

ALAMEDA MUNICIPAL POWER

Alameda Municipal Power (AMP) at a Glance

- Year established – 1887, oldest POU in California
- Climate Zone – 3A
- Number of retail customer connections – 34,613 (88% residential, 12% commercial)
- Percent of retail sales by customer class – residential – 37%, commercial – 63%
- FY 2015 electric sales revenue.....\$50,586,481.44
- Total budgeted amount for energy efficiency programs.....\$1,989,050.00
- Total actual energy efficiency expenditures.....\$1,176,585.00

Notes:

1. AMP has greatly exceeded required Public Benefits expenditures.
2. A large commercial direct install lighting program budgeted at \$600,000 started mid-2015 and continues through FY 2016. Due to program ramp-up time, most of the program expenditures were in FY 2016.
3. Residential LED programs required ramp-up time in FY 2015.

AMP Overview

- Due to Alameda’s maritime temperate climate and small amount of industry, the peak demand for electricity is in the winter (December and January) in the early evening. AMP’s electric load is relatively flat compared to most California utilities and there is no residential air-conditioning.
- More than 8 percent of AMP’s load is maritime, this includes a Coast Guard Base and the Maritime Administration with nine ships home ported in Alameda.
- In FY 2015 AMP started installing advanced metering infrastructure (AMI). Advanced meters have been installed on all medium and large commercial customers as of November 2015. AMI customers have access to a portal with their energy use data, which includes 15-minute interval data, kW, kWh, kVA, power factor, and weather data. Complete build out for all AMP customers will be completed in 2017.
- AMP has committed to spending much of its cap and trade and renewable energy credit (REC) funds to reduce greenhouse gas emissions in our service area.
- AMP electric sales and the average residential energy use have been declining annually since 2011. This trend is similar to other utilities both in California and nationally. This downward trend is likely due to several factors.
 - Increase in customer energy efficiency
 - Increase in customer-owned distributed generation
 - Increase in energy efficiency in codes and standards, particularly CA Title 24, the CA Building Standards, and Title 20, the 2012 Appliance Efficiency Regulations

- Consumer technology trends have decreased energy use also. For example, LED TVs, which use 130 watts, have largely replaced plasma TVs, which used 400 watts. Also lap top computers, which use 5 to 10 watts, have largely replaced desktop computers, which used 32 watts or more.
- Increase in the efficiency requirements for the Energy Star label

AMP Electric Sales and Average Residential Electric Use

Year	Actual Electric Sales (MWh/yr.)	Residential Average Annual Electric Use (kWh/yr.)
2011	382,634	4,651
2012	373,787	4,555
2013	363,444	4,434
2014	353,913	4,265
2015	342,203	4,053

Major Program Changes

- Residential LED
LEDs have advanced from a new concept to a more mainstream lighting option for residents. Even within this fiscal year, retail prices have decreased from well over \$10 for an 800 lumen general purpose A-lamp, to \$5. LEDs are now available to replace nearly all specialty lighting, from globes to 3-way switches.
Since not all Alameda residents have made the switch from incandescent to CFL, AMP has encouraged residents to try LEDs. AMP expanded LED programs to include an initial promotion, where LEDs were mailed to all residents, a free LED option for customers that choose to have an in-home energy audit, as well as a simplified LED rebate program.
- Commercial LED
Likewise with commercial customer applications of LEDs, the variety, the cost, and the reliability has improved considerably recently. The majority of the energy efficiency retrofits in the “Commercial Lighting Direct Install Program” were LEDs. The most common LED retrofits were for exterior lighting and various spot lighting.
- Impacts of 2013 Title 24 Building Energy Efficiency Standards (T24)
The 2013 T24, which went into effect in July 2014, apply to lighting retrofits in existing non-residential buildings. This has become a barrier to many customers and has decreased the scope of many retrofits and increased the cost of doing retrofits. Typically, 60 percent of AMP’s energy efficiency portfolio is non-residential lighting retrofits. The impacts are:
 - Longer time and increased costs for lighting installers to do audits for projects that trigger the T24 code
 - The lighting controls that required by the 2013 T24 are costly and customer acceptance has been low of these controls.

- Customers are not doing comprehensive retrofits and are opting for smaller projects that do not trigger code.
- In general, costs for projects that trigger code have doubled.
- REC funds for Energy Efficiency
Revenue from the short-term sale on AMP's renewable energy credits (RECs) funded the largest energy efficiency programs for FY 2015. Those programs include:
 - Project 1: LED Streetlight Replacement – Cobra Head and Shoe Box (will be finished in FY 2016)
 - Project 2: Commercial Lighting Retrofit Rebate Program (will be finished in FY 2016)
 - Project 3: LED Light Bulbs for Existing Alameda Residential Customers

Revenue from the RECs sale will be used for the benefit of utility ratepayers and to support AMP policies to reduce greenhouse gas emissions associated with ratepayer electric use.

Program Highlights

- **LED mailing to residential customers**

AMP mailed two free LEDs to every residential service address in February – March 2015. Many customers called and emailed with their support for the program and gratitude for AMP's "gift." AMP expects to see a flattening in its load curve during peak winter evenings as a result of the 56,832 LEDs that were delivered, due to the huge potential savings – 850,642 kWh per year (gross savings). This program was funded by AMP REC funds.

- **My Energy Program**

The goal of the My Energy Program is to encourage behavioral changes to improve energy efficiency by sending customers Home Energy Reports (HER) five times during the program year that compares their energy use to their neighbors and provide tips on how they can reduce their energy use. The residential customer base was split in half: one group receives five HERs in the mail each year (the test group), while the other half does not receive a HER in the mail (the control group).

All residents have access to the My Energy web portal, an online tool that provides similar information to the mailed report, such as comparisons to similar sized homes in Alameda, energy efficiency tips, and goal-setting for reducing use. Nearly 300 Alameda residents set up accounts through the My Energy portal, which was visited over 600 times. Customers checked that they did, or would complete, 1,718 energy-saving tip actions.

The net energy savings from this program as reported by the vendor are 1,369,139 kWh for FY 2015 and the lifetime of the savings is one year. This works out to 97 kWh/year per participant.

- **Residential LED Rebate Programs**

The FY 2015 Residential LED Program started out as a customized residential LED program with a rebate rate of \$0.20/kWh to encourage customers to try LEDs. Also the cost of LEDs was relatively high. In April 2015 the program was updated to a prescriptive rebate program. Participation increased from five applications a month to 200 applications in three months. Also LEDs were given to customers who received on site audits. Collectively, nearly 3,000 LEDs were installed through these programs resulting in 46,948 kWh/yr. (net) in energy savings.

- **Commercial Lighting Direct Install Program**

In FY 2015 AMP started the REC-funded Commercial Lighting Direct Install Program, administered by a third party vendor. The goals of the program are to remove customer barriers to lighting retrofits such as knowledge of lighting technologies, project management, quality of contractors and fair pricing, first costs, compliance with Title 24; and reach customers that have not participated in energy efficiency programs previously. More than 80% of the participants were small commercial customers who had never participated before and the estimated energy savings from this program are 1,629,371 kWh/year (gross savings). Starting in January 2016, AMP will expand this program to include all non-residential customers; and HVAC and refrigeration measures.

- **LED Street Light Retrofit**

AMP started the retrofit of all City of Alameda cobra head and shoe box street lights with LEDs in June 2015. This REC-funded project will be completed in January 2016 (FY 2016) and will provide an estimated energy savings of 853,587 kWh/year (gross).

Program Descriptions

Residential Lighting

- CFL Light Exchange: This program allows customers to visit the AMP service center and exchange three incandescent lights for three CFLs.
- LED Programs: The AMP residential LED program started out as a customized program with a rebate rate of \$0.20/kWh. The program was updated in April 2015, to a prescriptive rebate program. Through these programs AMP customers installed nearly 3,000 LEDs.

Using REC funds, AMP mailed two LEDs to every residential service address in February and March of 2015, a total of 56,832 LEDs were delivered.

Residential Refrigeration

- Energy Star Refrigerator and Freezer Rebate & Recycle Program: This program provides a \$100 rebate to customers who purchase an Energy Star refrigerator or freezer and recycle their old appliance with AMP's recycler. Part of the goal of the program is to educate customers about Energy Star and encourage the purchase of other Energy Star appliances and equipment.

Because there is no residential air conditioning in Alameda, the refrigerator is usually one of the biggest energy users in an Alameda home.

- Second Refrigerator or Freezer Pick-Up Program: This program provides customers a rebate to get rid of their extra refrigerator or freezer and recycle it properly with our recycler.

Residential Other

- Monitor Lending Program: Borrow a Kill A Watt monitor to measure the energy use of appliances.
- Onsite Energy Audits: AMP provided residential audits at no cost to 52 customers. Customers are given the option of three free CFLs or one free LED.
- Online Appliance Calculator: Online appliance calculator on AMP's website.
- My Energy Program: As part of the My Energy program a home energy report is mailed to 50 percent of Alameda residential customers five times a year that includes a summary of the homes historical and recent energy use, energy efficiency tips, and a comparison of their energy use to their neighbors.

Non-Residential Cooling

- Commercial HVAC Retrofit Program: Prescriptive rebates for retrofitting existing buildings with energy-efficient HVAC equipment.

Non-Residential Lighting

- Commercial Lighting Retrofit Program: A program with rebates, both prescriptive and custom, for retrofitting lighting with energy efficient equipment.

Non-Residential Process

- Commercial Customized Rebate Program: A program with customized rebates based upon the kWh/year savings not covered by the lighting or HVAC program

Non-Residential New Construction

- New Construction Design Assistance: Grants of up to \$10,000 for energy-efficient design work.
- New Construction Rebates: Whole building and systems rebates for energy-efficient new construction.

Non-Residential Other

- Commercial On-Site audits: Free energy audits for lighting, HVAC, refrigeration, process systems, etc.

EM&V

AMP does EM&V for each year, but completes the actual EM&V process every two years. This method is a more economical use of staff resources. The most recent EM&V was done for FY 2012 and 2013 by Energy & Resource Solutions. This is the link to that report - http://www.ncpa.com/images/stories/Energy_Efficiency/emv_reports/AMP_2012_2013_MV_report_ERS_Final.pdf . The typical budget for EM&V is \$40,000 for two years. The next EM&V will be for FY 2014 and 2015, and the focus will be on residential

energy efficiency programs, specifically the refrigerator and freezer program, LED promotion (mailing), and LED rebates.

Sources of Energy Savings

With a goal of getting the most accurate energy savings, AMP staff used a variety of sources for energy savings. Whenever possible actual existing and installed equipment data is used. AMP does pre and post installation inspections on all commercial sector rebate projects, and did pre and post inspections on one of the four residential LED programs in 2015. For the other three residential lighting programs, the energy savings from the TRM 2014 were used. The energy savings figures for the residential refrigerator programs were from the TRM 2014. The energy savings from My Energy, AMP's residential behavior program, were from actual AMP billing records and compared the test group, those that received the printed HER, to the control group that did not receive HERs. Opower, the vendor responsible for My Energy, provided these calculations.

Complimentary Programs

- Renewable Energy Programs:

Alameda Green, AMP's optional green power program, provides customers with the option to choose 100 percent renewable energy at an additional cost of \$0.015/kWh. In 2015 AMP rolled out a successful residential outreach campaign which resulted in 1,016 new participants. Currently, there are 2,083 residential and 73 commercial customers enrolled in Alameda Green. AMP staff encouraged enrollment through Alameda Green mentions in the AMP's residential newsletter - The Flash, four bill inserts, social media, a commercial district outreach, and a contest among Customer Service Representatives.

- Low-Income Programs:

AMP continues to provide financial assistance to Alameda's low-income families through the EASE (Energy Assistance Through Supportive Efforts) and EAP (Energy Assistance Program) programs. For FY 2015, EASE, an emergency relief program, helped 61 households receive a total of \$4,881.25 in electric bill assistance. A maximum amount of \$200 is available per household within a three-year period through the EASE program.

EAP provides a 25 percent monthly discount on the electric bill. A total of \$76,470.43 was allocated to 626 Alameda households. These programs are funded through the public purpose component of AMP's energy charge.

- Research, Development, and Demonstration:

There was no AMP activity in research, development, and demonstration in 2015.

- Electric Vehicles:

By the end of FY 2015, there were 291 AMP customers registered to receive the electric vehicle (EV) discount. Staff developed rates for Level 1, 2, and 3 EV chargers, which went into effect on July 1, 2015.

AMP participated in a joint grant application with the Bay Area Air Quality Management District (BAAQMD) and was chosen for an \$85,000 grant for publicly available electric vehicle charging infrastructure from the CEC. The grant covered a majority of the costs for AMP to install two Level 3 fast chargers in its public parking lot at 2000 Grand Street. Installation of these fast chargers began on June 2, 2015, and they were fully operational as of October 23, 2015.

Additionally, in June 2015 AMP received approval to purchase one battery EV and one plug-in hybrid EV to be used as pool cars. Another EV was purchase in FY 2016. AMP installed with two dual port Level 2 chargers, which can charge up to four electric vehicles at a time, in its back parking lot to accommodate its new and future EVs. These chargers were operational as of November 2, 2015.

- Energy Storage:

AMP does not have any onsite storage, nor do any customers have onsite storage. An evaluation of energy storage was done in 2014 as required by California AB 2514. No updates to the evaluation were done in FY 2015. The evaluation concluded that energy storage was not cost effective at this time. However, AMP continues to evaluate the potential for this technology and in FY 2015 staff attended a storage exhibit and has met with several different vendors interested in providing storage in Alameda.