



Illinois Department of Commerce and Economic Opportunity

Electric Energy Efficiency Compliance

With 220 ILCS 5/Sec. 16-111.5B

Energy Efficiency Procurement

Program Year June 1, 2014 - May 31, 2015

July 15, 2013

Please accept this submission of the Illinois Department of Commerce and Economic Opportunity (DCEO) Illinois Energy Office’s Energy Efficiency Potential Study and Request for Applications as specified in SB 1652 and SB3811, which amended the Public Utilities Act. This submission serves the purpose of complying with the requirements of Section 16-111.5B of the Illinois Public Utilities Act (220 ILCS 5).

The Request for Applications is to enhance two existing Energy Efficiency Portfolio Standard (EEPS) programs in Electric Program Year 7 (EY -7, 2014-2015):

- IPA Street Lighting Enhancement Program\$5.00 million
- IPA Energy Savers Expansion Program (low income multi-family residential)\$2.79 million

Introduction

Sections 8-103 and 8-104 of the Public Utilities Act create energy efficiency programs that are jointly administered by Illinois public utilities and the Illinois Department of Commerce and Economic Opportunity (DCEO). Under the Public Utilities Act, DCEO is directed to administer 25 percent of the portfolio of programs and the utilities 75 percent. Amendments to the Public Utilities Act from SB 1652 and SB3811 require the electric utilities to include an analysis of additional cost-effective energy efficiency measures beyond the cost cap contained in the efficiency portfolio law in their next three-year plans. SB 1652 adds amendments to the Illinois Power Agency Act to further require electric utilities to annually submit such analyses to the Illinois Power Agency (IPA) and to conduct annual RFPs to select bids for implementing new or expanded programs beyond those allowed by the cost cap. The Illinois Commerce Commission (ICC) and IPA may approve recovery of costs for this incremental energy efficiency.

The revisions to the Illinois Power Agency Act are silent on how the directive applies to DCEO to submit the analysis of additional cost-effective efficiency or the results of the RFP to the Illinois Power Agency. The ICC has set a precedent by interpreting certain utility directives in the energy efficiency portfolio statute to apply also to DCEO. Therefore, DCEO has concluded that the new utility mandates in the Illinois Power Agency Act apply also to DCEO. For example, provisions requiring utilities to demonstrate that programs are cost-effective using the total resource cost test or to provide for an independent evaluation have been assumed by the ICC to apply equally to DCEO. In addition, during the series of Energy Efficiency Stakeholder workshops hosted by the ICC, the consensus seemed to be that DCEO may participate in this IPA procurement process.

DCEO is submitting this IPA funding request as an independent entity. DCEO has followed the IPA statutory requirements and processes and will execute any awarded funding independently of the utilities’ IPA-procured programs. DCEO plans to continue exercising its program individually and expects to be held accountable for program execution, evaluation and goal attainment separately from the utilities.

The Illinois Energy Resources Center at the University of Illinois-Chicago has completed an energy efficiency potential study for DCEO that identifies significant potential for energy efficiency beyond that funded through the energy efficiency portfolio statute. (See Appendix A for details.) The potential study specifically addresses both the street lighting and low income multi-family residential market sectors. The study estimates that there are over 1,000,000 street light fixtures in Illinois that presently consume over 1,100 GWh per year. The study estimates an overall technical and economic potential for reducing the total consumption of street lighting fixtures by 56% while improving light quality and consequently safety of the streets (using white light, which has better Color Rendering Index than the current yellow street lighting). In the low income multi-family residential sector, the study estimates that there are about 487,200 multi-family households in the state that presently consume approximately 3,900 GWh per year. In this sector, the study estimates that the overall technical potential for reducing total consumption is 39% and the economic potential for lowering total consumption is 19%.

DCEO primarily serves the public sector and low income residential sector through incentive programs, but also administers market transformation programs that serve broader commercial and residential markets. The potential for energy efficiency in low income housing, particularly multi-family rental housing, is very large, and this sector is underserved by current DCEO programs. The Energy Saver Expansion Program proposed in this submission will result in 3,769 MWh savings. (See Appendix B – Program Template “IPA Energy Savers Expansion Program”.)

DCEO has tested the use of advanced street lighting technologies under the Breakthrough Technologies Program over the last several years. Results from that program, as well as proven advances in street lighting technologies and their costs, indicated the value of including a Street Lighting Program in the EY-7 portfolio. Street Lighting is one part of the public sector that is eligible for IPA funding, and enhancing the present DCEO Street Lighting program with IPA funding would result in doubling the energy savings projected in EY -7. The Street Lighting Enhancement Program proposed in this submission will result in 29,744 MWh savings. (See Appendix C – Program Template “IPA Street Lighting Enhancement Program”).

DCEO has completed RFP processes for low income and public sector programs through its Public Sector Energy Efficiency Aggregation Request for Applications and Residential Retrofit Energy Efficiency Program Request for Applications. (See Appendices D and E.) In both cases, high quality applications were received that are either beyond what could be funded with efficiency portfolio funding or have significant potential for expansion.

Market Potential Study

Public Sector (Street Lighting):

In the market potential study, the public sector is broken down into thirteen (13) sub-sectors. The data collection and analysis is similar among sub-sectors, with the only exception being the street lighting sub-sector. Whereas other sub-sectors are characterized by standard facilities or building types that have a number of systems (such as HVAC, appliances, domestic hot water, lighting) with multiple possible

measures for each, street lighting is a much more direct switch-out with specific advanced lighting technology (such as LED).

The total electric consumption in the public sector was estimated to be 12,777 GWh, with Street lighting estimated to be 1,100 GWh or 8.6% of the public sector’s electric consumption. The following chart provides a breakdown of the total consumption in each of the 13 sectors analyzed in the study.

Sector	Consumption (GWh)
Airports	402
Community Colleges	317
Correctional Facilities	212
K-12 Schools	2,300
Libraries	190
Medical	334
Municipal	4,722
Park District	682
Police/Fire Stations	175
Public Works	121
State Universities	890
Street Lighting	1,103
Wastewater Treatment Plants	1,325
Total	12,777

The market potential study is a “quantitative analysis of the amount of energy savings that either exists, is cost effective, or could be realized through the implementation of energy efficiency programs and policies” (definition provided by the US Environmental Protection Agency). For each of the 13 sectors listed above, the study calculated the technical and economic energy savings potential.

- The technical potential is defined as the theoretical maximum amount of energy use that could be displayed by efficiency, disregarding all non-engineering constraints such as cost-effectiveness and the willingness of end-users to adopt the efficiency measures. It is often estimated as a “snapshot” in time assuming immediate implementation of all technologically feasible energy savings measures, with additional efficiency opportunities assumed as they arise from activities such as new construction.
- The economic potential is defined as the subset of technical potential that is economically cost-effective as compared to conventional supply-side energy resources. Both technical and economic potential are theoretical numbers that assume immediate implementation of efficiency measures, with no regard for the gradual “ramping up” process of real-life programs. In addition, they ignore market barriers to ensuring actual implementation of efficiency. Finally, they only

consider the costs of efficiency measures themselves, ignoring any programmatic costs (e.g., marketing, analysis, administration) that would be necessary to capture them.

The technical and economic potential simply provide an indication of just what level of savings are still available to be addressed. For street lighting, the study shows that there exists a very significant potential for advanced street lighting applications that, if implemented, could result in a 55.7% reduction in electricity consumed in that sector.

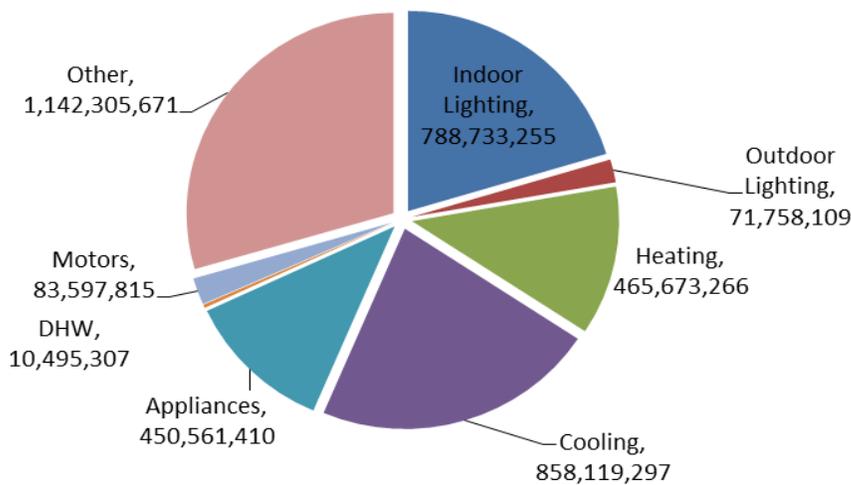
	Total Consumption	Technical	Technical Potential	Economic	Economic Potential
Electric	1,103 GWh	55.7%	614 GWh	55.7%	614 GWh

Low Income Sector (Multi-Family Residential)

In the market potential study, the low income sector is broken down into two (2) sub-sectors, namely single and multi-family sectors. The total electric consumption in the low income sector is estimated to be 7,421 GWh with the multi-family portion accounting for 3,872 GWh or about 52% of the total consumption.

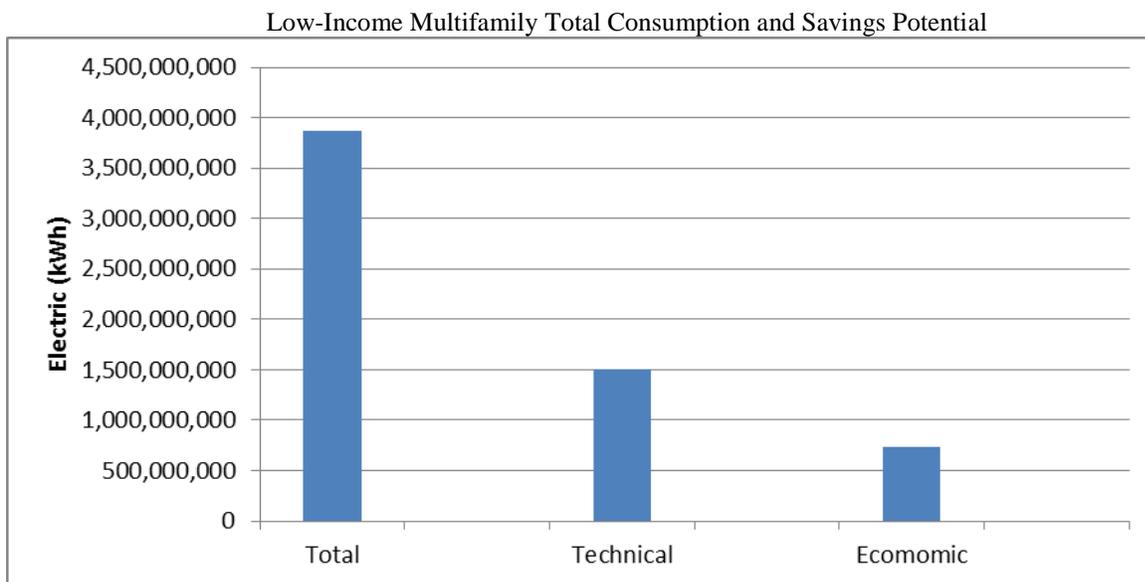
Sector	Electricity (GWh)	Natural Gas (MTherms)
Single-Family	3,550	356
Multi-Family	3,871	389
Total	7,421	745

The following chart provides a kWh breakout of the low income multi-family electric consumption by end use:



Total Electric Consumption Low Income Multi-Family Sector – 3,871 GWh

The technical and economic potential simply provide an indication of just what level of savings are still available to be addressed. For the low income multi-family sector, the study shows that there exists a very significant potential: technical potential of 39% and an economic potential of 19.1%.



DCEO Third-party Solicitation

DCEO released two Requests for Applications (RFAs) soliciting proposals from third-party vendors for energy efficiency programs. In each case, DCEO sought proposals that could be funded from its share of the Energy Efficiency Portfolio (Section 8-103 of the Public Utilities Act) consistent with DCEO's Integrated Natural Gas and Electricity Energy Efficiency Portfolio Plan submitted to the ICC, as well as new or expanded programs that could potentially be funded under Sec. 16-111.5B of the Illinois Power Agency Act. Each of the solicitations is described below.

- **Residential Retrofit Energy Efficiency Program.** The objective of this program is to leverage existing low income weatherization programs or other low income home improvement programs to maximize electricity and natural gas savings in low income residences. Funding is provided to successful applicants to retrofit existing residences with energy efficiency measures.
- **Public Sector Energy Efficiency Aggregation.** The purpose of this program is to select project aggregators that will combine electric and natural gas energy efficiency projects within the public sector in order to simplify the overall application process, quickly deliver energy efficiency savings, and capture projects that otherwise might not be submitted as standalone projects. Aggregators may combine projects within the bounds of a single municipality or among several

municipalities; they may focus on particular sub-sectors (schools, community colleges, park districts, water plants, etc.); they may focus on a full range of measures or specialize in particular measures with a large potential, such as street lighting.

DCEO received nine responses to the Residential Retrofit RFA for a total of \$10.8 million in funding requests and six responses to the Public Sector Aggregation RFA for a total of \$14.2 million in funding requests. Under the Residential Retrofit RFA, one proposal in particular sought funds far beyond what the program could fund. This was a proposal from the Center for Neighborhood Technology (CNT) seeking funds for its Energy Savers multi-family housing program. Because multi-family housing is a sector underserved by current programs, this is an area DCEO would like to find more funds to support.

DCEO had hoped to receive proposals under the Public Sector Aggregation RFA to target outdoor lighting. DCEO did not receive any such proposals with an outdoor lighting focus, other than as a part of broader projects, for example, a park district program that would address outdoor lighting opportunities in parks in addition to other efficiency measures. (DCEO did receive one proposal addressing outdoor lighting in response to its Building Industry Training and Education RFA, but the project was a research project rather an implementation project and was not recommended for funding.) Nevertheless, advanced street lighting is an area that DCEO would like to focus on for potential IPA funding.

Identification of Programs

Public Sector (Street Lighting)

IPA Street Lighting Enhancement Program EY-7

The IPA Street Lighting Enhancement Program will allow DCEO to double its implementation rate of upgrading to advanced street lighting fixtures and lamps throughout the state, achieving twice the electric savings in the planned EY-7 Street Lighting Program. The enhanced goals are 33,343 advanced fixtures/lamps installed with a projected savings of 29,744 MWh. The IPA program will provide the resources to accomplish 50% of the projected savings.

DCEO has tested the use of advanced street lighting technologies under the Breakthrough Technologies Program over the last several years. Results from that program, as well as proven advances in advanced lighting technology and their costs, have resulted in DCEO developing a Street Lighting Program to be administered as a sub-program under their Standard Program in EY-7 through 9. DCEO, in conjunction with its partners (SEDAC and ERC), will work closely with the target market sector and Trade Allies across the state to develop the required technical, cost, and energy saving data necessary to justify the investment in the retrofit projects and assist them in the DCEO application process. Technical assistance will be provided in the form of lighting assessments, plan preparation, and application development. DCEO will work with the applicants to identify other potential sources of funding (in addition to the DCEO incentives), such as the Illinois Clean Energy Community Foundation, to ensure their ability to invest in the program.

The IPA will provide 50% of the Street Lighting Enhancement Program incentive costs in EY-7, with DCEO EEPS funds providing the other 50% of the incentive costs and 100% of the administrative costs. This will allow the program in EY-7 to replace 33,343 Street Lights (24,341 in ComEd territory and 9,002 in Ameren territory) with a total estimated savings of 29,744 MWh.

Varying incentive levels will be provided based on the wattage of the advanced lamps and the energy savings potential of the lamps/fixtures. This will maximize the energy savings with the allocated budget level.

Total Budget IPA Street Lighting

	EEPS	IPA	Totals
Program Administration	\$750,000	0	\$750,000
Program Marketing	\$250,000	0	\$250,000
Incentives	\$5,000,000	\$5,000,000	\$10,000,000
Totals	\$6,000,000	\$5,000,000	\$11,000,000

For complete information on this project, please see appendix C (IPA Street Lighting Enhancement Program EY-7 Program Planning Template).

Low Income Sector (Multifamily)

IPA Energy Savers Multifamily Expansion Program EY-7

The Energy Savers Program provides a one-stop shop for owners of low income multi-family buildings. Owners are able to access technical services, financing and a pre-approved contractor pool. Typical energy savings for participants are about 30% annually. The Illinois Power Agency funding would allow the Center for Neighborhood Technology (CNT), the administrator of the Energy Savers Program, to expand its services to more multi-family building owners and to provide direct funding for additional electric efficiency measures. In addition to this expansion of services, CNT would use funding to establish its program outside of the Chicago area.

The program offers the following services:

- **Energy Assessment:** The assessment includes analysis of utility bills and a comprehensive site visit, including a visual and diagnostic inspection of the building envelope, public areas, representative living spaces and the mechanical systems, including HVAC, hot water and lighting equipment. The written report details cost and payback of each line item of a package of specific efficiency improvements.
- **Financial Guidance** The program provides financial guidance and offers access to a 3% fixed-rate, seven-year term loan through Community Investment Corporation (CIC), the financial partner. DCEO helps building owners obtain additional grants, financing or rebates that may be available through utilities or other sources.

- **Construction Support and Oversight** Owners are provided turn-key construction management and quality assurance inspections including sending out bid proposals, reviewing bids, and assisting in implementing the recommended improvements by scheduling and monitoring.
- **Monitoring, Education and Continuing Engagement** Support for building owners extends beyond the installation of energy efficiency measures to training building staff and performing ongoing analysis of utility bills to ensure long-term savings.

Total Budget IPA Energy Savers

	EEPS	IPA	Totals
Program Administration	\$92,592	\$139,238	\$231,830
Program Marketing	\$55,556	0	\$55,556
Incentives	\$1,851,852	\$2,645,523	\$4,497,375
Totals	\$2,000,000	\$2,784,761	\$4,784,761

For complete information on this project, please see Appendix B (IPA Energy Savers Multifamily Expansion Program EY-7 Program Planning Template).

Cost Effectiveness Tests

The proposed programs must meet the following cost effectiveness tests:

Total Resource Test (TRC)

Utility Cost Test (UCT)

	ComEd territory		Ameren territory	
	Program TRC	Program UCT	Program TRC	Program UCT
IPA Street Lighting Enhancement Program EY-7	1.30	1.02	1.41	1.24
IPA Energy Savers Multifamily Expansion Program EY-7	1.66	1.26	1.48	1.44

More details can be found in Appendices F and G.

Energy Savings Goals

IPA Street Lighting Enhancement Program Savings (MWh) EY-7

	Totals (MWh)
ComEd	21,715
Ameren	8,029
Totals	29,744

IPA Energy Savers Expansion Program Savings (MWh) EY-7

	Totals (MWh)
ComEd	3,153
Ameren	616
Totals	3,769

Building Codes and Appliance Standards

A final requirement of Section 16-111.5B is that the analysis of additional or expanded energy efficiency programs shall include the impact of energy efficiency building codes and appliance standards, both current and projected. On January 1, 2013 Illinois became the first state to implement a building energy code based on the 2012 International Energy Conservation Code (2012 IECC). This action affects the energy savings that can be achieved through such EEPS programs as the Public Sector New Construction Program and Affordable Housing Construction Program by changing the baseline for calculating energy savings. However, it does not affect the programs being submitted as part of this Illinois Power Agency filing. The analysis of energy savings conducted by the Illinois Energy Resources Center explicitly takes into account, where appropriate, the current building codes and any federal appliance standards in force at the time the programs will be implemented.

DCEO administers the Building Energy Code Compliance Program under its energy efficiency portfolio to meet the mandate in the statute to "present specific proposals to implement new building and appliance standards that have been placed into effect." This program also fulfills the requirement in the Energy Efficient Building Act that DCEO provide training and technical assistance on residential and commercial building energy codes. Currently, DCEO is working with the Midwest Energy Efficiency Alliance (MEEA), utilities, and other stakeholders in a collaborative effort to identify additional opportunities for improving compliance with building codes and advocating for advanced codes. A critical step in that effort is to ensure that potential energy savings from codes programs are measured and claimed as part of the energy efficiency portfolio process. DCEO's administration of the Building Energy Code Compliance

Program and efforts to expand codes-related programs in partnership with utilities do not affect the programs included in this Illinois Power Agency filing.

Summary

DCEO is seeking \$2,784,761 in funding to expand the Illinois Energy Savers Program for energy efficiency in the low income multi-family sector and \$5,000,000 to expand the Street Lighting Enhancement Program for upgrading to advanced street lighting fixtures and lamps throughout the state. DCEO's current Energy Efficiency Market Potential Study, program templates, and two RFAs are attached as appendices. In the future, DCEO may seek to expand programs for Public Housing Authorities and smaller governmental entities (if it is determined they are eligible) through the Illinois Power Agency process.