



ComEd® Energy Efficiency Program

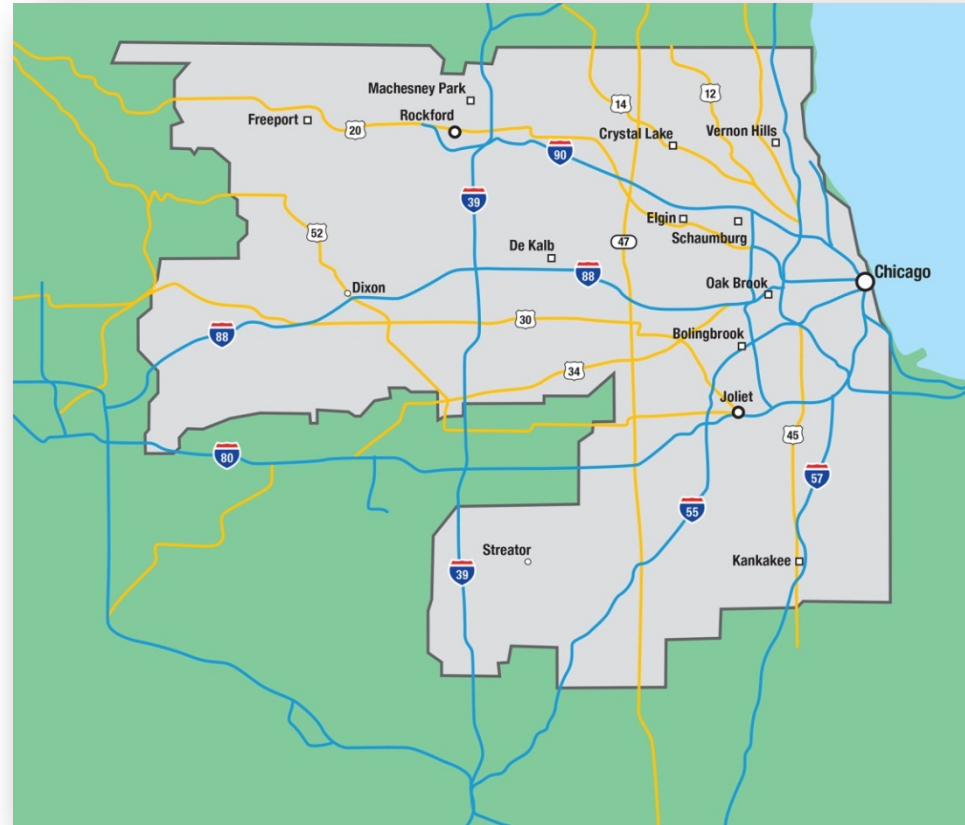
ComEd Smart Ideas for Your Business®

Leveraging Energy Efficiency in Data Centers: Highly-Effective Program Design for Specialized Large Customers

September 22, 2015

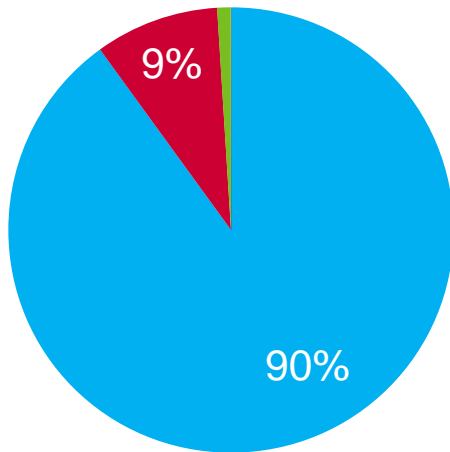
About ComEd

- ✓ ComEd is an electric delivery company providing service to 3.8 million customers
- ✓ Service territory covers 11,411 square miles
- ✓ ComEd manages over 90,000 miles of power lines

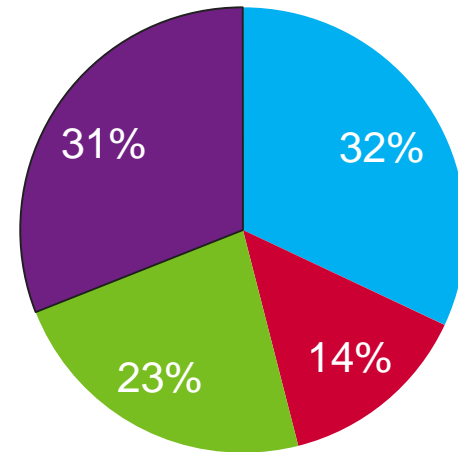


How ComEd's Customers Use Their Energy

Customers



Energy Usage



- Residential
- Small Biz (Under 100 kW)
- Medium Biz (100-1000 kW)
- Large Biz (Over 1000 kW)

✓ Business customers use 68% of total energy

- Approximately **275,000 business accounts**
- Around **250,000 small business** customers
- About **25,000 medium and large business** customers

Origin of Energy Efficiency Programs

- ✓ Part of Illinois energy legislation passed in 2007
- ✓ Investor-owned electric companies required to reduce end-user energy consumption
 - **ComEd**
 - **Ameren Illinois**
- ✓ Natural gas programs added in 2011
 - **Nicor Gas**
 - **Peoples Gas**
 - **North Shore Gas**



Why Data Centers?



Reducing energy in data centers
saves money

- ✓ Data centers can use up to 200 times more electricity than standard office spaces
- ✓ In 2013, U.S. data centers consumed nearly 100 billion kWh, roughly 2% of the country's total power consumption
- ✓ Growing demand for IT means growing demand for power-hungry data centers

Challenges in Data Centers

Data centers are often hard-to-reach customers due to:

- ✓ **Complex decision-making processes**
- ✓ **Multiple decision makers, often in silos**
- ✓ **Risk-adverse, uptime-centric approach**
- ✓ **Highly specialized operations**
- ✓ **Constant engagement in complex process required**

Overcoming Barriers in Data Centers

✓ To address the specific needs of data centers, ComEd:

- **Identified an industry-leading expert** in data center energy efficiency to develop program framework
- Built a **highly tailored offering** directly targeted at data centers
 - Separated from general custom offering to differentiate
- Leveraged **national relationships** and local support to garner interest
- Focused outreach and engineering team that can **“talk the talk”** with data center owners and operators

Key Program Designs for Success

✓ Expert engineering team

- Five Professional Engineers serve the program
- Experience in hundreds of data centers

✓ Holistic approach

- Program design adapts custom framework to data centers needs
- Interactive effects of complimentary measures are considered to optimize operations and maximize energy savings

✓ Iterative project scope development

- Program team works with data center operators to refine project scopes and maximize savings
- To accomplish this, the customer must have a high level of comfort with and trust in team's abilities

Key Program Designs for Success

✓ Focused Data Center Outreach

- Data-driven decision making – matching up the right customers with the right offerings
- Scalable measures and targeted outreach

✓ Continuous development of program offerings

- Develops measure consistent with industry trajectory
- Remains relevant and evolves with the industry, fostering innovation

✓ Year-over-year efficiencies

- Establish relationships with data center operators and service providers
- Streamline engineering processes
- Developed multiple outreach streams and incentive paths (i.e. customers, service providers, vendors)

Innovations in Program Offerings

- ✓ **Liquid Immersion Cooling:** Address the ever increasing power density in data centers and growing trend
- ✓ **UPS Eco-Mode Operation:** Provide additional incentive 'levers' to encourage adoption of advanced efficiencies
- ✓ **Solid State Drives:** Work with all end-users in data centers, including IT personnel, to promote efficient technologies
- ✓ **High Density Computing:** Expand the reach of the program to niche markets and highly specialized users
- ✓ **Compute Process Efficiency:** Provide innovative methodologies for evaluating, measuring and verifying energy savings

Program Highlights

- ✓ Created to address data centers' unique needs for reliability and 24/7 operations
- ✓ Fully funded studies available to customers who need help with a “starting point” or to internally “sell” projects
- ✓ Data center project incentives are based on actual measured kWh savings
- ✓ M&V and technical support are included at no upfront cost to customer

Program Highlights

Technical Assistance Services (TAS)

- Assessment to uncover energy projects and develop ROI

Data Center Incentive Program

- Program offering cash payment for energy saving projects

Measurement and Verification

- ✓ Robust M&V process
 - Utilizes International Performance Measurement & Verification Protocol (IPMVP)
 - Ensures maximum savings and accurate incentive payments

- ✓ Minimally invasive to customers
 - M&V plans are developed with and customized for each customer, including safety procedures
 - Building management system data is utilized whenever possible to reduce the need for physical data logger installation

Program Success

- ✓ Since the launch of the program in 2012, ComEd has seen:
 - Nearly 50 million kWh in verified energy savings and over 5.59 MW in peak demand reduction
 - Forty-four (44) projects with 25 unique customers
 - Average project size 1 million kWh
 - Repeat participation rate of 70%
 - Over three dozen data center-focused industry partners providing additional 'free' program outreach

Conclusion

- ✓ Data Centers provide an key opportunity
 - Multi-megawatt facilities are common
 - Industry is prime for energy efficiency
 - Historically underserved for EE programs

- ✓ Dedicated, targeted offering drives participation
 - Well designed programs are welcomed by end-users
 - Utility is seen as a partner and trusted resource
 - Customers come back to the program for additional support

- ✓ Programs grow and evolve with the industry



ComEd® Energy Efficiency Program

Thank You!

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