unregulated airspace, so airplanes have the ability to fly over the meters that vehicles could not access easily. Once a month, the utility rents a plane and pilot, accompanied by a district service person, to read the entire system in just over 2 hours. The program has been beneficial to the utility and well received by customers.

### **City of Tallahassee, Florida, Double Rebate Program for Energy and Water Conservation**

The City of Tallahassee in Florida offers customers a double rebate program to boost energy and water conservation. The double rebate incentive is applied to more than 30 ENERGY STAR-qualified appliances and systems. Customers were encouraged to accelerate the replacement of older, less efficient appliances to increase energy savings and stimulate the local economy. Upgrades from the rebates will save about 1.1 million kWh of energy each year and more than 12 million kWh over the life of the appliances. The total electric costs for participants will be reduced by about \$135,000 annually. The reduced energy use is expected to defer the need to build new power plants.

### **Orlando Utilities Commission, Florida, "Share the Sun," Community Solar Program**

Orlando Utilities Commission's "Share the Sun," community solar program gives residential and small commercial customers the opportunity to benefit from solar power without making an upfront investment or maintaining a rooftop solar installation. In October 2013, the utility completed construction of its first solar photovoltaic project, a 400-kilowatt covered parking structure at its Gardenia customer service center, and secured many customer subscriptions. The utility is now working on its second solar PV project.

## **2014**

### **Lansing Board of Water & Light, Michigan, REO Town Cogeneration Facility**

After years of research, community input and planning, the Lansing Board of Water & Light (BWL) made the decision to construct a new Cogeneration Facility, the first power plant built by the BWL in 40 years. Also, the plant is the BWL's first natural gas-fired electric generating plant, and its first cogeneration plant. The combination makes the REO Town plant among the most clean and efficient to operate in Michigan

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and the United States. This cleaner and more energy-efficient plant will eliminate the need to burn 351,000 tons of coal per year, cut greenhouse gas emissions by 50 percent, lower mercury and sulfur dioxide emissions by over 99 percent, and lower oxides of nitrogen emissions by over 85 percent compared to the units that it replaces.

### **Lincoln Electric System, Nebraska, Energy Detective Program**

Lincoln Electric System (LES) has worked with Resource Action Programs (RAP) to develop a program called “Energy Detective” where students learn about renewable and non-renewable natural resources, the basics of energy and water, energy forms, and electricity as well as investigate how to conserve at home. Students learn basic information to form a foundation of understanding and take home the LES-provided energy efficiency kit filled with high efficiency products utilizing the latest energy and water-saving technologies. The kit is a companion to homework activities where students engage with their families to install products that provide immediate and ongoing savings on their utility bill. With parent assistance required for installation of some of the kit’s components, two generations learn that conservation doesn’t require sacrifice. Nearly 6,000 students in the Lincoln area have become Energy Detectives since the program’s inception in 2012.

### **2013**

#### **Riverside Public Utilities, California, In-Pipe Hydroelectric System**

The utility partnered with Lucid Energy Technologies of Portland, Oregon, and Northwest Pipe Company of Vancouver, Washington to test a small generator that can be installed in a water distribution pipe. RPU tested the equipment in a 30-foot section of a 60-inch water main pipeline. The generator relies on water flowing through the pipes to produce electricity. A test unit on Riverside’s water system produced 20 kilowatts of electricity. Based on the tests, Riverside Public Utilities believes the in-pipe hydroelectric system has potential to provide meaningful energy and dollar savings. The utility is considering further investment in the technology.

#### **The city of Ocala, Florida, Pay As You Go Prepaid Metering Program**

This prepaid metering program allows customers to avoid the need for large deposits when initiating electric service. Turn-on and turn-off of electric service is handled remotely, within a few minutes. Ocala implemented the program in the fall of 2011. 149 customers enrolled in the first two weeks. After a year, more than 3,000 customers had enrolled and today nearly, 3,700 customers are taking advantage of the program. With pre-paid metering, customers with an outstanding balance due to the utility can repay that debt in small increments and receive electric service. One customer said the program made it possible for her to move to a new apartment. Customers enrolled in the program can monitor their electricity usage online and see how they might be wasting energy.

#### **Columbia Water & Light, Missouri, Home Performance with Energy Star**

Columbia Water & Light earned an Energy Innovator Award for its successful deployment of the Department of Energy’s “Home Performance with Energy Star” program. More than 2,000 of the utility’s residential customers are enrolled in the program. Energy savings have averaged 23 percent since the program began in 2008. A Columbia Water & Light staff person is qualified to train and certify local contractors. Without this, contractors would have to go out of town for training. Columbia Water & Light has partnered with neighboring Boone Electric Cooperative to offer the program on a regional basis, making it more attractive for contractors and allowing the two utilities to share marketing and administration responsibilities. The program has saved \$2 million in power costs over the last two years. Participating customers have given the program a 99 percent positive rating. Here’s what one customer said on a survey: “I love the Water and Light Department. I think you are very professional and hard-working.”

### **2012**

#### **Fayetteville Public Works Commission, North Carolina, Voltage Drop Calculator**

This project was undertaken to develop a simple, convenient method to analyze voltage drop (flicker) issues on a distribution feeder and determine the best methodology to solve the problem, thereby improving power quality for utility customers. Solving voltage drop and flicker problems involves very complicated engineering calculations and also requires testing of various options to solve the problem in



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theory before equipment is ordered and resources are expended. Many small public power utilities don't have the staff resources to determine the best solution and so the problem is not resolved permanently. When utilities do have the staff it is a complicated engineering task. With seed funding from a DEED grant, Fayetteville developed the Voltage Drop Calculator, a spreadsheet based tool, to more quickly and easily determine the best, permanent solution for voltage drop problems experienced by customers.

### **City of Leesburg, Florida, Empowering and Rewarding Customer Conservation and Energy Efficiency with Energy Choices Enabled by Advanced Smart Grid Technologies**

The City of Leesburg's launched this project to develop the best and most secure electric grid in the country by 2020 by incorporating information and control technologies to empower consumers, reward conservation and energy efficiency, improve distribution reliability and resiliency, and expand the use of renewable energy, distributed generation and advanced alternative technologies. This project was accomplished with the assistance from a Department of Energy grant and an Energy Efficiency and Conservation Block Grant (EECBG) from the state of Florida. One unique aspect of the project was implementation of a comprehensive Grid IQ software as a Service (SaaS) offering; the first of its kind. Rather than owning the hardware and software IT systems they are remotely hosted by a 3<sup>rd</sup> party. In this way the utility does not procure, deploy, manage, and update every 5-years the City's IT systems, which can be extremely expensive. The City of Leesburg has been sharing its story across Florida and the United States to inform other utilities of its activities, successes, and lessons learned.

### **City of Tallahassee Utilities, Florida, Neighborhood REACH Program**

The REACH program is a collaborative effort that leverages the services of multiple departments within the City, such as Public Works, Electric Utility, Underground Utilities, Solid Waste, and Economic and Community Development to improve livability in Tallahassee's traditionally low-income areas. Working door-to-door REACH teams provide customers with free energy assessments, energy- and water-saving measures and education. While in the home, they perform services, such as weather-stripping exterior doors, caulking windows, replacing HVAC filters, cleaning refrigerator coils, and replacing light bulbs with CFLs – all at no cost to the customer. The City is also providing financial assistance (\$650,000 in 2011) for home improvements such as hot water leak repair, HVAC repair, duct leak repair and ceiling insulation. City crews also utilize emergency home repair funds to assist customers by repairing sidewalks, broken street lights, cleaning drainage ditches and overgrown vacant lots, repair broken sewer caps, and completing other minor repairs and improvements.

### **Wyandotte Municipal Utilities (WMS), Michigan, Geothermal Energy Service**

This program is the first of its kind by a Municipal power provider and offers customers the opportunity to install a Geothermal Energy System in their home or business at or near the cost of a conventional high efficiency natural gas furnace and electric air-conditioning unit. The geothermal ground source heat pump (GSHP) process is 40-70% more energy efficient than conventional systems but due to the higher cost of installation and other barriers this technology has not received wide spread adoption. To overcome the barriers WMS incorporated many unique features into its Geothermal Energy Service. WMU collaborated with multiple city departments to develop and implement this new utility service to provide a new methodology for achieving energy savings in their community. In the program's first 18 months 46 residential systems and one commercial load system has been deployed, with a total cooling capacity of 94 tons.

## **2011**

### **City of Dover Public Utilities Department, Delaware - The Dover Sun Park – A Statewide Clean Energy Partnership**

The City of Dover collaborated with eight other municipalities and Delmarva Power (an investor owned utility) to create one of the largest solar power plants (385 acres) east of the Mississippi River. Their innovative approach and the structure of their agreements allocated the benefits and harmonized commercial terms so they could bank the Solar Renewable Energy Credits. This project will be the first utility-scale power plant in the region which will supply 25% of Delaware's required solar power production through 2015. Despite numerous commercial and legal issues, quiet and effective dialog among stakeholder groups was a key to success. Stakeholders put their competing interests aside to accelerate and sustain the very complex process of developing this new solar power generating system.

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### **Chelan County Public Utility District #1, Washington - Idle Reduction Technology**

Chelan County PUD used its own Fleet Services crews to purchase, modify and install idle reduction equipment on diesel-fueled heavy duty trucks. This technology allows crews to keep power equipment on the truck operating without running the truck's diesel engine continuously which reduces fuel use and exhaust emissions, as well as extends the life of the engine. Rechargeable batteries maintain the truck's equipment when the truck is turned off, and the trucks' engines automatically restart whenever the battery charge gets too low. This technology is currently found on 22 vehicles, and ultimately Chelan County PUD plans to add this technology to 42 large diesel-powered trucks in their fleet.

### **Omaha Public Power District, Nebraska - OPPD Digital Roof Top Unit Pilot Project**

Based on two pilot projects OPPD completed utilizing Digital Heat Pump Optimizer Technology, OPPD, in connection with developer DTL Controls, undertook a project which integrated Digital Roof Top Unit (RTU) Optimizers into Rooftop Air Conditioners at a test manufacturing facility. The typical RTU system consumes 30% - 40% more energy than needed and generally is equipped with a constant speed compressor and an oversized fan system. By adding a Digi-RTU Optimizer the kW savings per air conditioning unit ranged from 25% - 60% while the compressor cycling diminished by up to 70% and occupant comfort within the test manufacturing facility was maintained. Currently the optimizers are not plug-and-play technology so OPPD is working with the developers to determine what accommodations can be made to make them plug-and-play or as close to plug-and-play as possible for wider usage.

## **2010**

### **Alameda Municipal Power – From Trash to Treasure: Landfill-Gas-to-Energy Utilization**

Alameda Municipal Power in California recognized that garbage-laden landfills are a valuable source of renewable energy. Of the technologies available to capitalize on these resources, methane capture carries a unique combination of economy, efficiency and environmental benefits. Beginning in 2001, Alameda began actively seeking methane capture opportunities to incorporate in its power portfolio. Today, the utility takes power from four landfill-gas-to-energy plants. It has plans in place to expand this resource.

More than 20 percent of the power consumed in Alameda is generated by landfill-gas-to-energy facilities. In the early 1980s, Alameda began investigating the construction of a solid-waste-fueled generating station. Alameda partnered with the U.S. Department of Energy in 2001 to participate in an inventory of potential landfill-gas-to-energy projects. In 2003, the city identified five potential landfill-gas-to-energy sites, one of which already had been constructed and operating for a number of years.

While the benefits of landfill gas generation extend well beyond Alameda's service territory, its customers benefit from an additional clean, renewable, reliable, and economical resource.

### **Fayetteville Public Works Commission – SmartWorks**

The Public Works Commission of the city of Fayetteville, N.C., created an interactive pilot program entitled "SmartWorks." Teaming with Consert, IBM, and Verizon Wireless, PWC's SmartWorks program is an innovative intelligent provider of "virtual" energy. Using two-way wireless 3G/4G Internet-capable communications and intelligent devices, SmartWorks creates energy equivalencies through the implementation of a virtual power plant, a virtual distributed energy architecture that will provide PWC with energy security, increased reliability, economy, and quality of power, while enabling the utility to manage energy resources through load balancing.

SmartWorks is a verifiable, real-time, two-way interactive, standards-based communication and control system. It uses intelligent conservation to defer or supplant the need for additional conventional power plants. Customers are experiencing a 15 to 25 percent reduction in energy consumption. They have also become more conscious of their energy usage and the energy efficiency, or lack thereof, of their residences, prompting greater participation in making energy-savings home improvements.

## **2009**

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### **Salt River Project (SRP), SRP M-Power**

SRP M-Power program is the largest prepay metering program in North American with over 70,000 customers, and 72 pay/center kiosks in 52 locations. While initiated as a customer satisfaction, credit and write-off solution, M-Power has become an important energy conservation program benefiting both customers and the utility.

Since the program was initiated in 1993, utilizing hard-wire technology, it has evolved incrementally and pioneered the use of payment kiosks for use in vending prepaid smart cards and broke new ground by using power line carrier (PLC) technology for prepay electric metering. The program has achieved the highest levels of customer satisfaction of any SRP customer program

Program benefits include a 12% reduction in energy consumption by customers enrolled in the program, increased customer satisfaction, payment convenience, and fewer fees. The program provides a variety of reduced operational costs by eliminating the need for meter reading, billing, disconnect notices, field visits for collections, disconnect and reconnect, customer service office interactions, and phone center interactions.

### **City of Ames, Iowa, Electric Service, Power Watch**

Power Watch, a part of the City of Ames Electric Services' "Smart Energy Program," helps increase energy conservation during times of high demand by providing a conduit for the dissemination of important demand reduction and energy conservation information between the utility and the public. The goal is to inform, educate and help citizens develop good energy habits aimed at conserving energy at a time that is most appropriate and advantageous to the utility system, i.e., during peak.

Based on real-time monitoring of power plant electricity demand levels and temperatures, Power Watch adjusts and prioritizes energy messages to participating customers. To ensure maximum impact information is broadcast in many different ways such as visual signals, recorded phone messages, newspaper and radio ads, brochures, and the Internet.

This real time communication effort has increased the public's ability to conserve energy when it is most beneficial to the utility so the City of Ames can increase reliability, and reduce energy use to keep rates low, reduce individual bills, and improve the environment.

### **Connecticut Municipal Electric Energy Cooperative (CMEEC), Energy Efficiency and Environmental Stewardship**

CMEEC and its utilities offer a broad range of energy saving programs and rebates for residential, commercial, and industrial customers. The programs are customized to benefit the demographic and business needs of each municipality. CMEEC focuses on easy to understand, locally run programs that are clearly identified with the local utility to achieve the highest return and savings to customers per dollar spent. Their measurement and verification program (ISO New England approved) provides evidence as to which programs achieve the most savings.

CMEEC, with its members, experimented with different methodologies and programs to deploy CFLs to their customers in a coordinated manner with the objective to assess the "lessons learned" so utilities could take advantage of the best and most effective programs. The Home Energy Savings (HES) program launched last fall directly assists homeowners to reduce BTU consumption and the Energy Key™ theme increased awareness of the system-wide portfolio of energy efficiency initiatives available to customers

In 2008 the program achieved the following life cycle economic and environmental benefits: 1) Overall benefit cost ratio of \$5.2 for every \$1 spent., 2) Overall effective capacity equivalent reduction of approximately 3000 kW, 3) Approximately 175 million kWh saved, 4) 133,000 tons of CO<sub>2</sub> avoided, 5) 12.6 million gallons of oil equivalent avoided, 6) Electricity savings equivalent to 20,000 homes for 1 year.



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### 2008

#### **Bristol Tennessee Essential Services, *BTES Fiber Optic System***

Bristol Tennessee Essential Services' (BTES) installation of a fiber optic system has enhanced the electric service to its customers while providing high-speed Internet, telephone, and cable television services. With the help of the fiber optic system, BTES has been able to increase its electric reliability, improve its outage management system, and improve communications with better monitoring and control of transmission and distribution lines and substations. The fiber optic system provides automatic power outage reporting, theft deduction, automatic meter reading, electric load information and the ability for customers to pre-pay their electric bill in lieu of a deposit. One way BTES uses this information, is to track how much electricity a customer uses each hour. Days, weeks or a month's worth of data can be placed on the same graph to show customers the variation or consistency in their daily usage. This data also shows BTES how different households consume electricity and can be useful for customers when determining the most efficient use of their electricity. Fiber optic systems can also assist utilities interested in economic development. By providing better, faster and more affordable broadband Internet and data services, local utilities can attract new industry and help existing industry expand and remain in their area.

#### **Sacramento Municipal Utility District, California, *Advanced Technologies (CAT)***

Sacramento Municipal Utility District's (SMUD) Customer Advanced Technologies (CAT) program was established about 15 years ago to demonstrate emerging energy efficiency technologies in real-world situations. The information gathered from these projects is used to make improvements in the technologies; help accelerate the technologies' entry into the market; develop the next-generation of energy efficiency program offerings; and promote the full range of energy efficiency programs/technologies from R&D to widespread implementation. The program is designed to encourage customers to use and evaluate new or underutilized technologies and provides an opportunity to work closely with customers through demonstration projects on customer property. As projects move beyond the demonstration stage and into normal customer programs, SMUD staff have additional programs and technologies to offer customers; customers have additional opportunities to save energy; and the addition of new, cost-effective resources provide additional benefits to the utility and community. CAT produces a free, quarterly electronic newsletter that describes current research efforts and includes a calendar of technology workshops.

#### **Silicon Valley Power, City of Santa Clara, California, *Outreach to Underserved Customers***

Silicon Valley Power's (SVP) Outreach to Underserved Customers is a combination of multiple programs designed to assist customers on its Financial Rate Assistance Program (FRAP) and seniors by increasing their energy conservation and lowering their electric bills. Qualified customers received new ENERGY STAR® Whirlpool refrigerators as part of a direct replacement program. The low-income community has a much higher percentage of older inefficient refrigerators than other customers, and they can immediately benefit from even a few dollars savings a month on their electric bill. Replacing older refrigerators is an excellent way for utilities to reduce significant excess energy usage around the clock, as a refrigerator is a 24-hour energy consumer. SVP also offered a portable fan give away. There was no charge to customers and the fans were delivered directly to over 700 participating customers' homes. Additionally, in partnership with two senior groups in Santa Clara, SVP offered free energy-saving lights and installation assistance for the homes of seniors at no cost to the customer.

### 2007

#### **City of Riverside, Calif., Public Utilities, *Grease to Gas Program***

Riverside Public Utilities (RPU) used \$16,300 in funding to begin its "grease-to-gas" program in April 2006 to promote energy efficiency and help develop renewable energy sources. Now the program could potentially save the city \$1 million a year and reduce water contamination from illegal dumping. The program is proving to be a triple winner for the City of Riverside, for restaurants and waste haulers, and for the environment. Through this program restaurant grease wastewater is used to produce gas for Riverside Public Utilities cogeneration power plant that supplies energy for the city's wastewater

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treatment plant. By adding grease wastewater to the sewage mix, the treatment plant, which produces methane gas from sewage, increased its gas production from one digester by 66 percent.

### **Iowa Association of Municipal Utilities, *Sustainable Technology Pioneer***

Over the last ten years, the Iowa Association of Municipal Utilities has led the way in the implementation of “green” sustainable technologies in Iowa. IAMU has paved the way for new technologies by leading cooperative efforts to develop new and even revolutionary renewable energy projects, developing demand side management tools for its member utilities, and leading by example with the development of its office and training complex. IAMU has demonstrated innovation, stewardship, accountability, and leadership in the development of the IAMU Training and Office Complex, the development of the Iowa Stored Energy Park, the development of “community wind” projects, and its efforts to provide demand side management services to its member utilities.

### **Waverly, Iowa, Light and Power, *House of Green***

This House is Waverly Light and Power’s (WL&P) super-energy efficient, passive solar demonstration home. The home incorporates renewable building products, passive solar design, and landscaping for energy efficiency. Using the latest and best practices, WL&P has showcased unique features to be utilized by consumers and contractors. In addition, these features will set an example in educating other public power systems working with new developments as well as techniques for energy savings in existing homes. WL&P will also use this opportunity to monitor the home’s energy use and KW demand by separately monitoring the HVAC system, hot water heater, appliance loads, and other plug load. Once accumulated, this data will be used to educate customers on real time energy and demand savings.

## **2006**

### **City Water, Light & Power, *CWLP GIS System and Associated Business Applications***

CWLP’s Geographic Information System (GIS) has improved internal business processes, customer service, data accuracy, operations, and pole attachment revenue tracking. CWLP was better able to manage the thousands of documents; information from these documents, since organized electronically, made them available to personnel at multiple location. As a result of the organization and accessibility of information, CWLP could better manage electrical outages and share information.

### **Public Utility District #1 of Ferry County, *High-Energy Cost Community-Service Cost Assistance Program***

Ferry County’s High-Energy Cost Community-Service Cost Assistance Program has provided a means to extend electric service to rural residents in their service territory. Some of Ferry County’s most rural customers use their own small gas generators to produce electricity at rates between \$0.237-\$0.308/kWh or use their own solar photovoltaic (PV) system at rates of \$0.42/kWh. Ferry County helped these customers reduce their costs by financing distribution line extensions and/or solar PV installation systems.

## **2005**

### **City of Palo Alto Utilities, *PaloAltoGreen***

The City of Palo Alto Utilities’ won its eighth EIA for its updated green energy program, “PaloAltoGreen,” a unique voluntary program offering renewable energy to its customers. Highlights of the program include: 100% renewables, tradable renewable certificates (TRCs), \$1.5 cents/kWh rates (among the lowest in the country), usage-based or block-based rate options for both residential and small and large commercial customers, and green-e certified TRCs. The City employed a renewable energy service provider to assist in designing, developing, marketing, and managing the supply purchases on its behalf.

### **City of Westerville Electric Division, *Energy Smart Westerville***

“Energy Smart Westerville” describes the leadership role and initiatives the City has undertaken to educate its consumers and the public on alternative energy and energy efficiency. Their Ohio Energy Project promotes energy education through the schools. Two solar initiatives installed solar arrays at two

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schools for power and as a teaching tool and added solar flashing signals and a solar back-up power supply for a vital traffic signal. The City's Fuel Cell Project is demonstrating a commercial-scale, "next generation" molton carbonate fuel cell. Their unique Residential On-Line Energy Audit and Energy Calculator enables customers to perform their own on-line energy audit. Their Peak Power Program enables the remote monitoring, controlling and metering of standby generator sets. As a final testament to their achievements, City of Westerville was designated a Governors Energy Smart Community in 2003.

### **Concord Municipal Light Plant, *Electric Thermal Storage***

CMLP's promotion of Electric Thermal Storage (ETS) has saved the town energy and money, and has improved its load factor. The ETS heaters convert electricity to heat during off-peak hours, when electricity is less expensive. The headers store the heat in specially designed high-density ceramic bricks, which is then used to warm the living space. CMLP's ETS program includes a \$100 credit for each installed kW to offset installation costs. The system is clean and safe, there are no fumes or soot, no fuel storage tank, and it is virtually maintenance free. Operating costs are 40% less than CMLP's standard residential rate.

### **2004**

#### **City of Manassas, *Broadband Over Power Lines (BPL)***

The City of Manassas' use of BPL technology to deliver high-speed internet access through standard electric outlets marks an innovative approach to delivering telecommunications services to their customers. The BPL equipment delivers communications signals across medium and low-voltage electric systems; the network management system that is used to monitor and control the BPL network provides as a by-product a power outage monitoring system.

#### **Cuyahoga Falls Electric System, *Building Energy Efficiency Leadership in a New Energy Era***

Cuyahoga Fall embarked on a citywide campaign to make energy efficiency, renewable energy, and conservation priorities at home and in the workplace. Some accomplishments of the city's efforts are: teachers trained and equipped to educate students; four middle schools received 1kW photovoltaic arrays and are recognized as "solar schools"; and, free compact fluorescent light bulbs offered to customers. An interactive on-line tool to create customized energy profiles is being utilized by citizens to save energy, and the key accounts program has been customized for local business.

#### **City of Riverside Public Utilities, *Metrolink Train Station Parking Lot and Autumn Ridge***

Riverside Public Utilities' Metrolink Train Station Parking Lot and Autumn Ridge allows the utility to use 33 percent more green power sources than the average city in California. By adding photovoltaic panels on a commuter parking lot and a low-income apartment complex, Riverside has capitalized on solar energy to generate about 81kW of electricity at peak, reduce pollution by eliminating 3,861,000 pounds of carbon dioxide, 9,750 pounds of nitrogen oxide, and 31,200 pounds of sulfur dioxide over 25 years, and lower the electric bills of residential customers at Autumn Ridge by \$35-\$40 per month.

### **2003**

#### **City of Palo Alto, *Water, Energy and Environmental Management Plan***

For its seventh EIA, the City of Palo Alto Utilities, implemented its approach to energy efficiency and resource sustainability for their community with the Utilities, Water, Energy and Environmental Management Plan. The plan included adoption of utility-funded audits, promotion of efficient and renewable technologies in renovations, and operational changes to maximize efficiency. Palo Alto has retrofitted municipal buildings, replaced incandescent traffic-signal bulbs and pedestrian signals with LED, adopted a Green Building Policy providing for Life Cycle Costing analysis on major projects.

#### **City Public Service, *Northside Customer Service Center***

City Public Service's Northside Customer Service Center in San Antonio, Texas, is an innovative, state-of-the-art, green energy and energy conservation building. The center was designed as an energy efficient and environmentally friendly showcase for green energy and renewable energy technologies. It

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was conceived as a functional office and service facility, as well as a demonstration site to encourage commercial use of renewable energy technologies within the CPS service area.

### **2002**

#### **Burlington Electric Department (BED), *SafeTorch Program***

Burlington won its second EIA for the SafeTorch Program. Officially begun in October 1998 (Fire Safety Month), Burlington's program brought together BED and the Burlington Fire Department to address the concerns of improving energy efficiency *and* removing fire hazards from Burlington homes and offices. Burlington residents learned how dangerous and inefficient halogen torchiere floor lamps are, and more than 1,000 have been removed within Burlington alone. BED also researched alternatives to the halogen torchiere lamps and made those products available for lease or purchase to ratepayers.

#### **City of Anaheim, Public Utilities Department, *Demand Responsiveness Program***

City of Anaheim won its fifth EIA for its Demand Responsiveness Program. The program reduces load via customer and municipal participation in a number of innovative programs. As a result, Anaheim customers were protected from 15 of the 16 hours of rotating outages declared by the ISO. Residential customers as well as more than 300 business customers participated by working hand-in-hand with Anaheim to respond in a positive manner to the state's energy crisis, with minimal impact on public safety.

#### **Waverly Light and Power (WL&P), *Iowa Energy Tags™***

Waverly Light and Power won its second EIA for Iowa Energy Tags. In March 2001, WL&P became the first electric utility in the nation to sell Green Tags through its Iowa Energy Tags™ program, which were developed to provide financial support for future renewable energy projects. Green tags are created when wind power or other renewable energy is substituted for traditional power. Consumers worldwide can purchase the environmental benefits of WL&P's clean wind energy in order to offset fossil fuel production and the related carbon dioxide and greenhouse gas emissions.

### **2001**

#### **Moorhead Public Service, *Capture the Wind***

Moorhead's program is a customer-driven wind energy program, which now provides the utility with 1% of their energy from wind. The program recruited 437 residential and commercial Charter Members, and with their support the utility erected a 750-kilowatt, 263-foot wind turbine. With a waiting list of customers who wanted to support wind energy, the utility decided to build a second wind turbine. The second turbine was fully subscribed within a month. Turbine I surpassed the 2,000 kWh mark in November 2000 and Turbine II should be generating by October 2001.

#### **Silicon Valley Power, *Optimal Power Use Service (OPUS)***

Silicon implemented the OPUS in order to help commercial customers implement energy efficiency projects. OPUS is aimed to assist customers in implementing the recommendations they receive in a free energy audit. The goal of the program is to assist Silicon Valley Power small commercial customers in reducing their business costs and saving energy by implementing cost-effective, energy efficient projects. By streamlining energy efficiency projects, this innovative program helps customers complete projects and realize savings more quickly.

### **2000**

#### **Anaheim Public Utilities, *Innovative Energy Technologies Program (IET)***

Anaheim won its fourth EIA for the Innovative Energy Technologies Program (IET). The program funds innovative energy-related projects that improve energy efficiency, increase use of renewable energy, or commercialize products. Anaheim also developed a high school curriculum on alternative fuels and renewable energy in transportation. The utility's program will result in energy savings of over 3,000,000 kWh as well as reduced emissions from the industrial processes and vehicles.

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### 1999

**Anaheim Public Utilities and City of Anaheim Public Works Department, *Traffic Signal Retrofit – A Partnership for Efficiency***

Anaheim Public Utilities won its third EIA for their investment in light-emitting diodes (LED) traffic signals in conjunction with the City of Anaheim Public Works Department. This project included the retrofit of all red ball and red arrow indications for traffic signals in the City of Anaheim with LED traffic lights. LEDs provide equal or greater brightness and last up to 10 years longer than incandescent lights, thus saving labor and maintenance costs.

**Waverly, Iowa Light & Power, *BioTrans™ Transformer Oil***

Waverly and Iowa Light & Power developed an environmentally friendly soybean based transformer oil to replace the mineral oils presently used. Their soybean based fluid, BioTrans, has a very high flash point, high dielectric strength and is biodegradable. BioTrans offers a safe, biodegradable alternative to mineral oil, which is contained in many transformers and transmission lines that lie close to water sources and threatens marine life and groundwater safety. In addition to being safer for groundwater, BioTrans comes from a renewable source and is recyclable.

### 1998

**City of Bryan, *Blinn College Ice Storage Project: Demand Reduction at its Peak***

In 1993 the City of Bryan, Texas was helping Blinn Junior College design and construct new facilities. City of Bryan provided low-interest loans and rebates to the college to finance the costly central plant. The Utility also provided the capital to install an ice storage system to reduce peak demand. The new system works by making ice throughout the night, when demand is low. Throughout the day, water is circulated through the ice for use in the college's cooling system. City of Bryan found that the system reduced costs significantly; consequently, the utility plans to extend their services to other community buildings.

**Nebraska Public Power District (NPPD), *Development of NOx Reduction Technology***

The Nebraska Public Power District (NPPD) developed a technology to reduce Nitrogen Oxide (NOx) emissions from fossil-fired boilers at a lower cost than traditional systems. NPPD developed a lance that spans the width of the furnace to achieve good distribution, and incorporates air to cool the ammonia to address the problem of overheating. This innovative technology can be applied to most fossil-fueled boilers, is simple to install, and is cheaper (the cost for installation, operation and maintenance is approximately 25% less than other systems which use higher cost reagents).

### 1997

**City of Santa Clara, *Santa Clara Fuel Cell Demonstration Project***

The City of Santa Clara won its second EIA for hosting the world's first field demonstration of a 2-MW carbonate fuel cell power plant, which began operation in Feb. 1996. The \$46-million commercialization effort involved portable modular plants that were transported to new locations depending on changes in load demand. Fuel cell technology uses a storage system to convert chemical energy directly into electrical energy, making it a more reliable and efficient power supply system with superior efficiency. Its low emissions also make fuel cell technology environmentally friendly.

**Fort Collins Light and Power and Platte River Power Authority, *Wind Energy Pilot Program***

Fort Collins won its third EIA award working jointly with the Platte River Power Authority. The utilities contracted wind power from Southeastern Wyoming for "pioneer" customers who agreed to pay more for the wind-generated electricity. Based on an average monthly cost of \$30 for electricity, customers will pay about \$10 to \$15 more per month for the wind energy for a minimum of three years. The initial retail



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offering in the previous fall resulted in 640 retail and commercial participants, greatly exceeding the minimum of 350 needed to justify the pilot.

### **City Utilities of Springfield, *Developer Services TechHOUSE***

Everything about City Utilities of Springfield, Mo.'s TechHOUSE, from the landscaping and lighting to the Information Center, encourages the use of energy and water efficiency. Innovative window treatments open and close by a remote control triggered by the sun's position and infrared automatic controls in the restrooms lower water usage. TechHOUSE has served as a model for developers and builders, and as a spot of tourism for community groups are interested in energy conservation.

## **1996**

### **Anaheim Public Utilities Department, *Efficiency Menu for Schools Program***

Anaheim Public Utilities Department won its second Energy Innovator Award for the utility's Efficiency Menu for Schools Program which helped several school districts to modernize and improve school facilities. The program provides assistance during the planning and design process and enables Anaheim school districts to reduce their peak electricity demand by upgrading to more energy efficient equipment and installing water conservation equipment. This easily transferable program provides a range of efficiency choices to school officials and includes financial support and technical assistance.

### **Greenville Electric Utility System, *A 900 MHZ Distribution Automation and Load Management Controller***

Greenville won its first EIA for the development of a 900 MHZ distribution automation and load management controller. When Greenville Electric Utility Systems was beginning to investigate the automation of its distribution system, they discovered that a controller using the existing Supervisory Control and Data Acquisition (SCADA) system and its 960 MHZ Multiple Address System (MAS) was not available on the market. As a result, Greenville decided to design a controller which would utilize the 960 MHZ spectrum commonly used for SCADA communicators. This project significantly lowered the cost of distribution automation by utilizing resources already available.

### **Manitowoc Public Utilities, *Appliance Turn-in Program***

Manitowoc won its first Energy Innovator Award for its Appliance Turn-in Program which encourages utility customers surrender second refrigerators or washing machines with the goal of reducing peak system demand and energy consumption. In exchange for each appliance turned in, customers get a \$50 gift certificate for nursery stock (trees or shrubs) or three compact fluorescent bulbs. Over the past five years of implementation, the program achieved an estimated cumulative annual energy reduction of 1,972 MWh, and peak demand reduction of 400 kW, resulting in avoided purchased power cost of \$624,000 (net present value).

## **1995**

### **New London Utilities, *The New London Resource Project: A Wisconsin Public Power, Inc. SYSTEM Community-Based Demand-Side Demonstration Project***

New London won its first EIA for their community-based demand-side management project through which the utility created a methodology for designing a program that incorporates the values of a particular community. New London's system relies on financing options rather than unsustainable rebates to develop an infrastructure that supports the energy efficiency products and services of an energy-conscious community.

### **The Northwest Public Power Association, *Switch-Hitter***

The Northwest Public Power Association won its first Energy Innovator Award for "Switch-Hitter," the regional association's newly developed conservation system that helps commercial customers reduce lighting costs by controlling their facility's circuit breakers. A Switch-Hitter kit consists of colorful peel-and-stick circuit breaker markers that tell commercial customers and their employees what switches to throw

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and when in order to minimize lighting use. Switch-Hitter can be easily adopted by any commercial customer for a reported average energy savings of 19% to 20%.

### **Traverse City Light & Power, *Green Rate Wind Power Project***

Traverse won its first EIA for the utility's "Green Rate Wind Power Project," which offers the utility's residential and commercial customers the opportunity to pay a premium rate for electricity generated by a renewable energy source—the utility's soon-to-be operational wind turbine. The premium rate will cost an average residential customer consuming 480 kWhs per month an additional \$7.58 over their present electric bill of \$32. Pollution abatement from the project is estimated to be 10,000 pounds of carbon dioxide per average residential green rate customer per year.

## **1994**

### **Iowa Association of Municipal Utilities, *OPTIONS 2000***

IAMU won its second Energy Innovator Award for OPTIONS 2000, the state municipal utility association's program to promote economic development through more efficient use of energy. OPTIONS 2000 is designed to help participating communities devise an energy efficiency business plan that will positively impact local economic growth. The program also is designed to heighten awareness among business and community leaders of the value of energy planning by showing tangible benefits that can be achieved even in a small community.

### **Waverly Light and Power, *Midwest Wind Energy Center***

Waverly won its second EIA for its partnership with the University of Northern Iowa to form a Midwest Wind Energy Center. The center, designed as an information clearinghouse and demonstration site for the Midwest, focuses on dissemination of information about wind machines and wind energy, and independent evaluation and demonstration of wind projects.

## **1993**

### **Santee Cooper, *GOFER (Give Oil For Energy Recovery)***

Santee Cooper won its fourth EIA for its GOFER program. GOFER, which stands for "Give Oil For Energy Recovery," is a statewide used motor oil collection program for do-it-yourself oil changers who seek an environmentally acceptable way to dispose of this waste product. After collecting this used motor oil, Santee Cooper transports it to its generating stations, where it is burned and its heating value recovered.

### **Waverly Light and Power, *Integrated Resource Plan***

Waverly Light and Power won its first EIA for its comprehensive energy efficiency program. The utility completed a detailed Integrated Resource Plan in 1992 and hired a full-time advisor to implement residential, commercial, and industrial energy audits; energy-efficiency rate incentives for all customer classes; a "Good Cents" efficiency rating system for new and existing homes; energy education in local schools; residential appliance rebates; compact fluorescent sales; and commercial and industrial demand-side management rebates.

### **Chicopee Electric Light Department, *Hi-Light***

Chicopee won its second EIA for "Hi-Light," its commercial/ industrial lighting conservation program. A utility lighting auditor conducts a free, on-site survey of a customer's building to examine the potential for lighting savings. Samples of recommended lighting retrofits are installed on the premises for a trial period. The new lighting equipment is installed during the business' off-hours. The utility pays for the full, up-front costs of the project; the customer repays 50 percent of the project cost in monthly increments.

## **1992**

### **Burlington Electric Department, *Neighbor\$ave program***

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Burlington won its first EIA for Neighbor\$ave program, which delivers energy-saving measures and information to residential customers. During a 30- to 40-minute visit, two-person utility crews—primarily college students—install energy- and water-saving devices and compact fluorescent light bulbs, which consumers lease for 20 cents each per month.

### **Lincoln Electric System, *Inlet Air Cooling of Combustion Turbine Generators***

Lincoln Electric won its second Energy Innovator Award for inlet air cooling of combustion turbine generators. Water chilled by ice produced off-peak is pumped into coils over which air going into the combustion turbine is drawn, which lowers the ambient air temperature to approximately 40°F, increasing its density and improving turbine performance.

### **Salt River Project, *Energy Partnership***

Salt River Project won its third Energy Innovator Award for 'Energy Partnership,' an individualized, complete audit program for industrial customers. Each begins with an in-depth operational and process audit performed by an independent consultant with specific expertise in the participant's industry. The resulting analysis and recommendations can result in increased product quality and improvement of competitive position, not just energy operating cost reductions; incentives are offered based on individual project economics.

## 1991

### **New York Power Authority, *High-Efficiency Lighting Program (HELP)***

NYPA won for its High-Efficiency Lighting Program (HELP). HELP seeks to reduce lighting costs through the installation of high quality, state-of-the-art, long-lasting lighting equipment. NYPA underwrites the cost of installation, guaranteeing a two-year pay-back based on lower energy consumption. The Power Authority also created a Conservation Bank which lends money at low interest rates for lighting conversions; the loans are repaid through bill savings.

### **Glasgow Electric Plant Board, *FICCS (Fully Interactive Communications and Control System) Project***

Glasgow won for its FICCS (Fully Interactive Communications and Control System) Project. The utility established its own broadband communications network capable of carrying information at extremely high speed between two points in town, and includes cable television services, supervisory control and data acquisition for the electric utility, load management signals, and an experimental telephone system. Utility staff constructed the system themselves.

### **Pasadena Water and Power Department, *TREE (Trees as a Resource for Energy Efficiency) Program***

Pasadena won its second Energy Innovator Award for its TREE (Trees as a Resource for Energy Efficiency) Program. The program encourages residential customers to plant deciduous and evergreen shade trees on the west and/or southwest side of their homes. For each tree planted, the customer receives either a \$10 cash rebate or an energy- saving compact fluorescent light bulb with a retail value of \$25.

## 1990

### **Pasadena Water and Power Department, *Lite Bill***

Pasadena won its first EIA for "Lite Bill" program, a residential conservation program combining both energy and water audits and product installations on the same visit. Services performed at the customer's home include a computerized energy data evaluation, water leak detection, and conservation equipment installations.

### **Memphis Light, Gas, and Water Division, *Comfort Plus Homes Program***

Memphis Light, Gas, and Water won its fourth EIA for its "Comfort Plus Homes Program," a certification program under which builders can market their energy-efficient homes. If a home meets the standards

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and passes all inspections, it receives the “Comfort Plus” designation, along with a two-year guarantee on the heating and cooling costs.

**Chicopee Electric Light Department** and **Westfield Gas and Electric Light Department**, *Energy Edge*  
Chicopee and Westfield won jointly for “Energy Edge,” an energy conservation program offering free energy and water saving materials and installation. Two other Massachusetts municipal utilities—Holyoke Gas and Electric Department and South Hadley Electric Light Department—helped develop and participate in the program. The four utilities joined together under the name “Power Pact” to deliver energy conservation programs.

### 1989

**Santee Cooper**, *Energy Efficient Mobile Home Program*

Santee Cooper won its third EIA for its Energy Efficient Mobile Home Program, an energy-efficient mobile home program. The utility organized and led an effort to implement a statewide energy efficiency standard for mobile homes. Mobile homes meeting this standard will be certified under the Good Cents Program for South Carolina.

**Seattle City Light**, *Pacific Northwest Lighting Design Laboratory*

Seattle City Light won for the Pacific Northwest Lighting Design Laboratory. At the time of their EIA application, Seattle City was in the process of constructing a building to encourage commercial building designers of the Northwest to explore and implement energy-efficient lighting design. The utility created state-of-the-art demonstrations, simulations, research, and education.

**Taunton Municipal Lighting Plant**, *Lightwaves, Lighting Energy Management Program*

Taunton won its third EIA for LIGHTWAVES, a lighting energy management program. The utility evaluates lighting conservation measures at commercial and industrial businesses at no cost, then physically installs the measures. Taunton Municipal Lighting Plant’s program was especially popular because all material was provided free of charge.

### 1988

**Shrewsbury Electric Light Plant**, *Beat the Peak*

Shrewsbury won for its “Beat the Peak” load management program, which uses the municipally owned cable television system to alert residential customers when the electric system is approaching peak electric demand. Shrewsbury’s project incorporated the innovative CATV feature that signals a radio and television broadcast that requests customers to curtail their use of energy. *Beat the Peak* successfully reduced demand by 5.5% during peak hours and saved the utility \$90,000.

**Salt River Project**, *Thermal Mass Block*

Salt River Project won its second EIA for its design of a “thermal mass block” for residential construction. The new block incorporates the use of modern construction techniques with the value of high mass—a heavy, dense wall or floor that can store collected heat or coolness and slowly transfer it to its surroundings. The 8x8x16 inch block is composed of a polyurethane liquid and a compound mud filler. When used to construct a house, the blocks saved \$200-400 per year per customer and were responsible for a 3.8 kW/block reduction during summer months and a 1.8 kW/block reduction during winter months.

**Taunton Municipal Lighting Plant**, *Smartlight*

Taunton won its second EIA for its “Smartlight” program to market compact fluorescent lights in the residential market. The lights use 80% less electricity and last ten times longer than traditional bulbs. They are leased for 20 cents per month and are replaced for free; the monthly charge appears on customers’ electric bills. Taunton’s program was promoted by radio, television, and print sources, and saved participants an average of \$50 per year.

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### 1987

#### **Sioux Center Municipal Utilities, *Sioux Center RDF/Bio Mass Demonstration Project***

Sioux Center won its second EIA for installation of two burners—at a college and a high school—that use refuse-derived fuel pellets produced locally. The utility's project was designed to conserve non-renewable resources and to reduce dependence on landfills. Sioux Center collected derived fuel from cardboard and paper products found in landfills, and converted the refuse into fuel pellets that were adopted in local schools, colleges, and businesses.

#### **Grant County PUD No. 2, *Computer Controlled Automatic Efficiency Testing of Hydro Generator/Turbines***

Grant County PUD No. 2 won its second EIA for development of a computer program to test the efficiency of its hydroelectric generators and turbines. The software is designed as a data acquisition and control system that can "read" seven transducers in a time span of 2.4 minutes. The program measures water elevations and flow efficiency. Collectively, the program was save approximately \$1,025,620, which is equivalent to saving an estimated 102,562 MWh/year.

#### **City of Palo Alto, Traer Municipal Utilities, Kimball Municipal Utilities, and Nebraska Municipal Power Pool, *PowerManager***

The City of Palo Alto, sixth EIA; Traer Municipal Utilities; Kimball Municipal Utilities; and the Nebraska Municipal Power Pool, second EIA, were joint winners for development of the PowerManager library of integrated accounting, engineering, and analysis software for smaller public power systems. The software, which is easy to use and inexpensive, improves the productivity of utility officials and allows for easy access to billing, payroll, budget projection, distribution analysis, and load forecasting.

#### **Santee Cooper, *Electric Load & Management Analysis (ELMA)***

Santee Cooper won its second EIA for development of its "ELMA" software package that provides comprehensive data management and analysis support for load research and end-use surveys. Santee Cooper's software provides a load and end-use survey to provide a flexible management database. The 10-month test collects data and displays it graphically and analytically. The project creates a greater insight into consumer profiles and allows the utility to lower its costs due to demand-side management.

#### **Fort Collins Light and Power, *Residential Infrared Scanning Service***

Fort Collins won its second EIA for its residential infrared scanning service. Customers use this service to determine areas of heat loss, the need for more insulation, and the thermal performance of new construction. Fort Collins offered customers a low cost solution to their energy loss, providing \$15 scans that used NASA equipment to reduce heating costs by 5-10% or \$20-40 each year.

### 1986

#### **Eugene Water and Electric Board, *EWEB Conservation Bond Financing Project***

Eugene Water and Electric Board won an EIA award for the sale of \$17 million over three years in electric tax-exempt revenue bonds to finance a portion of "The Conservation Project." Eugene's project managers created an expansive weatherization program that provided financial assistance to customers with electrically heated homes who desired insulation and/or other weatherization measures. The project was extremely successful in that initial costs were only \$313,000.

#### **Palo Alto Municipal Utility, *Demand-Side Program Evaluation and Thermal Energy Storage***

Palo Alto won its fifth EIA for its demand-side program evaluation, an analytical tool to determine utility and customer costs avoided or incurred due to achieving specific load shape objectives; and for its thermal energy storage program, an incentive program designed to shift cooling demand to non-peak. Project managers incorporated customer rebates, a demonstration project, case studies, and software development into their program.



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### **Grant County PUD No. 2, *Transformer Puncture-and-Seal Oil Sampling Technique***

Grant County PUD No. 2 won its first EIA for its transformer puncture-and-seal oil sampling technique, a safe, quick, and inexpensive method to collect oil samples from electrical equipment to test for polychlorinated biphenyl (PCB). PCB is a harmful chemical that contributes to the deterioration of electrical equipment. Grant County created a 10-minute process of steel patching and oil resistance on equipment to prevent oxidation and other negative affects association with machine exposure to UV rays, heat, and oil. The project saved an estimated \$2.04 million dollars.

### **City of Anaheim, *Temperature Activated Control to Cycle Residential Central Air Conditioner***

City of Anaheim won its first EIA for the installation of exterior, temperature-activated control devices to cycle residential central air conditioning compressors during times of electrical system peaks, in order to reduce system demands, reshape the load curve, and reduce generation resource costs. Project managers expect to save \$3000 per air unit each year.

### **Memphis Light, Gas, and Water Division, *Project MAX***

MLGW won its third EIA for "Project MAX (Maximum Assistance Experiment)," a multiagency weatherization program designed to coordinate and combine limited local resources to maximize residential housing weatherization improvements for its low-income and elderly customers. Project managers improved attic and storm window air leaks by providing caulking. The program saved an estimated \$310 per year per customer.

## **1985**

### **Nebraska Municipal Power Pool/Municipal Energy Agency of Nebraska, *Load Management Feasibility Studies***

NMPP won its first EIA in conjunction with MEAN for allocating grants of \$10,000-\$15,000 to five municipal districts for the purpose of purchasing microcomputers and remote metering units. The equipment and software reduced municipal costs in each town by \$25,000 by tracking and determining the unique demand patterns in each community and then planning ways to relieve peak demand.

### **Palo Alto Utilities Department, *Peak Demand Reduction Program***

Palo Alto won it's forth EIA award for its Peak Demand Reduction Program, which reduced peak load demand above 175 MW. Palo Alto program offered rebates to customers for demand-reducing heating, ventilation, and HVAC investments, contracts with large customers to reduce electric consumption on demand, and notification of peak loads to customers who agree to provide load reductions. Palo Alto advertised their demand reduction program through a series of bill stuffers, brochures, mailings, and advertisements.

### **Austin Electric Utility, *Use of Renewable Resources for Electric Generation***

Austin won its second EIA award for its Use of Renewable Resources for Electric Generation program. Austin incorporated a variety of locally appropriate renewable electric energy generation techniques into its generation mix, including photovoltaics, municipal solid waste, methane from cattle manure, and low-head hydroelectric generation. The utility promoted rooftop PV, refuse resource recovery, and low-head hydropower. The utility also contracted the purchase of biomass energy.

### **Memphis Light, Gas, and Water Division, *Binghampton N-Act Project***

MLGW won its second EIA award for its Binghampton N-Act Project. The project spurned the development of a neighborhood-oriented marketing plan that coordinated different city, county, and state programs to meet individual needs at minimum cost. Memphis implemented a survey of low and elderly citizens in a door-to-door campaign to introduce workshops on weathering to citizens. Memphis's project strengthened communication networks and through this interaction dispelled distrust of the government.

### **Columbia Water and Light Department, *Cooperative Energy Management/Conservation Office***

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Columbia Water and Light won for its Cooperative Energy Management/Conservation Office program, which was designed to assist local government management of energy. Columbia educated the public about energy conservation by provided elementary, middle, high, and college students with information workshops. Additionally, the utility advertised in newspapers to reach the public. Their program saved an estimated \$25,000 by reducing demand for fleet gas.

### **Sioux Center Municipal Utilities, *Comprehensive Energy Management Demonstration Project***

Sioux Center won its first EIA for its Comprehensive Energy Management Demonstration Project, which was designed to manage energy usage indoors. The project audited public buildings, installed conservation measures, and provided personnel training, and community-wide conservation activities. Sioux Center ensured that energy was better managed in the community's indoor pool, public library, community center, and city hall.

## **1984**

### **Austin Electric Utility, *Construction of a Conservation Powerplant***

Austin Electric won for its "conservation power plant" was designed to reduce peak demand by 553 MW over fifteen years. Austin Electric refocused their already existing energy management and renewable energy programs and made them future-orientated. Utility officials allocated cash rebates to customers who invested in efficient air conditioning and heat pump appliances. Additional incentives were provided for customers who invested in solar technology.

### **Fort Collins Light and Power, *Energy Services Program***

Fort Collins won its first EIA for the integrated and comprehensive energy services program covering utility operational practices, customer service and educational outreach, community energy assistance, and strategic planning. Through their programs, Fort Collins officials reduced labor and equipment costs, increased service reliability, and reduced system loses. In addition, officials provided window treatment, solar space and water heating, and appliance information. Finally, the utility provided loan programs for customers who branched out into conservation or renewable technologies.

### **Nashville Electric Service, *A Weatherization Training, Work, and Energy Assessment Program***

Nashville Electric won its second EIA for its program to provide summer employment and training for senior high school students who provided home repair and weatherization services to 500 homes of low-income, elderly, and disabled citizens. The utility provided workshops to students about carpentry and meter reading so that they could install minor improvements into the homes of senior citizens in light of the elderly's small pension and increasing energy costs.

### **Palo Alto Utilities Department, *Michael, the Energy Mastermind***

Palo Alto won its third EIA for development of "Michael, the Energy Mastermind," an interactive microcomputer software that dispenses individualized energy use analysis and advice to customers. Palo Alto set up demonstrations of the software in hardware stores, bank lobbies, schools, and workshops in the hopes that Michael's bright colors and humor would motivate customers to think about their energy decisions.

### **City of Livingston, *Municipal Wind Electric Conversion System***

City of Livingston won for their Municipal Wind Electric Conversion System, a system that designed, developed, and brought on-line the first municipal wind electric conversion system in the United States. The wind electric conversion system provided a name plate capacity of 345 kW to the community. City of Livingston officials increased public confidence in renewable energy and increased participation in wind energy through their program.

### **Sacramento Municipal Utility District, *100-MW Photovoltaic Powerplant Program***

SMUD won for its construction of a 100-MW photovoltaic power plant in five sequential phases over a 12-year period. SMUD utility officials designed their project to provide an efficient, reliable, clean, and

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bountiful source of energy for customers. Collectively, their project offset peak demand during the summer months and met demand much more easily.

### **1983**

#### **Lincoln Electric System, *Reduced Load Growth Study***

Lincoln Electric won their first EIA for reducing electricity use during peak demand periods through load management of residential central air conditioners, residential energy audits, rate structure studies, a long-range power supply program, and a load factor improvement study.

#### **Palo Alto Municipal Utilities Department, *Solar Financing through a Tax-Exempt Line of Credit***

Palo Alto won its second EIA for offering low-interest solar financing program for multifamily residential applications. Program officials offered a tax-exempt line of credit, and launched an expansive energy conservation marketing campaign that targeted owners, managers, maintenance personnel, and tenants of multifamily housing.

#### **Salt River Project, *Project Outreach, Project SHARE, 8 & Skate, Power Saver Workshop***

Salt River Project won their first EIA for several programs. SRP's Project Outreach helped financially distressed customers by providing free, professional credit advice, sources of information, and referral services in neighborhood offices.

Project SHARE (Service to Help Arizonans with Relief on Energy) was designed to help poor customers pay their bills and repair their air conditioners, windows, and doors. The project was funded by SRP's customers, who voluntarily contributed an extra dollar to their electric bill. Collectively, the project affected 7300 SRP customers who were given a portion of the \$250,000 that was raised.

SRP's 8 & Skate Program was designed to reduce employee turnover, increase employee morale, boost employee productivity, reduce travel expenses, and improve customer service to the community. Utility officials designed the program so that meter readers who finished their work before the eight hour workday, could be released. Project officials discovered that the program reduced reading errors by 15%, reduce transportation costs by 7%, and reduced the number of sick days by 14%.

SRP's Power Saver Workshop was designed to provide do-it-yourself information to customers. Utility officials provided instructions about weather stripping, caulking, and window shade installation.

#### **Sanborn Municipal Light Plant, *Energy Management System Utilizing a Cable Television System as the Communications Medium***

Sanborn won its second EIA for its hybrid energy management system which sends signals through the locally owned coaxial cable television system to several energy control points. Sanborn's project was designed to reduce demand costs on wholesale power bills, lower peak demand, and provide "sustainable low rates" to customers. Using a microprocessor, the utility managed sixty-five water heaters and 305 air conditioners.

#### **Santee Cooper, *Energy Services Program***

Santee Cooper won their first EIA for a number of residential, commercial, and industrial services, including energy audits; heat pump quality and installation control; educational programs for school, business, professional, and industrial groups; energy-efficient home awards; distribution of water-flow restrictors; a load-calculating service; and special programs for low-income, elderly, and handicapped customers. The utility also hosted several seminars, awards ceremonies, and provided information about heat pump dealers.

#### **Sturgeon Bay Utilities, *Improved Wastewater Treatment Services***

Sturgeon Bay won for its wastewater treatment facility which, via a heat pump, derives its heat from the plant to heat space and produces power from an engine/generator fired by methane from the digesters. Sturgeon's wastewater treatment facility uses an average of 2.8 million gallons of water each day and a

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maximum use of 7 million gallons. Collectively, the program saves \$6.20/kW demand which translates to \$35,000 each year.

### 1982

#### **Memphis Light, Gas, and Water Division, *Gas Pressure Reduction by Turbine***

MLGW won their first EIA for a gas energy conversion project to reduce natural gas pipeline pressure by installation of a turbine instead of a reduction valve. MLGW's project provides a cheap, efficient, and environmentally friendly alternative to produce electricity. The project, which was sponsored by private investors (who received tax benefits for their support), was designed to produce 4,000,000 KWh each year.

#### **Soyland Power Cooperative, *220 MW Compressed Air Energy System***

Soyland won for construction of a 200-MW compressed air energy storage (CAES) plant to meet anticipated peak demand loads. The project combusts compressed air with 1) oil to create energy; or 2) oil and gas that creates power with the help of a turbine. The project was designed in light of price increases in natural gas and petrochemicals. Collectively, Soyland's project will save 1,000,000 barrels of oil.

#### **Sebring Utilities Commission, *Diesel Power Plant Project***

Sebring Utilities Commission won for slow-speed, two-stroke crosshead marine diesel engines operating in combination with a steam bottoming cycle powered by exhaust heat. Sebring's project was designed to increase efficiency and expand utility capacity. The project, which used the exhaust from heat to power engines, created 87000 Btu per KWh and was considered the most efficient plant in the western hemisphere.

#### **Coon Rapids Municipal Utilities, Iowa Association of Municipal Utilities, and Sanborn Municipal Utilities, *Corn Applications in Biomass Gasifiers***

Coon Rapids Municipal Utilities, with the Iowa Association of Municipal Utilities (their first EIA) and Sanborn Municipal Utilities (their first EIA), won for developing a biomass gasifier to utilize corncobs to provide fuel for an existing diesel-fueled generator. The utilities sought to provide an inexpensive, less capital-intensive source of energy than diesel. Together, they used 12,000 tons of corncob each year to displace 80% of diesel fuel resources.

#### **Taunton Municipal Lighting Plant, *Integrated Municipal Energy Resource System (IMERS)***

Taunton won its first EIA for IMERS (Integrated Municipal Energy Resource System), a coal-fired steam electric plant with the capability of burning municipal refuse and sludge while simultaneously generating electricity and providing steam to local commerce and industry. The goal of utility officials was to provide a reliable and inexpensive local source of power and to reduce the volume of landfills.

#### **City of Santa Clara, *Solar Swimming Pool Heater Rate Schedule***

City of Santa Clara won its second EIA for the promotion of leased solar heating systems for central water heaters on multifamily residential units. Santa Clara encouraged the public's use of solar systems. The City installed pilot solar programs in twenty-eight condos in 1981, and made an additional 270 solar installations to heat pools and residential units. Santa Clara customers who used solar systems instead of natural gas to heat their pool spend approximately \$200 per year on energy costs, while saving \$400.

### 1981

#### **Palo Alto Electric Utilities, *Solar Implementation***

Palo Alto won their first EIA for Solar Implementation, a program designed to incite interest in solar energy. Palo Alto planned to increase the utility's use of solar up to 10% within five years of the program's inception. To achieve their goals, Palo Alto embarked on a mass publication education and customer assistance campaign to provide information, low interest financing, and operators of solar

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systems. The program was designed to reduce the number of fossil fuel contracts and become more energy-independent.

### **Benton County PUD No. 1, *Benton County P.U.D. Employee's Hotline***

Benton County PUD No. 1 won for their Employee's Hotline, a computerized notification program that was designed to alert customers to increases in their electricity bill. If customers historically had unexplained documented increases in their bills, Benton officials would ensure that meters were read correctly and that power theft was not an issue. The computer program not only updated Benton's engineering data, but reduced the number of customer complaints to the utility.

### **Osage Municipal Utilities Department, *Hand Held Infra Red Scanner Program***

Osage won for the utility's Hand Held Infra Red Scanner Program, an energy audit program that used an infra-red scanner to locate corroded and overloaded feeders. Osage offered free home scans and found their program increasingly popular with the community. Although the cost of the program was \$5,500 which would have translated to \$25-30 per individual house audit, Osage estimates that the utility saved money with the scanner because they will not receive as many service calls.

### **Nashville Electric Service, *Senior Citizens' Counseling Program***

Nashville Electric won their first EIA for their Senior Citizens' Counseling Program, which educated senior citizens about conservation. Program officials hired and trained retired senior citizens (former business men and women) to instruct other senior citizens about the methods to conserve energy. The program was completed through a series of phone calls and the creation of a hotline number, and was implemented because of concerns about the rising costs of energy for people on fixed incomes.

Nashville also was awarded the EIA award in part because of their dedication to steam applications. Understanding that municipal solid waste contained about 1/3 to 1/2 of the energy of coal, Nashville converted solid waste to low-pressure steam energy. The program reduced air, water, and land pollution, decreased landfill waste, and provided energy for eight industrial customers.

### **Santa Clara Municipal Electric Department, *Santa Clara Cogeneration Plant #1***

Santa Clara was awarded the utility's first EIA for Santa Clara Cogeneration Plant #1, a project that was undertaken to promote energy independence and conservation programs. The programs put online two gas-fired combustion turbine generators that were capable of producing 5800 kW. The turbines provided a cleaner and cheaper source of electricity. Santa Clara expects their turbine investment to pay off in a period of eight years.

### **Columbus Division of Electricity, *Refuse/Coal-fired Municipal Electric Plant***

Columbus Division was awarded for their project, Refuse/Coal-fired Municipal Electric Plant. Columbus pulverized refuse and coal using a ratio of 80:20 to provide energy for their street lighting program, generate electricity, and operate a cooling water system. Officials inputted the commercial, residential, and industrial refuse that they had collected for the program into 90-MW generators. Using high-pressure steam, their already-trained personnel, and their previously existing plant, Columbus was able to provide enough electricity to combat the expected future increase in population, fuel, and energy requirements.