

**ENERGY CONSERVATION  
TECHNICAL ASSISTANCE UPDATE**

*January 2013 through December 2013*

**Illinois Department of Commerce and Economic Opportunity  
Illinois Energy Office  
500 East Monroe  
Springfield, Illinois 62701**

## **EXECUTIVE SUMMARY**

During 2013, the Department of Commerce and Economic Opportunity provided technical assistance to local governments and other units of government through its Energy Efficiency Portfolio of programs, referred to as Illinois Energy Now. These programs include Energy Performance Contracting; Energy Code Training, Education and Technical Assistance; and the Smart Energy Design Assistance Center (SEDAC). In addition, grants to three organizations provide additional opportunities for technical assistance through the Trade Ally Program, Application Outreach Program, and Metropolitan Mayors' Caucus Aggregation Program. Some of the highlights include:

### **Energy Performance Contracting Program**

- For over 14 years, the Energy Performance Contracting Program has provided assistance to the public and not-for-profit sectors. During this time, program staff oversaw the implementation of over \$410 million in energy efficient capital improvements through performance contract arrangements resulting in over \$129 million in combined annual savings.
- In 2013, DCEO worked on energy performance contracts with the City of Chicago, Cook County (Phase 2 Project), Metropolitan Wastewater Reclamation District, Central Management Services, City of Decatur, University of Illinois campuses at Champaign, Chicago, and Rockford, Housing Authority of Cook County, School Districts # 67,70, #115, and several other agencies.

### **Energy Code Building Industry Training & Education Program**

- Administrative Rules to adopt the 2012 *International Energy Conservation Code (IECC)* with amendments as the Illinois Energy Conservation Code were approved by the Joint Committee on Administrative Rules on December 11, 2012. The 2012 IECC is effective in Illinois, for building permits received on or after January 1, 2013.
- During 2013, DCEO partnered with International Energy Conservation Consultants, LLC. (IECC\_LLCC), to hold 32 events training 1,640 state and local code officials, engineers, architects, builders, energy raters and HVAC contractors on the Illinois Energy Conservation Code. Of the 32 total events, eleven trainings were held for 463 Illinois heating and air-conditioning contractors and code enforcement officials on ACCA Manuals 'J', 'S', and 'D' to improve right sizing of equipment in new buildings. In addition, ten training and field-inspection workshops were provided to the Chicago Department of Buildings (DoB), Bureau of Inspections (74) and Bureau of Plan Review (41), totaling 115 additional participants.
- In addition, the Department, through its grantee, IECC\_LLCC, provided code-related technical assistance in the form of 1) 412 total code interpretations (302 written letters/e-mails and 109 verbal/telephone responses) during the 2013 calendar year, 2) speaking engagements at seven Trade Ally Workshops sponsored by Ameren, ComEd and NICOR Gas, 3) fourteen keynote presentations at technical forums and trade association meetings

statewide, 4) thirty-five strategic consulting sessions to circuit municipalities across the state, and 5) multiple consulting sessions to the city of Chicago Department of Buildings, Office of Regulatory Review for the development of the City's municipal adoption ordinance.

### **Smart Energy Design Assistance Center**

The Smart Energy Design Assistance Center (SEDAC) provides advice and analyses enabling both public and private facilities in the State of Illinois to increase their economic viability through the efficient use of energy resources. During 2013, SEDAC provided:

- Technical assistance consisting of Levels 1, 2, and 3 services to 190 local government clients. These local government clients initially received technical assistance in response to an inquiry via telephone, email, or SEDAC application. For these clients, SEDAC completed energy assessments for 149 local government buildings. SEDAC also provided follow up implementation assistance (Level 4 service) to 80 local governments. SEDAC also provided outreach activities including 11 workshops and 24 presentations and trainings to local government attendees.
- SEDAC also provided Retro-Commissioning (RCx) services to local governments in Illinois. In 2013, SEDAC completed Retro-Commissioning plans and began ongoing implementation assistance for 26 local government buildings. SEDAC continued ongoing implementation assistance and verification for 26 RCx clients. SEDAC also began work on 15 new Retro-commissioning projects. SEDAC completed Mini-Retrocommissioning services for 8 local government buildings.

### **Other Illinois Energy Now Programs**

- The Trade Ally Program provides general contractors, lighting contractors, HVAC contractors, engineers, architects, energy service companies, wholesalers, distributors and retailers with the training and knowledge to help local government and other public sector clients navigate the incentive process, including completing DCEO incentive applications. There are currently over 350 active Trade Allies in the Program effectively marketing the Illinois Energy Now Program to potential end-users.
- The EEPS Application Outreach Program administered by the Illinois Association of County Board Members markets the Illinois Energy Now programs to hard-to-reach audiences, focusing on smaller municipalities across the state, and assisting those communities in obtaining energy audits and in maneuvering the Illinois Energy Now application process.
- Through the Energy Efficiency Aggregation Program the Metropolitan Mayors' Caucus (MMC), in partnership with 360 Energy Group, is identifying, qualifying, and assisting many of its 273 local government members in implementing energy efficiency projects. MMC/360 Energy Group received grants for the third year to provide administrative, technical assistance and rebates to their sub-grantees. The program started mainly for lighting incentives in ComEd service territory and has evolved to include Peoples, North Shore and NICOR service territories.

# ***ENERGY CONSERVATION TECHNICAL ASSISTANCE UPDATE***

***For the Period January 2012 through December 2012***

## **INTRODUCTION:**

The Energy Conservation Act (20 ILCS 1115) was signed into law in September 1979. The law requires that the Department provide technical assistance in the development of thermal efficiency standards and lighting efficiency standards to units of local government, upon request by such unit. The law also states that the Department shall provide technical assistance in the development of a program for energy efficiency in procurement to units of local government, upon request by such unit. The Technical Assistance Programs provided under the law are supported in part by funds provided to the State pursuant to federal acts that provide funds for energy conservation efforts through the use of building codes.

## **REPORTING REQUIREMENT:**

In August 1989 the law was amended to require that the Department issue an annual report to the Governor and General Assembly describing its authorities under this Act and describing the energy efficiency programs and projects undertaken by units of local government with the assistance of the Department.

## **PROGRAM OVERVIEWS:**

### **ENERGY PERFORMANCE CONTRACTING PROGRAM**

Energy Performance Contracting is an innovative arrangement for designing, installing and financing energy improvements where the savings achieved by the project are guaranteed to amortize the cost of the project over the term of the agreement. Energy performance contracts provide a practical means to fund many types of building improvements including new lighting technologies, high-efficiency boilers and chillers, and energy management controls. Through the Department's Energy Performance Contracting Program assistance is provided to units of state and local government, schools, and not-for profit organizations to promote the use of energy performance contracting. Services provided by the Department include:

- Competitive Procurement Process
- Comparative Evaluation Methodology
- Review and analysis of ESCO proposals
- Technical Review of Project Audits and Scope

- Review and comment on Basic Contract Documents
- Advice on Contract Negotiations
- Assistance on Evaluating Project Financing Options
- Review of Project Performance Based on Measured Savings

Under an energy performance contract an agreement is made with a private energy service company (ESCO) that will identify and evaluate energy-saving opportunities and then recommend a package of improvements to be paid for through savings. To ensure savings, the ESCO offers staff training and long-term maintenance services. Additionally, the ESCO will guarantee that project savings meet or exceed annual payments and cover all project costs. Energy Performance Contracting agreements are typically ten to twenty years in length, are adaptable to site specific needs and are best suited for facilities that have the following characteristics:

- Annual utility cost in excess of \$100,000
- Stable use of the facility for the next five to ten years
- Minimal availability of funds for energy related capital improvements
- Have accomplished minimal energy efficiency upgrades over the past ten years

Summary of Assistance:

- For over fourteen years, the Energy Performance Contracting Program has provided assistance to the public and non-profit sectors. During this time, program staff and consultant oversaw the implementation of about \$410 million in energy efficient capital improvements through performance contract arrangements resulting in over \$29 million in combined annual savings.
- Over 979 hours of technical assistance was provided in 2013 to 36 local governments, schools, universities, housing authorities and not-for-profit entities seeking assistance with considering or implementing an energy performance contracting.
- Six energy performance contract projects with a total project cost of over \$47 million were completed in 2013, and are now in the "Measurement & Verification of Savings" stage of the process. These projects are expected to save over \$ 4.6 million annually.

## **BUILDING ENERGY CODES PROGRAM**

The Department is required under the Energy Efficient Buildings Act to provide training and technical assistance on the Illinois Energy Conservation Code for both commercial and residential buildings. Administrative Rules to adopt the 2012 International Energy Conservation Code with [amendments](#) as Illinois Energy Conservation Code were approved by the Joint Committee on Administrative Rules, December 11, 2012. On January 1, 2013, Illinois became the first state to begin enforcing the 2012 IECC (as amended). The focus of DCEO Energy Code Building Industry Training & Education (BITE) programs during the 2013 calendar year was on maintaining the momentum attained during 2012, while improving upon and diversifying instructional topic centers. For instance, the “basic code awareness” and “HVAC sizing fundamentals” events were offered again in shorter, “half-day” builder/contractor breakfast

formats, which drew more from the trades. Additional topics included “Evaluating and Submitting REM/rate Designs for Compliance Assessment,” and teaching commercial energy modeling as a game founded in part upon the paper, “[\*Learning by Playing – Teaching Energy Simulation as a Game\*](#),” work developed by the Department of Architecture, Graduate School of Design, Harvard University.

### **Energy Code Building Industry Training & Education Program**

In support of the new code, DCEO partnered with International Energy Conservation Consultants LLC (IECC\_LLCC) to train 1,633 code enforcement officials, architects, engineers, builders, HVAC contractors, energy raters and other construction industry stakeholders on the provisions of the 2012 *International Energy Conservation Code* (IECC®), and corollary applications of the ANSI/ASHRAE 90.1-2010, *Energy Standard for Buildings Except for Low-Rise Residential Buildings*, (Standard 90.1).

In 2013, training events were designed to prepare the Illinois design, construction, home performance, and regulatory community for statewide implementation and enforcement of the Illinois Energy Conservation Code for privately-funded residential and commercial buildings, and state-funded buildings.

During the period 1/1/2013–12/31/2013, DCEO hosted 32 training events for 1,644 participants; an additional ten unique training and urban field-inspection workshops were provided to the Chicago Department of Buildings (DoB) Bureau of Inspections (74) and Bureau of Plan Review (41), totaling 115 additional participants. Overall, the number of participants trained in the BITE Codes 2013 totaled 1,755. The trainings had a 73% attendance rate between registrants and attendees at events (walk-ins were not registered prior to training). The average attendance was 31 participants per training, with the highest attendance at any one location reaching capacity at 174 participants.

### **Code Technical Assistance Program**

DCEO partnered with IECC\_LLCC to provide technical assistance in the form of:

1) Strategic presentations for Illinois Investor-Owned-Utilities (IOUs – Ameren Illinois, ComEd, NICOR Gas), cities (i.e., Algonquin, Champaign/Urbana, Chatham, Chicago, Elmhurst, Frankfort, Gurnee, Harrisburg, Huntley, Joliet, Lemont, Mt. Vernon, Peoria, Rockford, Du Page County and the Metro-East communities of O’Fallon, Jerseyville, St. Claire and Madison Counties), and various trade-, code enforcement-, and contractor associations.

2) Written and verbal code interpretations of current Illinois state energy code and construction statutes accessed via a web-based clearinghouse housed directly on the DCEO’s webpage (<http://www.ildceo.net/energycode>) and made freely available via a dedicated telephone hot-line to code enforcement officials and the general public Monday – Friday (excluding state and national holidays) from 8:00 am to 4:00 pm Central Time. During the period 1/1/2013 – 12/31/2013, DCEO provided code-related technical assistance in the form of 412 total interpretations (302 written letters/e-mails and 109 verbal/telephone responses), encompassing 330 person-hours for the 12-month period of performance.

DCEO also provided dedicated development and consultation services to the City of Chicago, Department of Buildings–Office of Regulatory Review, in support of proposed amendments to [Section 18-13 of the Municipal Code of Chicago](#) (i.e., Chicago Building/Energy Code), consistent with adoption, implementation and enforcement of the Illinois Energy Conservation Code statewide.

## **SMART ENERGY DESIGN ASSISTANCE CENTER**

The Smart Energy Design Assistance Center (SEDAC) provides advice and analyses enabling private and public facilities in the State of Illinois to increase their economic viability through the efficient use of energy resources. SEDAC is sponsored by the Illinois Department of Commerce and Economic Opportunity in partnership with Illinois utilities and provides valuable services at no cost to for-profit businesses and public facilities. SEDAC is managed by the College of Fine and Applied Arts at the University of Illinois at Urbana-Champaign.

In September 2008, under the Illinois Energy Efficiency Portfolio Standard (EEPS), SEDAC services were expanded to include public entities in Ameren and ComEd electric service areas. In June 2012, public entities in Ameren, NICOR, North Shore and Peoples natural gas service areas were added.

During 2013, SEDAC provided technical assistance consisting of Levels 1, 2, and 3 services to 190 local government clients. These local government clients initially received technical assistance in response to an inquiry via telephone, email, or SEDAC application. For these clients, SEDAC completed energy assessments for 149 local government buildings. These energy assessment services provide recommendations for improving energy efficiency specific to the local government building. Most are based on a site visit and include quantified energy and cost savings. In 2013, SEDAC identified potential annual energy savings from quantified energy reduction measures of 295,452 MBtu with potential annual cost savings of \$4,683,517 annually. SEDAC also provided follow up implementation assistance to 80 local governments. This service moves beyond the identification of appropriate energy savings measures to additional technical assistance needed for implementing the energy savings measures.

In 2013, SEDAC also provided retro-commissioning (RCx) services to local governments in Illinois. SEDAC offers retro-commissioning guidance by identifying quick payback measures (payback of 18 months or less) to improve the control, scheduling, and operation of energy-consuming systems to match the current functional requirements of a building. The end result is significant energy and demand savings, and in many cases, improved occupant comfort and productivity. In 2013, SEDAC completed retro-commissioning plans and began ongoing implementation assistance for 26 local government buildings. For these local government clients, SEDAC identified 286,930 MBtu in estimated annual energy savings and \$2,701,288 in estimated annual cost savings for quick-payback retro-commissioning measures. SEDAC continued ongoing implementation assistance and verification for 26 RCx clients. In addition, SEDAC began work on 15 new RCx projects. SEDAC also conducted Mini-Retrocommissioning services for 8 local government buildings. Mini-RCx projects are

structured to provide a quick review (and implementation of two major RCx recommendation areas: scheduling and indoor climate control set points. These projects are targeted to buildings that do not qualify for the regular RCx service due to building size or equipment. SEDAC identified 3,990 MBtu in estimated potential annual energy savings and \$33,821 in estimated annual cost savings for these projects in 2013 for local government clients.

In addition to direct technical assistance to local governments focused on their specific buildings, SEDAC also provided workshops and other outreach activities on energy efficiency to local governments throughout the state. In 2013, SEDAC conducted 11 workshops targeted to Illinois local governments and other building managers covering energy efficiency topics including energy-savings strategies in existing buildings, energy savings strategies for new construction, and energy efficiency implementation and management strategies. SEDAC also conducted 24 additional presentations and trainings to local government attendees and others on energy efficiency topics.

## **OTHER ILLINOIS ENERGY NOW PROGRAMS**

Grants to three organizations under the DCEO Illinois Energy Now programs provide additional opportunities for local governments in Illinois to receive technical assistance on energy efficiency. Each is briefly described below:

### **UIC-Energy Resources Center, Trade Ally Program**

The DCEO Illinois Energy Now Trade Ally Program has been created for the benefit of Trade Ally partners and their clients, forging connections that can lead to increased energy savings through the DCEO incentives. Trade Allies are general contractors, lighting contractors, HVAC contractors, engineers, architects, energy service companies, and energy-saving product wholesalers, distributors and retailers who are trained on the program to deliver more energy efficient building solutions to their public sector clients. Through a series of workshop, webinars, Trade Shows and Rallies, they are fully trained on the portfolio of energy efficiency programs and develop a solid understanding of program rules and procedures. With ongoing program support and guidance from program staff and engineers, DCEO Trade Allies can help their clients navigate the incentive process, including completing DCEO incentive applications. Unlike trade ally programs offered through public utilities, the DCEO Trade Ally Program is designed exclusively for industry professionals working with local government and other public sector clients. The participation of over 350 active Trade Allies has increased the number of applications to the Illinois Energy Now Program and thus has helped DCEO achieve its EEPS goals.

### **Illinois Association of County Board Members**

Under this project county governments and six regional planning agencies are participating in the EEPS Application Outreach Program. The program is providing technical assistance in completing Illinois Energy Now applications within the Ameren, ComEd, and NICOR utility territories. The project is marketing the Illinois Energy Now program to hard-to-reach audiences,

focusing on smaller municipalities across the state, and assisting those communities in obtaining energy audits and in maneuvering the Illinois Energy Now application process.

### **Metropolitan Mayors' Caucus**

This Energy Efficiency Aggregation Program for units of local government will assist the metropolitan Chicago area units of local government in taking advantage of every Illinois DCEO energy efficiency opportunity possible. The Metropolitan Mayors' Caucus (MMC), in partnership with 360 Energy Group, is identifying, qualifying, and assisting in implementing energy efficiency projects for some of the Caucus' 273 local member communities and former Smart Energy Design Assistance Center (SEDAC) clients. These projects will include lighting (standard & custom) and other fast turn-around measures (including some HVAC, controls, etc.) in the ComEd territory and thermal efficiency projects for North Shore, Peoples, and NICOR gas delivery customers. In 2013, the program helped 48 communities save 4,977,000 kWh; 340,000 therms; and \$605,000 in energy costs.

### **Summary**

It is important to note the Energy Efficiency Portfolio and the Energy Conservation Act complement one another in goals and energy savings. Requests for these services continue to increase as more public and private entities are focusing on energy efficiency. The Department will continue to provide technical assistance in conjunction with the Energy Efficiency Portfolio and other Department programs.