



Powering communities on their unique path to energy savings



Proven Results, Abundant Opportunities

A Message from the Executive Director:

There's no question that 2016 was a significant year for all of us at Efficiency Smart and across the energy efficiency industry as a whole.

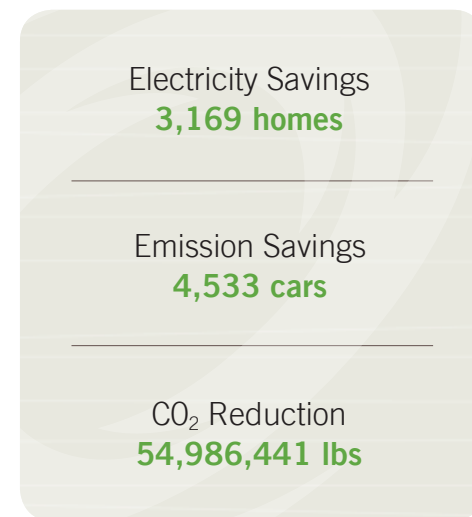
Although there have been many changes in the industry over the past few years, energy efficiency remains the lowest cost option for communities compared to new power supply. It also has the least risk of any power supply resource, reducing exposure to market variability, financial impacts of potential carbon regulations, and fluctuating transmission and capacity costs. Efficiency Smart takes great pride in serving as a trusted energy advisor for American Municipal Power Inc. (AMP)'s participating member communities and helping their businesses and residents reduce energy consumption and save on electric bills.

This past year marked the successful completion of the 2014-2016 contract period of offering energy efficiency services for participating communities. We are happy to report that the 65,967 megawatt-hours (MWh) of energy savings achieved during the three-year contract period exceeded our target, and are even more proud that all 27 participating communities achieved their three-year energy saving goals. In addition, the City of Hamilton, Ohio (whose contract runs through January of 2018), is well positioned to meet its three-year performance target before the end of 2017.

It was also in 2016 that I was offered the opportunity to serve as the new executive director of Efficiency Smart, as David Cawley transitions toward his retirement. I would like to thank David for all of his mentorship as I moved into this position.

In the past year, I've had the opportunity to talk with stakeholders in our participating communities to learn about their challenges and opportunities and to discuss what Efficiency Smart can do to help. One thing I quickly learned is how important it is to collaborate with our partnering communities to create customized solutions that take into account their unique energy efficiency goals.

Through this spirit of partnership and collaboration, we worked with our participating communities to help 3,434 residential customers and 268 commercial and industrial energy users complete energy efficiency improvements in homes and businesses in 2016. These efficiency upgrades resulted in 30,534 MWh of energy saved for the year, which is roughly equivalent to:



The energy savings were achieved through cost-effective levels of energy efficiency, as participating communities received, on average, a return of \$3.16 for every \$1 spent on energy efficiency in 2016.

One thing that participating communities have come to expect from Efficiency Smart is reliable technical



services for their businesses and residents. In 2016, our 2015 energy saving results were validated through an independent evaluation, measurement, and verification (EM&V) company, and we attained a 94 percent realization rate for our energy saving claims. We are proud to say that since 2011, Efficiency Smart has averaged a 97.3 percent realization rate, which is among the highest realization rates in the country.

This high quality of technical services has resulted in verified savings, which continues to allow participating communities to earn money back from the sale of capacity energy savings. Efficiency Smart participants' energy efficiency projects produced a total of 9.75 megawatts (MW) of capacity savings that were sold into the PJM market in 2016, and the 2016-2017 revenue from this sale totaled approximately \$165,000.

An area Efficiency Smart focused on during 2016 was removing barriers for residents to use the available services. As part of this focus, Efficiency Smart partnered with 21 community action agencies to serve

vulnerable populations, such as senior citizens and other individuals on a fixed income.

These organizations have the infrastructure, credibility within the local community, and implementation strategies in place to access hard to reach populations. Partnering with these organizations allowed Efficiency Smart to accelerate the process of identifying opportunities, and ultimately, create energy savings for those who need them the most.

In 2016, Efficiency Smart provided more than 9,200 CFLs to participating residential customers through these partnerships. Those served included residents that have applied for assistance through programs like the Home Energy Assistance Program (HEAP), food pantries, and senior citizens that participate in local meals on wheels and senior lunch programs. Efficiency Smart plans to expand these efforts in 2017 and beyond.



Emerging Technology

Efficiency Smart has helped increase the adoption of new efficient technologies. Our staff identifies emerging industry trends and promotes the use of these technologies by helping businesses and residents learn about the benefits of new products and systems.

Additionally, Efficiency Smart recommends and provides incentives for products that have third-party testing to uphold the standards of emerging technology. This mitigates negative customer experiences, which can hinder the rate of adoption and slow down energy savings in communities.

As more and more businesses and residents purchase new technology nationwide and more products become available, prices for these products decrease. This can further accelerate the adoption of new products, as energy efficiency projects that once seemed economically unviable even a few years ago can quickly become common. One example of this has been growth in the adoption of LED technology in participating communities.

In previous years, LED linear, high-bay, and low-bay lights were considered too expensive compared to fluorescent lighting options for business customers. In 2014, LEDs resulted in just 18 percent of lighting MWh energy savings throughout all participating communities, compared to 82 percent for fluorescent technology.

As the cost of LEDs decreased and the quality of the technology improved, Efficiency Smart energy consultants began regularly recommending LED options for business customers. In 2016, the results flipped, as LED lighting upgrades resulted in 87 percent of lighting MWh energy savings throughout all communities, compared to just 13 percent for fluorescent technology.

This shift was also seen on the residential side. Efficiency Smart partnered with local retailers in select communities for a lighting markdown program, first as a pilot in 2015 and then on a larger scale in 2016. Through this program, Efficiency Smart provided instant discounts for residential customers on the purchase of CFLs and LEDs, helping to drive business to these local retailers.

Prior to 2015, many of the retailers in the markdown had



An estimated 90 customers per month bought efficient lights at Kuenning's Western Ohio True Value in Minster, Ohio, during the 2016 Lighting Markdown.

never kept LEDs in stock for purchase, as the price was seen as a barrier for customers.

During the 2015 pilot, LEDs accounted for only 30 percent of all purchases. In 2016, the 23 local retail stores that participated in the lighting markdown program combined to sell more than 53,000 LEDs and CFLs, with LEDs making up 71 percent of all purchases. In 2017, Efficiency Smart will continue to offer a lighting marking, this time only with LEDs due to the maturation of the lighting market.

Efficiency Smart also prepared for the 2017 launch of a new residential advanced thermostat rebate in 2016. This is Efficiency Smart's first rebate offering in the emerging "Internet of Things" category, which allows residents to connect more items in their home and control them remotely. With many advanced thermostat models available on the market, Efficiency Smart reviewed energy saving studies to create a qualifying product list that customers could feel confident in purchasing.

In addition, Efficiency Smart introduced new residential rebates on the purchase of advanced power strips and ENERGY STAR® certified clothes dryers in 2016. When combined with the advanced thermostat, there are now a total of 10 product rebates available for participating residents.

Moving Forward

In 2016, Efficiency Smart and AMP visited 16 communities to discuss their current and future energy efficiency needs. These included currently participating communities, previously participating communities, and communities that have never participated in Efficiency Smart.

Key contacts within these communities (such as local utility directors) were interviewed to get their feedback on potential new service offerings. During these meetings, we asked what services would best fit their community's needs and what their top priorities were. Based on the feedback received, AMP and Efficiency Smart worked together to develop new 2017 service offerings.

These new service offerings, which are more flexible and offer a wide range of price points, are now available. This gives communities more choice than ever before in picking the service or series of services that best fit their needs. We invite anyone interested in learning more about the new services to visit our website at www.energysmart.org/municipal-subscription for more information.

Although there was much to celebrate at the close of the 2014-2016 contract period, we are even more excited about what the future holds. We are honored to continue to help AMP member communities build energy efficiency into their power supply portfolios, and to help them establish a platform for sustainable growth.

On behalf of the entire Efficiency Smart team,

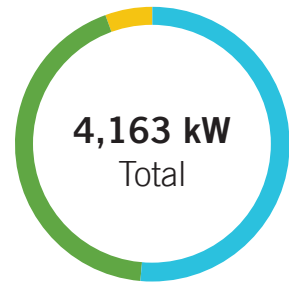
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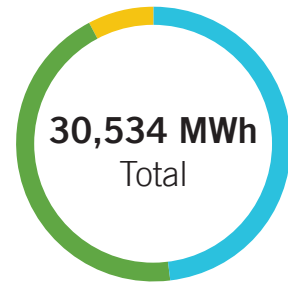
2016 Results

Coincident Peak Kilowatt Savings



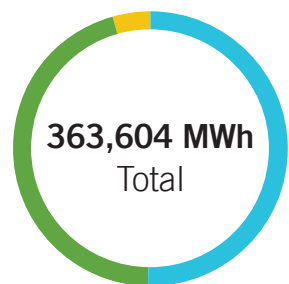
2,151 kW - Commercial
1,785 kW - Industrial
228 kW - Residential

Annual MWh Savings



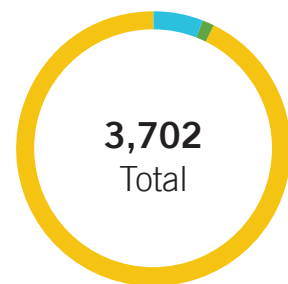
14,730 MWh - Commercial
13,485 MWh - Industrial
2,320 MWh - Residential

Lifetime MWh Savings



182,832 MWh - Commercial
165,252 MWh - Industrial
15,520 MWh - Residential

Project Completions

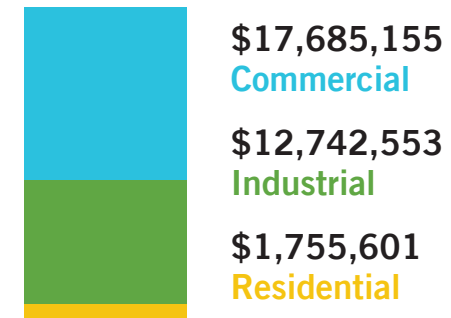


219 - Commercial
49 - Industrial
3,434 - Residential

Net Lifetime Economic Benefits¹

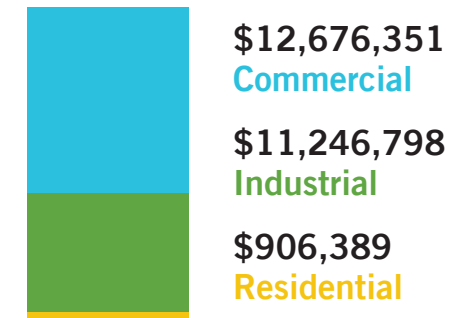
\$16,049,960

Lifetime Customer Savings



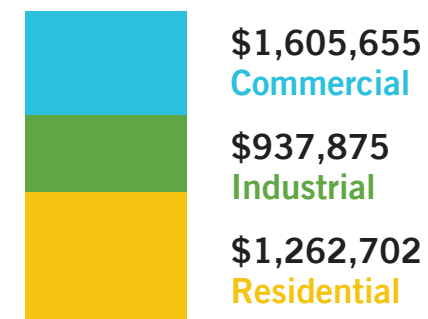
\$32,183,308
Total

Total Resource Benefits²



\$24,829,537
Total

Efficiency Smart Expenditures



\$3,806,232
Total

Emission Reductions

54,986,441 lbs
Carbon Dioxide (CO₂)
664 lbs
Methane (CH₄)
50,361 lbs
Nitrogen Oxide (NO_x)
850 lbs
Nitrous Oxide (N₂O)
174,343 lbs
Sulfur Dioxide (SO₂)

Aggregate Benefits

$$\begin{array}{r}
 \$24,829,537 \\
 \text{Total Resource Benefits}
 \end{array}
 \div
 \begin{array}{r}
 \$7,845,618 \\
 \text{Participant Cost Paid}
 \end{array}
 =
 \begin{array}{r}
 3.16:1 \\
 \text{Benefit-to-Cost Ratio}
 \end{array}$$

¹ Net Lifetime Economic Benefits is equal to Total Resource Benefits plus operation and maintenance savings, minus the cost paid by Efficiency Smart to operate the program and the implementation of cost paid by participants.

² Total Resource Benefits represents the present value of lifetime avoided electrical energy and demand charges as well as fossil fuel and water savings that result from energy efficiency measures.





smart energy solutions. powerful savings.

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